

Bulletin of the British Museum (Natural History)

Historical series Vol 4 1970-75



British Museum (Natural History)
London 1983



JOHN CRANCH
ZOOLOGISTE DE L'EXPÉDITION
DU CONGO (1816)



TH. MONOD

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HISTORICAL SERIES

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LONDON: 1970

JOHN CRANCH, ZOOLOGISTE DE L'EXPÉDITION
DU CONGO (1816)



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Pp. 1-75 ; 3 Plates, 1 Text-figure

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THE BULLETIN OF THE BRITISH MUSEUM (NATURAL HISTORY), instituted in 1949, is issued in five series corresponding to the Departments of the Museum, and an Historical series.

Parts will appear at irregular intervals as they become ready. Volumes will contain about three or four hundred pages, and will not necessarily be completed within one calendar year.

In 1965 a separate supplementary series of longer papers was instituted, numbered serially for each Department.

This paper is Vol. 4 No. 1 of the Historical series. The abbreviated titles of periodicals cited follow those of the World List of Scientific Periodicals.

World List abbreviation
Bull. Br. Mus. nat. Hist. (hist. Ser.).

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TRUSTEES OF
THE BRITISH MUSEUM (NATURAL HISTORY)

Issued 20 November, 1970

Price £2.80

JOHN CRANCH, ZOOLOGISTE DE L'EXPÉDITION DU CONGO (1816)

Par THÉODORE MONOD

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A propos du Coléoptère *Platygenia Zairica* : "Insectum in ripas Zairae fluminis Africani insalubris a Domino Cranch, pro scientiis naturalibus et entomologiâ imprimis heu ! quantum deflendo, nuper lectum".

MACLEAY

Horae Entom., I, 1, 1819 : 152

I. INTRODUCTION : JOHN CRANCH (1785-1816)

C'EST bien un peu par hasard que j'ai été amené à m'intéresser à John Cranch, en découvrant dans le fonds de manuscrits du Muséum National d'Histoire Naturelle un dossier "ms 681" contenant, à ma grande surprise, toute une série de manuscrits de Cranch, journal, liste de collections, aquarelles, etc.

J'ai pensé que la publication de larges extraits de ces documents, accompagnée de quelques renseignements biographiques, servirait utilement la mémoire d'un zoologiste un peu oublié sans doute mais qui n'en aura pas moins été le premier à faire dans le Golfe de Guinée ce que l'on appellerait aujourd'hui de l'océanographie biologique, c'est à dire ce que les voyageurs naturalistes à bord des navires d'exploration pratiquaient depuis bien longtemps sous le simple nom d'histoire naturelle.

S'il ne m'est pas possible de nommer ici tous ceux qui, en particulier en Angleterre, ont bien voulu m'aider à réunir les renseignements nécessaires, je dois en tous les cas signaler ce que je dois au Dr A. L. Rice, du British Museum (N.H.) pour toute la peine qu'il a bien voulu prendre à cette occasion¹.

John Cranch est né à Exeter (Devon) en 1785, de parents originaires de Kingsbridge, dans le même comté. Richard Cranch, son père, ouvrier foulon, avait épousé Jane Bowring. Orphelin de bonne heure et élevé à Kingsbridge par un oncle, John Cranch apprit le métier de cordonnier-bottier². A ce titre il tenait

¹ Je tiens cependant à mentionner également, sans pouvoir mentionner tous ceux qui directement ou non ont contribué à cette étude, Mr R. L. C. Gallant (Stoneycombe, Devon), le Rev. F. E. Quick (Yealmp-ton, Devon) et le Mr. A. C. Wheeler (British Museum, N.H.).

² Ce ne sera pas le dernier cordonnier de Grande-Bretagne à devenir zoologiste car Thomas Edward, de Banff (Ecosse), obéira à son tour à une vocation comparable, mais dans des circonstances plus difficiles (cf. S. SMILES, *Life of a Scotch Naturalist*, Thomas Edward, London, John Murray, 4th ed., 1877, XIX+438 p., 30 fig., 1 portrait).

échope dans les foires de la région. Son intérêt, toutefois, était ailleurs et, apparemment sous l'influence du Colonel George Montagu, dont les collections de Knowle House, Kingsbridge constituaient un véritable musée, John Cranch allait, de plus en plus, se consacrer à l'histoire naturelle : il passe des nuits entières avec les dragueurs de la côte du Devonshire, assiste le Colonel Montagu, en particulier pour l'ornithologie et publie même quelques articles de zoologie dans un périodique local, *The Weekly Entertainer* ; le Dr Rice y a retrouvé les titres suivants, dans le vol. 51, de 1811 : Natural History of the large Pinna, No. 1, March 4th ; Natural history of the Jessamine moth, No. 2, March 11th ; Natural History of the Pea Crab, No. 3, April 29th ; Natural History of the Hermit crab, No. 4, May 13th. Il semble que son mariage ait apporté à John Cranch une certaine aisance, qui allait lui permettre, en fait, de satisfaire plus largement ses goûts de naturaliste ; comme le dit, non sans un peu de descendante indulgence l'auteur anonyme de " Kingsbridge & Salcombe " (1819) : " As Mr. Cranch, after his marriage, possessed a little independence, he devoted his hours to similar [allusion au Col. Montagu] *innocent amusements*³ ".

John Cranch vendra d'ailleurs des Crustacés au British Museum, comme le fera également le Colonel George Montagu (J. E. Gray *in* White, 1847, p. v).

Par le Colonel Montagu, John Cranch s'était trouvé mis en relation avec un troisième " dévonien ", le Dr. William Elford Leach, conservateur au British Museum et par ce dernier avec le Capitaine J. K. Tuckey (août 1776-4 sept. 1816)⁴, chef de l'expédition au Congo.

Il y a, bien entendu, d'autres John Cranch, à ne pas confondre avec notre jeune zoologiste ; le plus connu est le peintre John Cranch (1751 (Kingsbridge)-1821) mais on trouve un John Cranch dans un acte du 20 avril 1691, un John Cranch, petit-fils du précédent et attorney, fixé à Bath, un autre enfin participant à des fouilles autour de Kingsbridge (Kingsbridge & Salcombe, 1819, *passim*).

Un Judge Cranch devait émigrer en Amérique, ce qui explique les relations avec la famille Cranch de deux Présidents Adams : John, et John Quincy. Le Christopher Pearce Cranch (1813-1892), pasteur unitarien, peintre et poète (Chamber's Cyclopaedia . . . , III, 1903, p. 831), sa fille Carolina A. Cranch, peintre également, et un troisième peintre américain, John Cranch (1806-1891) appartiennent-ils à la même famille ?

John Cranch était, au point de vue religieux, un " dissenter ". Nous en avons plusieurs indices sans compter la plaque de la chapelle indépendante de Kingsbridge. D'abord, dans la notice biographique du " Narrative . . . ", anonyme mais de Sir John Barrow⁵, on trouve cette assez curieuse information équivalent à admettre qu'après tout on pourrait bien, à la limite, être chrétien sans être anglican : Sir John Barrow fait allusion (in Tuckey, 1818, H a, p. LXXVII) à " . . . the gloomy view taken of christianity by that sect denominated Methodists, of which, it seems, he

³ Italiques miennes.

⁴ A en croire Sir John Bowring (Rept and Trans. Devonshire Assoc., V, p. 102) Tuckey aurait été " also a Devonian " : John Barrow cependant (1818, H a, p. XLVII) le donne comme originaire du Comté de Cork.

⁵ Anstey (1962, note 2, p. 2) attribuait le texte " probably " à John Barrow ; Sir John Bowring (Rept and Trans. Devonshire Assoc., V, 1872, p. 102) affirme cependant très clairement que l'introduction (où se trouve la notice sur John Cranch) fut " written by Mr. Barrow, Secretary to the Admiralty, for whom I furnished the materials " : on ne saurait être plus explicite.

was a member ” et ajoute (on appréciera le “ however ”) : “ He is represented, however, by his friends, as a sincere Christian, an affectionate parent, and a kind friend”. Nous avons ensuite cette allusion au non-conformisme de Cranch dans la notice des *Annals of Philosophy* (1818) : “ Unfortunately, however, he had embraced a very gloomy system of religious belief ”.

A quelle Eglise appartenait Cranch ? Était-il méthodiste (wesleyen) comme le laisse entendre Sir John Barrow ?

Fox (Kingsbridge and surroundings, 1874) signalait une plaque commémorative dans la “ Independent Chapel ” de Kingsbridge. Des renseignements fournis par le Rev. Frank E. Quick et empruntés *pro parte* à une publication de James Fairweather (1887) sur l'histoire de Kingsbridge, il apparaît :

1° que la chapelle primitive, bâtie en 1780, était presbytérienne.

2° qu'en 1791 elle est devenue “ Independent or Congregational ”.

3° que, démolie en 1858, elle se verra remplacée par un nouveau temple qui, rénové en 1891, sera détruit par un bombardement aérien en 1943.

Quand Fox écrit, en 1874, l'église où se serait trouvée une plaque commémorative n'était plus celle du temps de John Cranch : la plaque a-t-elle été transférée dans la nouvelle église ? Il s'y trouvait une plaque dédiée à Jane Cranch, la fille de John, nous apprend le Rev. Quick (qui ne mentionne d'ailleurs pas de plaque au nom de John). Seule une enquête locale permettra d'éclaircir cette question : il se peut d'ailleurs que les destructions de 1943 ne soient pas faites pour la faciliter.

De toutes façons, ce qui semble certain, c'est que John Cranch appartenait à la Congregational Church, plutôt qu'à une autre communauté non-conformiste, wesleyenne, par exemple.

En 1815 l'Amirauté britannique décide l'envoi d'une mission destinée à l'exploration du Zaïre ou Congo pour déterminer si ce fleuve représentait ou non la terminaison du Niger de Mungo Park ; placée sous le commandement du Capitaine James Kingston Tuckey (1776-1816) de la Royal Navy et disposant du sloop “ Congo ” et du transport “ Dorothy ”, l'expédition devait avoir un caractère scientifique ; aussi va-t-on recruter une petite équipe de naturalistes, composée du Professeur Christen⁶ Smith, botaniste et géologue norvégien (17 Octobre 1785-22 Sept. 1816), de Mr. Tudor, “ *Comparative Anatomist* ”, de John Cranch, “ *Collector of Objects of Natural History* ” et d'un King's Gardener de Kew Gardens, Mr David Lockhart ; à ceux-ci se joindra un certain Mr. Edward Galwey, “ Gentleman not borne on the Congo's books ”⁷, ou “ a gentleman volunteer ” (Leyden, 1817, p. 506).

Tuckey proposait comme salaires, dans une lettre du 11 janvier 1816 : £350 pour Smith et £250 pour Cranch et Tudor, ces sommes pouvant se voir respectivement portées au retour à £400 et £300. Il demandait en même temps une avance de £150 pour Smith et de £200 pour chacun des deux autres.

Cranch reçoit des “ Instructions for the Collector of Objects of Natural History ”, où un système de numérotation est proposé, utilisant 2 fils, rouge et blanc, les noeuds blancs marquant les unités, les rouges les dizaines, les rouges doubles les centaines.

⁶ Et non “ Chretien ” comme l'écrit l'Introduction de la Narrative . . . , 1818, p. LXIII, ni même, à strictement parler, “ Christian ”, *ibidem*, p. 420.

⁷ P.R.O., Adm. 1/2617/56.

Je ne sais si cet ingénieux système se verra utilisé, mais il faut par contre reconnaître que les procédés de numérotation de Cranch, tels qu'ils se trouvent transcrits dans ses listes, restent singulièrement incompréhensibles.

Cranch n'est peut-être pas de caractère très facile, s'il faut en croire Smith (H c, p. 235) : " Cranch, I fear, by his absurd conduct, will diminish the liberality of the Captain towards us. He is like a pointed arrow to the company ". Il se verra d'ailleurs quelque peu taquiné par ses compagnons, comme l'avouera Smith (H c, p. 255) : " Poor Cranch is almost too much the object of jest. Galwey [le gentleman volontaire] is the principal barterer ".

Il y a dans le journal de Cranch, à la date du 4 juin, une page en sténographie dont il serait bien intéressant de connaître la signification car si Cranch a éprouvé le besoin de dissimuler un assez long texte à la curiosité d'éventuels lecteurs, on voudrait bien en savoir la raison. Malheureusement, malgré les efforts d'un spécialiste, Mr. F. Higenbottom, City Librarian à Canterbury, le système employé n'a pas pu se voir identifié : il existerait d'ailleurs plus de 300 systèmes britanniques de sténographie . . .

Mais il est temps de laisser la parole à John Cranch lui-même, dont le journal va permettre de suivre l'activité de mars à août 1816, presque jusqu'à sa mort, par conséquent.

Rappelons que sur les 56 personnes se trouvant à bord le jour de l'appareillage (25 février)⁸, 21 ne reverront pas l'Angleterre (morts à terre : 14, à bord du " Congo " : 4, au cours de la traversée de l'Atlantique : 2, à Bahia : 1).

Cranch mourait le 4 septembre⁹ et était enterré " at Embomma [Boma] by permission of the King, in his own burial ground, where he was laid with military honours by the side of his fellow traveller Mr. Tudor, who had been interred with the like ceremony, a few days before " (John Barrow, 1818, H a, p. LXXVI)¹⁰.

Cranch laissait une veuve et une fille unique, Jane Bowring Cranch, qui a laissé une évocation, intitulée " Troublous Times " (London, 1862), de la persécution des Puritains à laquelle ses propres ancêtres (maternels ?) s'étaient trouvés associés.

J'ai dit ailleurs (1967, p. 31) qu'en fait Cranch aura été le premier à faire dans le Golfe de Guinée de la zoologie marine et même, à certains égards, de l'océanographie biologique.

Le " small net " de Cranch, " which was always suspended over the side of the vessel " (Leach, 1817, p. 294) aura été la bien modeste origine d'une lignée nombreuse d'engins de plus en plus perfectionnés et efficaces. Raison de plus pour ne pas oublier le petit filet de John Cranch et la mémoire du petit cordonnier du Devonshire enterré à " Embomma " dans le " cimetière royal " de ce village congolais.

II. LE MS. 681 DU MUSEUM ET LES AUTRES SOURCES

Le Muséum National d'Histoire Naturelle (Paris) conserve dans son fonds manuscrits un MS. 681 ainsi décrit dans le Catalogue général des manuscrits des biblio-

⁸ A savoir : 49 (officiers et équipage) + 2 (Congolais) + 4 (naturalistes + 1 (Mr. Galwey) = 56.

⁹ C'est la date donnée par Hawkins (1819) : il eût été impossible de la préciser d'après l'introduction de la " Narrative . . . " (p. LXXVII) mais connaissant la date du 4 on reconstitue : malade le 23 août entre " Cooloo " et " Inga ", rapatrié le 24 (cf. Tuckey, H b, p. 179).

¹⁰ Les sources consultées ne spécifient pas si pour le service funèbre d'un non-anglican aura été utilisée la liturgie " *Burial of the Dead* " du *Prayer-Book*. Chr. Smith, lui, aurait été, non pas enterré mais immergé dans le fleuve (L. von Buch, 1826, p. 216).

thèques publiques de France, Paris, II, 1914, p. 121 "681. Manuscrits de John Cranch sur son voyage au Congo (1816). Notes de voyage, journal et dessins. On remarque : "Remarks on animals as were observed during a voyage of discovery in the Congo expedition, with a list of such specimens as were taken and preserved [sic]"—"35 drawings or sketches of fishes from the voyage to the river Congo"—XVIII^e siècle [sic]. Papier-Liasse" (A. Boinet).

Un problème se pose, celui de l'origine de ces documents dont on se demande aussitôt comment ils se trouvent aujourd'hui conservés à Paris. Pour l'instant on ne peut guère lui imaginer d'autre solution que celle que propose le Dr. A. L. Rice (*in litt.*) : Leach¹¹ se serait vu confier les papiers de Cranch puisqu'il devait étudier les résultats zoologiques de l'expédition Tuckey : en quittant le British Museum pour le continent il aurait emporté ce dossier : l'aura-t-il prêté à l'un de ses collègues du Jardin des Plantes où il sera définitivement demeuré ? On sait que les dernières années de Leach ont été assombries par des troubles mentaux qui l'obligèrent à cesser toute activité scientifique.

Il est en tous les cas certain que Leach a eu entre les mains—et c'était normal puisqu'il avait les collections de Cranch à identifier—les papiers de Cranch ; il fait d'ailleurs explicitement allusion aux "Ms. observations made by Mr. Cranch" (1818, p. 419).

Une lettre de Mr A. E. Gunther (18-III-1969) à Mr P. J. P. Whitehead, qui a bien voulu me la communiquer, signale que Leach qui avait été à Paris en 1817 semble y être retourné, mais cette fois déjà malade et en route pour l'Italie, en septembre 1821 : serait-ce à cette dernière occasion qu'il aurait rendu visite à ses collègues du Jardin des Plantes et leur aurait communiqué les papiers de Cranch ?

L'hypothèse d'une communication par Leach à quelqu'un du Muséum des papiers de Cranch est d'autant plus plausible qu'on croit même pouvoir identifier le bénéficiaire du prêt : Blainville, en effet, signale à deux reprises (1822, p. 438 et lég. fig. 17 [pl. n. num.]) avoir emprunté une figure au manuscrit du "Voyage des Anglais au Congo". On verra plus loin (p. 64) qu'il a dû confondre deux sources (J. Sowerby et Cranch), mais cela prouve en tous les cas qu'il connaissait le dossier devenu le Ms. 681.

Il est d'ailleurs possible que Leach ait également emporté sur le Continent certains spécimens de Cranch, puisqu'aucune des espèces décrites par lui en 1830, alors qu'il avait quitté le British Museum depuis longtemps, ne figure dans les collections de ce dernier.

Les papiers de Cranch étant parvenus au Muséum on pourrait se demander si les spécimens étudiés par Leach depuis son départ de Londres ne s'y trouveraient pas aussi. Je n'ai rien retrouvé.

Le MS. 681 est un recueil d'éléments disparates, constituant, dans ma numérotation, les pièces A-G de l'énumération des sources.

A. 226×372 mm, 12 (23 p.)+1 ff. (1 p. de sténo) : "Remarks on Animals &c as were observed during a voyage of discovery in the Congo Expedition with a list of such specimens as were taken & preserved by John Cranch". Sur la couverture : "J. Cranch's Journal and lists". Cette pièce comporte 9 illustrations :

¹¹ William Elford Leach, 1790-25 Aug. 1836, Palazzo S. Sebastiano, près Tortona, Italie.

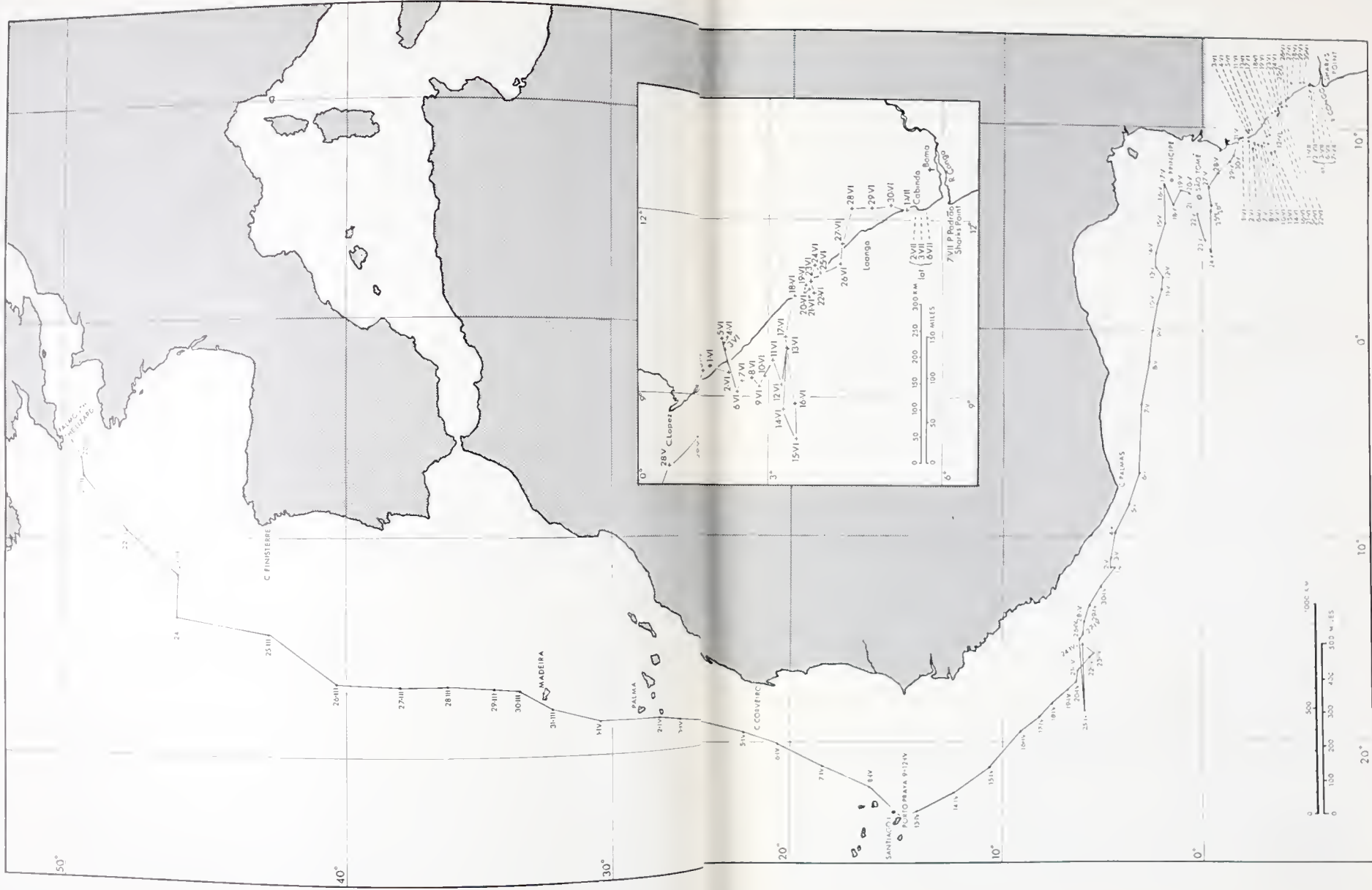


FIG. 1. Expédition du Capitaine Tuckey au Congo 1816. Routes suivies par la "Dorothy" et le "Congo" d'après les positions indiquées. Carton : routes au Cap Lopez au Congo, 28 mai-7 juillet 1816. Lieu de la séparation de John Cranch.

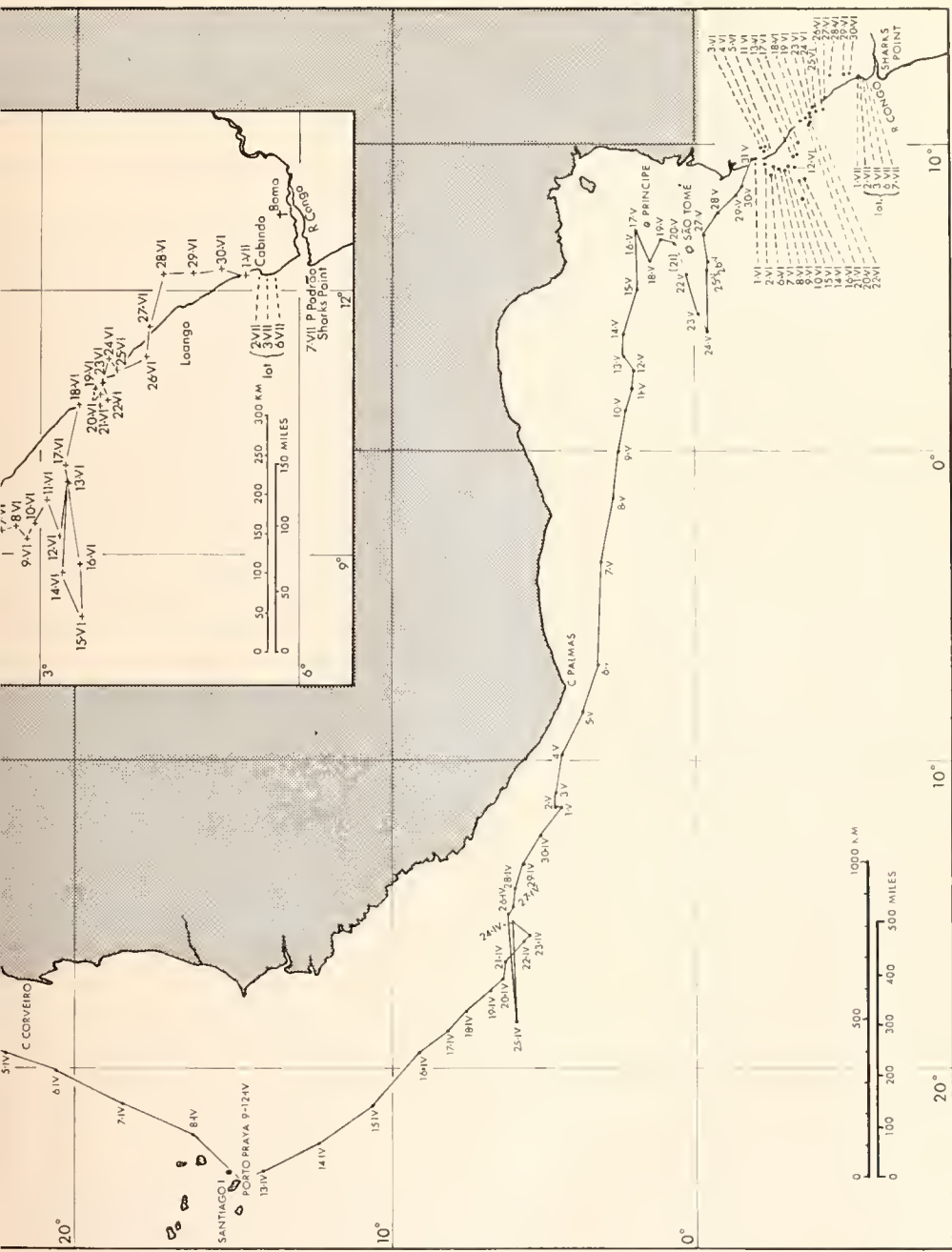


FIG. 1. Expédition du Capitaine Tuckey au Congo 1816. Routes suivies par la "Dorothy" et le "Congo" d'après les position indiquées. Carton : routes au Cap Lopez au Congo, 28 mai-7 juillet 1816. Lieu de la sépulture de John Cranch : †

- P. 10 : *Oniscus* sp. [*Nerocila trichiura*] (pl. 3, fig. 2)
 P. 11 : nageoires (1ère et 2ème dorsales, pectorale d'un thon "albacore" ; il s'agirait d'après le Prof. E. Postel, non pas de *Neothunnus albacora* mais plutôt du Patudo, *Parathunnus obesus*.
 P. 12 : a. 2 aquarelles de *Lepas* sp. [*Conchoderma virgatum*] (non reproduit).
 b. *Exocoetus* sp. (an *Mesogaster* ?) [Exocétidé juv.] (non reproduit), = C, fig. p. 27 (non reproduit) et G, n° 9 (pl. 2, fig. 1).
 c. Poisson [Gonostomatidé] (non reproduit) = C, fig. p. 27 (non reproduit) et G, n° 10 (pl. 2, fig. 3).
 P. 14 : 5 figures d'une zoé de Brachyoure (non reproduit)
 P. 16 : Poisson [jeune de *Scyris*] (non reproduit), = G, n° 12 (pl. 2, fig. 6). ou genre voisin
 P. 20 : Poisson [*Histrio histrio*] (non reproduit), = G, n° 26 (pl. 2, fig. 7).
 P. 21 : Poisson [*Balistes* sp., juv. ou Monacanthidé ?] (pl. 2, fig. 2), = G, n° 23 (pl. 2, fig. 4).

B. 204 × 318 mm, 12 p. : "Remarks on Animals &c as were observed during a voyage of discovery in the Congo Expedition with a list of such specimens as are preserved". Le texte est précédé de celui d'une lettre datée du 29 juin 1816, donc quelques jours avant l'arrivée à l'embouchure du Congo, et probablement destinée à Sir Joseph Banks (cf. p. 45) ; la liste elle-même va jusqu'au 6 août, date de la note écrite à Boma (p. 9) et où Cranch laisse percer quelque déception quant à une faune qu'il s'attendait à trouver beaucoup plus riche.

C. 1 carnet, 118 × 184 mm, 76 p., utilisé par les deux bouts et contenant :

1. journal (jusqu'au 5 juin), p. 1-13
 2. liste d'oiseaux (nos 1-21), p. 13-14
 3. 2e liste d'oiseaux (nos 1-15), p. 15
 4. 3 descriptions de Poissons, p. 17-18
 5. une note ("It might be expected. . ."), p. 18
 6. liste commentée d'oiseaux (nos 1-42), p. 19-22 : semble le brouillon de la liste B, p. 9-11 mais divers détails du document C 6 n'ont pas été repris dans B
 7. inventaire des bagages de J. Cranch, p. 41-43¹²
 8. description d'un oiseau, July 31, p. 66
 9. liste de coquilles (plus : *Echinus* et "an egg from a Hawks nest, Porto Praya) (n° 1-11), p. 68
 10. liste d'animaux (nos 1-15), p. 70
 11. liste d'oiseaux (nos 1-9), p. 72
 12. liste d'animaux (nos 1-35), p. 72-73
 13. liste d'animaux, p. 76 (en partie déchirée)
 14. dessins
- P. 9 : Poisson [indét., cf. p. 55] (non reproduit) = G, n° 2 (pl. 1, fig. 2)
 P. 19 : personnages (non reproduit)

¹² Cet inventaire, intitulé "Board the Congo. Cabin box" est en partie illisible ; je crois avoir lu, en tous les cas : 10 shirts, 2 Pairs Breeches, 2 Pieces of soap & one towell, Blue waistcoat, 5 white hanks., Blue Jacket, Black coat, Gren d°, Drawers, 1 shirt-clean, 2 p. coton stockings, 1 flannel shirt, P. Drawers, Red Cravate, 1 Flannel shirt, 1 p. Drawers, 3 waists., 2 p. Garters, night cap, tape, needle & thread, P. stockings, scissors, 2 P. gloves, three Brushes, looking glass.—Box 2 : 9 quires of Paper, 1 lb thread.

- P. 23 : Salpe [*Salpa maxima* f. *gregata*, cf. p. 69] (non reproduit)
 P. 26 : 2-3 dessins d'un Trématode (*Hirudinella* sp., peut-être d'un Thon "albicore"
 (*Neothunnus albacora*)
 P. 27 : 2 Poissons [Exocétidé juv. et Gonostomatidé] (non reproduits) = A, fig.
 p. 12 (non reproduits) et G, n° 9 (pl. 2, fig. 1) et 10 (pl. 2, fig. 3)
 P. 28 : Invertébrés divers, *Velevella* sp., larve énigmatique de Crustacé, etc., (Pl. 3,
 fig. 3 et 5)
 P. 30 : Phyllosome (*Ph. clavicorne*) et *Alima* (Pl. 3, fig. 1).
 P. 32 : 2 *Alima* (Pl. 3, fig. 6), 1 larve énigmatique de Décapode (non reproduit)
 P. 40 : Salpe [*Salpa fusiformis* f. *gregata*, cf. p. 69] et Siphonophore [cf. p. 38 et 62],
 non reproduits
 P. 44 : personnages
 P. 48 : personnages
 P. 51 : Phyllosome (*Ph. commune*) (Pl. 3, fig. 4)
 P. 56 : personnages
 P. 61 : personnage

D. carnet, 120 × 190 mm, 5 p. (écrites). Notes August 7-17 (dernière entrée :
 "Saturday 17") ; Cranch est alors sans doute déjà tombé malade ; l'écriture devient
 difficile à lire.

E. 234 × 357 mm, 5 p. : A List of specimens pres^d in spirit.—Voir chap. VI, p. 57

F. 160 × 200 mm, 4 p. : A Table of Latitudes & Longitudes taken in HMS Congo
 by Mr Fitzmaurice—Cette liste de positions est à compléter par celles que donne la
 "Narrative . . ." (H h) et le dossier P.R.O., Adm. 1/2617 : ces diverses sources ne
 donnent d'ailleurs pas toujours pour un même jour les mêmes chiffres, mais le dernier
 document cité concerne les positions de la "Dorothy" : il est probable que les posi-
 tions auront été séparément calculées, sur le "Congo" par Fitzmaurice et sur la
 "Dorothy" par Tuckey (ou Hawkey).

G. 180 × 220 mm : "35 drawings or sketches of fishes. From the voyage to the
 river Congo by Smith, Hawkie & J. Cranch".

On trouvera au chapitre V, "Les illustrations," la liste de ces dessins et aquarelles,
 à l'exécution desquels, sans qu'il fût possible d'en identifier individuellement les
 auteurs, auraient participé, avec Cranch, le botaniste Smith et le Lieutenant Hawkey
 en réalité, il semble que ce dernier soit l'auteur, sinon exclusif, du moins de beaucoup
 le plus important.¹³

Les autres sources

H. "Narrative of an Expedition to explore the River Zaire . . .", 1818, 4°, LXXXII
 + 498 p., 13 figs. n. num., 13 pl., 1 carte h.t.

H a, Introduction, anonyme [Sir John Barrow], p. I-LXXXII

H b, Captain Tuckey's narrative [jusqu'au 18 septembre 1816], p. 5-225.

H c, Professor Smith's journal [jusqu'au 9 septembre 1816], p. 229-336.

H d, General observations, p. 337-390

H e, Appendix, No. II, W. E. Leach, Observations on the Genus *Ocythoe* . . . ,
 p. 400-401, pl. XII.

¹³ Pourquoi trouve-t-on le nom de cet officier écrit ici "Hawkie". Les documents imprimés ("Narrative . . .") donnent "Hawkey", il se peut que "Hawkie" soit ici un simple lapsus calami. Les incertitudes orthographiques dans les anthroponymes ne sont d'ailleurs pas rares encore au début du XIXe siècle : Leach n'hésite pas à dédier au Prof. Smith un "*Lupa Smythiana*".

- H f, Appendix, No. III, E. Home, The distinguishing characters between the Ova of the *Sepia* . . . , p. 402-406, pl. XIII-XIV.
- H g, Appendix, No. IV, anonyme [W. E. Leach], A general Notice of the Animals taken by Mr. John Cranch . . . , p. 407-419, 1 pl. n. num.
- H h, Appendix, No. VII, anonyme [L. Fitzmaurice?], Hydrographical Remarks from the Island of St. Thomas, to the Mouth of the Zaire, p. 489-498.—Dans ce texte il faut évidemment lire : p. 489, " 27th " [May] " 5th " [June]—p. 490-495, " June " au lieu de : " May "—p. 495-498, " July " au lieu de " June ".

J. *Public Record Office* (London)

Le dossier Admiralty 1/2617 renferme une série de pièces concernant l'expédition, lettres de Tuckey, " Instructions for the Collector of Objects of Natural History ", " Memorandum of an Instruction to Captain Tuckey ", " Diary of the Route and Meteorological Diary of the Congo Expedition " (Tuckey), " Dorothy transport. Journal of an Expedition to the River Zaire by Captain J. H. Tuckey ", etc.

III. LES ROUTES

On a vu plus haut qu'une pièce F du MS. 681 fournissait une table des positions du " Congo " et que deux autres documents, la " *Narrative* . . ." et le journal de Tuckey (P.R.O. Adm. 1/2617) donnaient un certain nombre de positions de la " *Dorothy* ".

Le calendrier général de l'expédition s'établit comme suit :

Février 1816

- 22—Tuckey embarque sur la " *Dorothy* "
- 25—Appareillage
- 27—" Land gale with heavy squalls and rain "
- 28—" Fresh gale from NNW "

Mars 1816

- 3—" Gale "
- 4—" Gale "
- 7—" Received a weeks fresh beef from the contractor at Falmouth "
- 9—Lizard
- 13-15—On est encore pres de la terre (Falmouth)
- 20— $49^{\circ}17'N-6^{\circ}19'W$ at noon, $t = 46^{\circ}5$ [J]
- 21— $49^{\circ}14'N-7^{\circ}06'W$, $t = 50^{\circ}$ [J]
- 22— $47^{\circ}44'N-9^{\circ}35'W$, $t = 50^{\circ}$ [J]
- 23— $45^{\circ}57'N-11^{\circ}38'W$, $t = 51^{\circ}$ [J]
- 24— $44^{\circ}23'N-13^{\circ}32'W$, $t = 52^{\circ}5$ [J]
- 25— $42^{\circ}43'N-14^{\circ}14'W$, $t = 53^{\circ}5$ [J], par le travers du Cap Finisterre.
- 26— $40^{\circ}16'o N-15^{\circ}30'o W$ [F], [J : $16^{\circ}03'W$, $t = 54^{\circ}5$]
- 27— $38^{\circ}1'o N-16^{\circ}35'o W$ [F], [J : $38^{\circ}01' N-16^{\circ}28'W$, $t = 56^{\circ}$]
- 28— $37^{\circ}15'o N-16^{\circ}32'o W$ [F], [J : $16^{\circ}33'W$, $t = 58^{\circ}5$]
- 29— $34^{\circ}38'o N-16^{\circ}41'o W$ [F], [J : $16^{\circ}52'W$, $t = 60^{\circ}5$]
- 30— $33^{\circ}33'o N-16^{\circ}56'o W$ [F], [J : $17^{\circ}23'W$, $t = 62^{\circ}$]

31—32°17'0 N—17°51' W [F], [J : 17°42' 1/2 W, t = 63°], Madère en vue (H a, p. 10 ; H b, p. 233, et J)

Avril 1816

1—30°18'0 N—18°20'0 W [F], [J : 18°12'W, t = 63°]

2—28°15'0 N—18°23'0 W [F], [J : 18°18' W, t = 63°5], Palma (Canaries) en vue.

3—26°34'0 N—18°28'0 W [F], [J : 18°16'W, t = 65°]

4—24°13'0 N—18°51'15 W [F], [J : 18°31'W, t = 65°]

5—22°0'0 N—19°25'0 chron. (19°17'0.D) [F], [2 : 19°09'W, t = 65°]. passé le Cap Corvoeiro.

6—20°29'0 N—19°59'0 W [F], [J : 19°51'W, t = 66°]

7—18°27'0 N—21°3'0 W [F], [J : 20°55'W, t = 67°]

8—16°16'N—22°0'0 W [F], [J : 16°23'N, 21°45'W, t = non indiquée]

9—14°53'47 N—23°31'8 W [F], Porto Praya, St. Iago [F, la source J s'arrête ici]
10—12—Porto Praya

13—13°59'0 N—23°8'39 W [F]

14—12°16'0 N—22°15'27 W [F]

15—10°30'0 N—21°4'44 W [F]

16—9°0'0 N—19°20'52 W [F]

17—8°12'0 N—18°36'22 chron. (18°13'7 0 ») [F]

18—7°37'0 N—17°57'0 chron. (17°34'15 0 ») [F], [J : 7° 1/2]

19—6°49'0 N—17°13'45 W [F]

20—6°28'0 N—16°56'W [F]

21—6°18'0 N—16°24'50 W, chron. (16°44'30 0 ») [F]

22—5°43'0 N—15°41'22 W [F]

23—5°47'0 N—15°28'52 W [F]

24—6°1'0 N—14°55'0 W [F]

25—5°33'0 N—18°18'0 W [F]

26—6°13'0 N—14°44'10 W [F], [I : 6°16']

27—6°4'0 N—14°32'27 W [F]

28—5°58'0 N—13°55'47 W [F]

29—5°47'0 N—13°11'11 W [F]

30—5°5'0 N—12°20'13 W [F]

Mai 1816

1—4°35'0 N—11°25'15 W [F]

2—4°38'0 N—11°25'26 W [F]

3—4°37'0 N—10°59'40 W [F]

4—4°29'0 N—9°51'50 W [F]

5—3°53'0 N—8°28'45 W [F], Cape Palmas

6—3°19'0 N—6°52'22 W 0 »[F]

7—3°15'0 N—3°33'55 W [F]

8—2°52'0 N—1°27' 7 W [F]

9—2°34'0 N—0°0'38 W [F]

10—2°28'0 N—1°30'30 E [F]

11—2°13'0 N—1°59'0 E [F], [J : 2° 1/2 N]

- 12—2°4'0 N—23°6'0 E, chron. (2°57'0 ○) [F]
 13—2°24'0 N—3°3'15 E [F]
 14—2°25'0 N—3°48' 22 E [F]
 15—1°53'0 N—5°22'16 E [F]
 16—1°58'0 N—7°4'15 E [F], Principe en vue au SE à 12-14 *leagues*.
 17—1°48'0 N—7°14'30 E [F]
 18—1°31'0 N—6°9'45 E [F], São Tomé en vue.
 19—1°8'0 N—6°54'0 E chron. (7°26'30 ○) [F]
 20—0°41'0 N—6°48'52 E, chron. (6°18'52 ○) [F], São Tomé au S 1/2 E à SSW
 3/4 W.
 21—Pas de position indiquée [F]
 22—0°21'0 N—5°49'37 E [F]
 23—0°6'0 S—4°28'7 E [F]
 24—0°21'0 S—3°53'45 E [F]
 25—0°19'0 S—4°56'15 E [F]
 26—0°21'0 S—6°9'52 E [F]
 27—0°15'0 S—7°1'37 E [F], São Tomé de nouveau en vue, au . . . "NE". (en
 réalité, plutôt au NW?)
 28—0°38'0 S—7°50'0 E [F]
 29—1°22'0 S—8°19'0 E [F]
 30—1°36'0 S—8°46'37 E [F]
 31—1°51' S—9°25' 30 E [F]

Juin 1816

- 1—2°0'0 S—9°29'22 E [F]
 2—2°19'0 S—9°23'45 E [F]
 3—2°10'0 S—9°57'0 E, chron. (10°10'0" ○* [F] et 9°29' [Hg, p. 489] la côte
 d'Afrique en vue.
 4—2°13'0 S—9°58'7 E, chron. (9°25'37 ○) [F]
 5—2°14'0 S—9°55'15 E [F]
 6—2°26'0 S—9°3'0 E [F]
 7—2°31'0 S—9°15'7 E [F]
 8—2°41'0 S—9°16'0 E [F]
 9—2°51'0 S—9°8'52 E [F]
 10—2°58'0 S—9°21'22 E [F]
 11—3°5'0 S—9°36'15 E [F]
 12—3°14'0 S—9°12'22 E [F]
 13—3°15'0 S—9°38'0 E [F]
 14—3°26'0 S—8°47'7 E [F]
 15—3°28'0 S—8°18'15 E [F]
 16—3°27'0 S—8°52'45, chron. (9°4'0 ○) [F]
 17—3°12'0 S—9°59'30" E, chron. (10°7'30 ○) [F]
 18—3°24'0 S—10°44'30" E [F]
 19—3°40'0 S—10°54' 0 E [F]
 20—3°42'0 S—10°47'45 E [F]

- 21—3°42'0 S—10°43'15 E [F]
 22—3°42'0 S—10°53'0 E [F]
 23—3°42'0 S—10°59'0 E [F]
 24—3°34'0 S—11°13'0 E [F] (3°34' S—11°13'36'' E [Hg, p. 492])
 25—3°49'0 S—11°5'0 E [F]
 26—4°8'0 S—11°14'30 E [F] (11°15'22'' E [Hg, p. 492])
 27—4°9'0 S—11°37'0 E [F] (11°38'37'' E [Hg, p. 493])
 28—4°24'0 S—12°11'0 E [F], [1 : 4°30', devant Loango]
 29—4°44'0 S—12°14'0 E [F]
 30—5°2'0 S—12°15'30 E [F], mouillage devant Malemba Point

Juillet 1816

- 1—5°17'0 S—12°10'15 E [F]
 2—5°30'0 S— ? [F]
 3—5°37'0 S— ? [F]
 4—Au large de Cabinda (mouillage)
 5— id.
 6—5°40'0 S— ? [F]
 7—6°5' S — ? [F]

Mouillage l'après-midi devant Shark Point (P. Padrão, ou S. Antonio) sur la rive gauche de l'embouchure du Congo.

On remarquera, d'après le croquis, qu'un certain nombre de points méridiens obtenus se placent à l'intérieur des terres. Smith (Hc, p. 260) l'avait noté mais en incriminant seulement les cartes utilisées : " The longitude of this coast is very erroneously marked on the charts, so that according to the most recent, and we may suppose the best, it appeared from several good lunar observations, we should have been sailing inland to a considerable distance ". Mais comme les positions observées restent " continentales " même sur les cartes modernes, il faut bien se demander si l'erreur ne pourrait pas également provenir du degré de précision des observations.

La remontée du Congo devait se révéler difficile ; la " *Dorothy* "—" that brute of a transport " dira Tuckey—devra rester dans l'estuaire, le " Congo " et une flotille d'embarcations poursuivront vers l'amont. On est au célèbre " Fetish Rock " le 25 juillet, à Embomma (Boma) le 3 août ; le " *Congo* " restera mouillé dans la région, la flotille continuant sa route le 6 août pour remonter jusque vers Nokki, mais se verra arrêtée par les rapides de Yellala ; il va falloir abandonner la navigation et continuer, le 20 août, par voie de terre, sur Kullu et Inga ; mais les difficultés deviennent telles, à tant d'égards, que le 10 septembre, à " Soondy N'Sanga ", le petit groupe parvenu jusque là (Tuckey, Hawkey, Smith) se voit contraint de faire demi-tour pour atteindre le " *Congo* " le 17 et la " *Dorothy* " le 18.

Mais déjà sont morts : à Boma, Tudor (29 août), Cranch (4 Sept.) et Galwey (9 sept.) ; Smith mourra le 22 sur la " *Dorothy* ", puis Tuckey le 4 octobre¹⁴ et Hawkey le 6¹⁵ ; les deux navires arrivaient à Bahia le 29 octobre, après une traversée de 28 jours.

¹⁴ Le 3 *vide* Leyden, 1817, p. 507

¹⁵ Le 5 *vide* Leyden, 1817, p. 507

IV. LES TEXTES ZOOLOGIQUES

On trouvera ci-dessous les principaux textes zoologiques que contiennent les papiers de Cranch, complétés, à l'occasion, par des extraits des récits de Tuckey et de Smith.

J'ai bien entendu respecté les graphies originales¹⁶, la seule modification apportée étant la mise en italiques des noms latins d'animaux, à la fois dans les transcriptions de manuscrits et dans les citations d'imprimés, ce qui, je crois, facilitera la lecture ; j'ai dû également, parfois, préciser un peu la ponctuation.

1° *Remarks on Animals &c.*

On a vu plus haut qu'il existe deux documents portant ce titre [A, *s.d.* et B, June 29, 1816] : sans être identiques ces deux textes ne m'ont cependant pas paru mériter une publication *in extenso* séparée et j'ai donc essayé de les combiner, en suivant l'ordre chronologique, jour par jour quand cela aura été possible ; des extraits des journaux de Tuckey [H b] et de Smith [H c] sont ajoutés là où ils ont paru nécessaires.

Sans date, mais évidemment en mars, dans la Manche.

[1] "*Larus canus*, very plentiful following the ship & picking up with great dexterity any food thrown overboard".

"*Larus fuscus*, often in company with the preceding species but the proportion in number certainly not more than 1 to 10".

"About 20 miles SW of Scilly I saw 4 or 5 of a species of gulls which I conceived to be *Larus argentatus*—Also a few of *Procellaria Pelagica* & a single specimen of *Procellaria puffinus*" [A, p. 1 ; cf. B, p. 1]

". . . the Naturalists became most grievously sea-sick" (H b, p. 8).

March 20

"March 20. In the forenoon when we were about 30 miles from Land (Scilly being the nearest to us) a *Motacilla alba* flew by us & a Chaffinch¹⁷ perch'd on our rigging—Most probable these birds were blown of [*sic*] by a late gale of wind [A, p. 1 ; cf. B, p. 1].

"*Larus canus* ne disparaîtra que le 23 " when Cape Finisterre, the nearest land, was 200 miles distant" (H b, p. 8-9).

March 26

"March 26. Several of the common Porpoise¹⁸ were seen along side [A, p. 1]".

March 27**March 28**

"28. A Turtle taken & carried on board the Congo. I think the *Imbricata*¹⁹.

¹⁶ A une exception près, celle du mot bonito (pl. bonitos) dont il était souvent impossible de préciser l'orthographe manuscrite, d'ailleurs indécise, de Cranch.

¹⁷ *Fringilla Celebs* [B, p. 1]

¹⁸ *Delphinus Phocaena* [B, p. 1]

¹⁹ Logger-head (*Testudo caretta*) d'après H b, p. 9, donc *Caretta caretta* (L. 1758), ce qui paraît plus vraisemblable.

From this animal were taken several *Lepas*, which not only adhered by the peduncles to the coriaceous covering but also about the neck &c of the Turtle. No. 1. 2 on the lead & 595 & 1020 mark'd on the bottles are a few that were taken of [*sic*]. I consider them as 2 distinct species, the one perhaps the *Lepas anatifera* of Linne & the other the *Lepas membranaceus* of Montagu " [A, p. 1 ; cf. B, p. 1 : *L. membranacea*].

March 29

March 30

" 30. A few Mollusca passed along side, such as Portuguese Men of War &c but could not take any. Saw a species of gull at some distance, 2 others were also seen, we were at this time not many Leagues from Madeira. A shoal of Porpoises came along side at night " [A, p. 1 ; cf. B, p. 1 : *Holothuria Physalis*, *Salpa* &c, *Delphinus Phocaena*].

" After losing our English Gulls, two birds only were seen on the Day before making Madeira²⁰, the one a large bird resembling a raven, the other an ash coloured gull " (H b, p. 10).

March 31

Madère en vue (H b, p. 10 et H c, p. 233).

April 1

April 2

" For the last few days we have seen but little that could be considered as remarkable on the ocean. A number of porpoises tumbling about the vessel ; two large birds, the species of which, at the distance we observed them yesterday, could not be determined ; some *Medusae*, probably *Medusa pellucida*, but of which we have not been able to catch any, were all of the animal creation we got sight of. On board the Congo I saw a small whale, also a small turtle covered with two or three species of *Lepas*, which we dissected, and a small species of *Cancer*, probably the *Cancer fulgens* of Sir Joseph Banks²¹ " (H d, p. 234 : le Prof. Smith avait embarqué sur la Dorothy ; il est ici sur le Congo).

April 3

" April 3. A few *Medusae* were taken this day in a small nett I threw out along side, they were so pellucid that when immersed in salt water were scarcely discernable, each possessed [*sic*] 4 tentacula & these were very slender. From the extremity of one point to the other not above 4 inches.—A specimen also of *Helix Janthina* & a *Nautilus spiralis* were drawn up in the nett. The former shell is to [*sic*] well known to need any remark but as this had the animal inhabitant which I apprehend is not often found I shall describe it.—The animal is dusky tinged with bluish. Tentacula 4, the aperture of the mouth is strongly dentated with long curved teeth & can

²⁰ Donc le 30 mars.

²¹ *Cancer fulgens* Banks ex Macartney (*Phil. Trans.*, (100), 1810, p. 262, pl. XIV/1-2) paraît un Euphausiacé.

scarcely be withdrawn within the shell.—Took also 2 more of *Nautilus spiralis* & 2 Portuguese Men of War, & with one of the latter a small animal preserved in Bottle no. 328. Lead no. 3, which answers to the following description—Mouth central placed on the underside & surrounded with numerous tentacula, a thin membrane of a rich blue colour surrounds the margin extending over $\frac{1}{3}$ of the diameter of the shield & which probably can be [2] distended wholly over it according to the will of the animal ; the shield is elliptical, of a pale horn colour with numerous concentric tuberculated lines which are intersected by a deep marginated groove running transversely across the shell ; from the ridge of the back rises obliquely a membranaceous transparent, pyramidal [*sic*] crest, at the apex of which extend two fimbriae [*sic*] of a rich blue colour. Length of the animal $\frac{2}{3}$ of an Inch, breadth $\frac{1}{2}$ Inch, height of the pyramidal crest $\frac{1}{3}$ Inch—The generic characters agree with the *Vellelella* [*sic*] of Lamarck—On the 5 [April] we procured several more of these animals of inferior size : they were floating near the surface with the crest erect above the sea ; the tentacula extend beyond the margin ; when placed in bucket of sea water their locomotion was scarcely perceptible [*sic*]” [A, p. 1–2 ; cf. B, p. 2]
[au crayon dans la marge : No. 4 *Vellelella* 452]

“ . . . as the scientific gentlemen were now pretty well recovered from their sea sickness . . . the tow-net was put overboard and collected some of these animals, all of the *Vellelella* genus”. (H b, p. 9).

“ The towing net was now become tolerably successful, taking up from time to time various species of mollusca, such as the Portuguese men of war, (*Holothuria physalis*), *Vellelella mutica* (La Marc), *Thalys trilineata* (ib.) besides some testacea, viz. the *Helix ianthina*, with the living animal ; many dead shells of the *Nautilus spiralis*, &c specimens of all which were preserved by Mr. Cranch.

“ The *holothuria* made its first appearance on the 4th instant in latitude $24^{\circ}13'$, longitude $18^{\circ}31'$, temperature of the atmosphere at noon being 68° , of the surface of the sea 65° . These animals continued more or less abundant until past the Cape Verde islands, when they entirely disappeared ” (H b, p. 11).

“ The sea begins to exhibit a greater abundance of animals. Cranch is at length preparing to fish up whatever he can catch. In the last few days we have constantly seen and caught a great number of Portuguese men-of-war (*Holothuria physalis*) ; also a small eatable²² *Velila* [*sic*] (which I sketched) ; a *Salpa* ? which emits light and a *Medusa*, with four tentacula. On board the Congo I saw a *Loligo vulgaris*, and a fragment of a small *Nautilus*, covered by a species of *Lepas* ” (H c, p. 235, probably le 3 avril).

April 4

“ April 3²³. Taken in the nett a small species of *Cancer* mark'd among *Crustacea* No. 1 ; it is nearly allied to the *C. hexapus* of Linneus & Pennant, but evidently distinct from the form of the margin in front of the shield ; it appears a young female ” [A, p. 2 ; cf. B, p. 2].

²² Il n'y a cependant aucun doute sur l'adjectif . . .

²³ Sans doute le 4, comme l'indique B, p. 2 : “ 4. Took a small *Cancer*, very like the *C. Hexapus* of Pennant ”.

April 5

" 5. A specimen of *Oniscii* or some genera approximating to it, mark'd No. 2 " [A, p. 2].

April 6

" 5.²⁴ A number of Portuguese men of war [*blanc*] were taken this day & several hundreds were seen floating along side. Some of us were severely punished by making to [*sic*] free in examining those animals. They appear capable [*sic*] of inflicting the pain only from those filiments [*sic*] or threads which extend like the tentacula but are most probably ova ; the sensation occasioned by the wound is very similar to the sting of the common nettle but continues much longer & is more violent ; it produces considerable inflammation which does not wholly subside for some hours—The [*sic*] appear beautiful animals as they swim along on the sea ; the whole of the air bladder is raised above the surface on which is a thin membrane, erectable at the will of the animal ; this at the extreme edge on back is of a bright flesh colour & of a cuneiform figure ; the tentacula & strings of ova which radiate from beneath are of a deep blue purple colour, some of the lines of ova measured upwards of three yards—On examination of some of the parts with a microscope innumerable pellucid globules were discovered & which are probably *Medusae* on which it feeds ; the largest taken did not exceed 7 Inches in the length of its inflated bladder. A few we put in sea water had evidently the power of contracting or distending the air bag which floats them on the surface ; whether [*sic*] they possess it sufficiently to enable them to sink much below the surface I have yet had no opportunity to ascertain. "

" No. 4 lead 452 on the bottle contains several *Vellela* " [A, p. 2 ; cf. B, p. 2 : *Holothuria Physeter*].

April 7

" 5.²⁵ Many of the *Nautilus spiralis* were taken but all dead specimens ; to most of them were found attached 2 if not 3 species of *Lepas*, one of these is evidently the *L. Fascicularis* Montagu, the other to me a species unknown, unless it should prove the *L. sulcata* described & figured in Test. Britannica from a few specimens found on the Devon Coast [3]. They are preserved in bottle No. 5. The peduncle of the *Lepas* like the *sulcata* is a rich blue colour ; the edges of the valves from whence the tentacula protrude are frequently spinous & in others the spines regularly extend over the ridges of the larger valves, in a few the ridges are much more elevated than others & I am almost inclined to think this character will make sufficient distinction to separate them : at least it is a curios [*sic*] variety " [au crayon dans la marge : No. 5. Lead] [A, p. 3 ; cf. B p. 2].

April 8

" April 7²⁶. An individual of the common Flying Fish (*E. volitans*) was taken on board ; it is the first I have yet seen in so recent a state ; it is of small size, not above

²⁴ En réalité, le 6 avril [B, p. 2].

²⁵ Sans doute le 7 avril [B, p. 2].

²⁶ Sans doute le 8 avril [B, p. 2].

9 Inches in length ; the color [*sic*] of the iris white, pectoral fins 5 Inches long. Took also a species of Globe Fish : length rather more than one Inch, the inflated part of a beautiful silvery white. Irides white. Fins white, upper part of the head & Back pale blue, with 9 transverse dark blue bars across the latter ; tail white with a small blue oval patch situate [*sic*] towards the exterior end. It was alive when taken, preserved in Bottle no. 6 Lead [au crayon dans la marge : preserved in N.6 & 4 *Diodon* April 22-23]. Several of *H. Janthina* were also taken, the animals were in all of them & on being immersed in spirit emitted a beautiful purple colour" [A, p. 3 ; cf. B, p. 2-3].

" With the exception of the *Mollusca*, &c taken up by the towing net, our Naturalists had no subjects to employ themselves on since entering the tropic ; a single flying fish (*Exocoetus volitans*), the first seen, was found dead on the deck the morning of making Boavista, but neither dolphin, bonito, albicore, shark, or tropic bird was yet seen" (H b, p. 12).

April 9

Arrivée à Porto Praya, St. Iago

" 9. N. 7 Lead, contains 4 shells : I know no genera referable to their characters ; the shells are horn colour, with them were several Crustaceous Insects, 2 are nearly allied if not *Monoculii*, the N° of the Bottle in which they are is 954 [au crayon dans la marge : on addition to these shells, is a flask-shaped one taken April 17 & dec. that day. N°. 7]. This day I went on shore at a Bay a short distance from Porto Praya, St. Iago ; I collected a few shells such as fragments of Cones, among which were *C. textilis*²⁷ but did not procure one of these species alive ; took a few *Patella*, 2 species. 2 or 3 do. *Turbo* & a few *Echinii* of a species I have frequently seen in collections. Two or three *Crustacea*, one is a Land Crab ; few Insects were seen except *Gryllii* which were plentiful but not above 2 or 3 species ; I saw a pretty species of *Alcedo* but could not procure it. Likewise several of the Falcon genus and on going on shore for the first time saw the Tropic bird (*P. [haeton aethereus]*) I strongly suspect some of them breed in this Island, as we saw them fly into the holes of the Rocks at parts that are inaccessible [*sic*] to man. Eagles certainly breed here" [A, p. 3 ; cf. B, p. 3].

April 10

Porto Praya

" 10. This day procured a single specimen of the *Alcedo* I saw yesterday²⁸. The natives call it Passerine ; the Bill is orange Red ; irides dusky ; throat white ; feathers on the head a trifle elongate forming a short crest on the head & of a deep ash colour ; hind part of the neck rather lighter ; back & wing coverts black ; a line on the upper part of the back, the upper part of the tail feathers & a bar across the wings of a bright mazarine [corrigé au crayon : azur] blue ; on the primary quills a white patch ; under wing coverts & vent orange brown ; legs orange red ; length about 9 Inches. It is not an uncommon bird at Porto Praya & in its neighborhood

²⁷ *Le Conus textilis* Linné 1758 est indo-pacifique.

²⁸ *Corythacola cristata*.

& is extremely tame, suffering us to come very near as they sit on the branches of the yatrofa trees²⁹. On which they most commonly reside. I could not procure the nest although I afterwards shot several of the birds. [4] Of Eagles I saw 2 species one of which was shot by Mr Fitzmaurice from the stern of our vessel & is preserved : it is a species of Fishing Falcon ; I noticed one in the act of pouncing on his prey, it kept hovering a few seconds & then dropt with astonishing velocity in the water & snatch'd up the finny prize with great dexterity. The other Eagle is superior in size & is not uncommon around the town of Porto Praya & in the adjacent mountains : it appears bluish ash color [*sic*] on the back ; the upper margins of the wings & tail black ; I shot at 2 or 3 but was not fortunate to bring one down ; about 4 miles distant inland in one of the lofty mountains I found a nest belonging to this bird : it was built near the summit among the rocks & composed of loose sticks lined on the inside with goats hair & a few other soft materials ; in it was one egg, rather larger than a common fowls, white & almost cover'd with rust colour blotches & spots somewhat like the Kestrils ; the old bird was sitting at the edge of the Rock but flew away before I came within shot ; within 10 yards was found the nest of another Hawk, a specimen of which I shot the evening before on one of the Palm Trees adjoining the town ; this species bears some slight resemblance to the sparrow hawk but is of inferior size ; the eggs are also quite different from that bird, being more round & almost of a uniform red colour. The common swift (*Hirundo Apus*) is not uncommon in the mountains. A number of birds very similar to the common or European tree sparrow were also seen : I shot several ; it has all the habits & manners of the House sparrow, congregates together, has the chirp & other notes so similar that I really suspect is one of these birds ; they breed in some of the trees & are the most common bird on the Island ”.

“ The *Alcedo* I shot is called Passerine by the natives.

“ On the hills I killed a small bird of a buff colour ; the inhabitants call it Pastor : it is a species of Lark, *alanda*.

“ Goats are numerous but I believe they are the property of the natives : in fact their principal riches is goats, pigs, fowls with a small quantity of bullocks ; some flocks of sheep were also seen by a party who penetrated into the more fertile part of the Island than I did.

“ Guinea Hens are not uncommon in some parts of St. Jago, they are generally found in flocks, I saw one of above 50 but the [*sic*] were to [*sic*] shy to come within reach of the gun. The natives told me they lay in wait for them at the watering places which they visit once or twice in the course of the day or at the dusk of evening on the hills the [*sic*] frequent where several are sometimes killed at a shot.

“ The European Quail (*Tetrao Coturnix*) is found here but not abundant ; I did not see more than a dozen, one of which was killed.

“ Monkeys (*Simia sabaeca*) are not uncommon on some of the Rocky eminances [*sic*] inland, they are shy & extremely nimble : I saw one but he was to [*sic*] nimble for me to procure.

“ Wild cats are found here, one ran very near me just as I had discharged my fowling Piece.

²⁹ *Jatropha curcas*.

" Insects (that is many species) were scarce, but the *Grylli* were numerous, we took several, I think 3 or 4 species, but 3 of the *Coleoptera*, a few *Ichneumon* & 2 species of Bees which I found on the *Aloe perfoliata*. I saw 2 species of *Papilio*, very small, of a blue color [*sic*] but could not procure either. Many Land Crabs are on the Island, I took a small one. Shells are not [5] numerous ; one of the party took a specimen of *Ven. dione* & another a species of *Spondyli* " [A, p. 3-5].

Le texte B (p. 3) donne quelques détails complémentaires :

" Of Eagles I saw at least 2 species one of which the fishing species is procured, the other species is of large size, of an ash colour on the back, the wings tipp'd with black, 2 other species of Hawks I also noticed one of which is very frequent among the Palm trees. I procured one specimen about 3 miles in the country. I found a nest of the largest Eagle, it contained one egg ; it was built on a verge of one of the high mountains, the female was shot at but unfortunately not killed, the egg was rather larger than the common fowls & entirely covered with rust coloured spots—The Swift (*Hirundo Apus*) is common here, we saw many flying in different parts of the mountains but could [not] ascertain if they breed here, perhaps it may form a resting place for a few days during their migrations from the southward to Europe—*Fringilla domestica* is plentiful here & is equally distested [*sic*] for its destructive properties—In the higher lands I killed a small species of *Alauda* of a buff colour which the natives call pastor. Goats are numerous but all I believe the private property of the natives—Guinea Fowls are found in some of the montaneous districts, but they appeared very shy, I saw a flock of about 50 but could not come near enough to shoot them—One species of monkey (*Simia Sabaea*) is not uncommon in some of the upper parts of the mountains among the rocks, I saw 2 individuals, but they were to [*sic*] shy to get—The European Quail (*Tertrao Cortunix* [*sic*]) is scatteringly found here, one was shot to identify the species. The parts of the Island I was in were extremely barren in Insects. Except *Gryllii* I took almost every species I saw & there [*sic*] do not exceed a dozen—The fish we took in the bay were mullet & a species of Cod, but as accident upset the boat as soon as we had finished fishing I was not able to preserve a single specimen—In the bay adjoining Porto Praya town a few fish were taken amounting to above 7 or 8 distinct species—*Echinii* are very plentiful on the Rocks but mostly of one common species—a few shells were taken but none of interest or apparently of scarcity : *Spondyli*, *Venus*, *Turbo* &c were all the genera that we could refer the few species we collected " [B, p. 3].

April 11

Porto Praya

Quelques Poissons dont " a young white shark (*Squalus carcharias*), barracoota, or barracuda and grey mullet. The others we were prevented from examining by a mistake of the cabin steward, who (supposing they were selected and put by for the purpose) caused these specimens to be dressed for dinner " (H b, p. 32).

" Monkeys are offered for sale by every negro, and unless a prohibition is issued, the seamen will always fill a ship with these mischievous animals. The only species here is the green monkey (*Cercopithecus sabaeus*) " (H b, p. 35-36).

" Cranch had been rambling about the plain, and shot a number of birds. Fitz-

maurice and Galwey, on the first morning [donc le 10], had been very successful in fishing in the bay, but the boat was upset, by which they lost the fishes" (H c, p. 248).

April 12

Départ de Porto Praya

April 13

April 14

"Sunday 14. This day we saw a number of the common Flying fish along side : as far as I could observe, the principle [sic] part of their flight consists in one strong leap & the action of the pectoral fins was very limited afterwards ; the longest I saw out of the water was not above 1/4 of a minute & did not fly above 10 yards ; the greater part merely rais'd themselves a little above the surface & immediately again plunged into the sea. It was curious to observe with what apparent regularity the whole shoal rais'd at the same instant out of the sea & dissapeared [sic] together as if by mechanism ; they were of small size.—A Tropic bird (*P. [haeton] Ethereus*) flew round our vessel several times, the flight of this bird I thought was very like the common Pidgeon & at times is extremely rapid. Seamen call them the Boatswain & the common phrase is [une phrase en sténographie] ; probably the Flying Fish are its principle[sic] food—I was pleased to see a well known species of Swallow (*Hirundo Rustica*), which powers [sic] its melody from the top of our chimneys in England, fly very near us & 3 or 4 times round the ship ; it was so near as to make it impossible to mistake the species & is an additional proof (if any were now wanting) to prove these birds are seen in southern Latitudes at a season from which at a moderate computation they might arrive at the European shores soon enough for the breeding season" [A, p. 5; cf. B, p. 4]

"Many porpoises (*Delphinus phocena*), flying fish, and tropic birds were now seen, and a swallow rested on the yards when 250 miles distant from the land" (H a, p. 40 sans date).

April 15

April 16

"Tuesday 16. A number of Porpoises were seen along side this night, some were of very large size. This fish appears to me to swim with great velocity" [A, p. 5 ; cf. B, p. 4]

April 17

"Wednesday 17. Took a fish, 2 Inches. Irides silvery white. Belly & sides blueish white, dorsal fin short. Tail very long ; on the Back & sides several irregular black patches ; it is preserved in Bottles N° Lead 8.—In the same Bottle is another fish taken the next morning (18th) : colour in general deep black, tail fin white ; the dorsal fin consists of 7 spinous rays which are very slightly attached together by any membrane ; abdominal fins small but elongate, pectoral d° narrow & of small size.

Pupil of the Eye black. Irides grey. The upper Jaw is truncated and the under jaw projects much beyond it & is rather bent upwards at the end ; both jaws are arm'd with long curved fangs, the 2 in each of the exterior and of the Jaws nearly 3 times as long as any of the others ; those in the under [*jaw*] largest. The branchiae appear regular & uniform & have about 20 denticulations, the fangs in the mouth of the fish are set in triangular directions & consist of about 40 in both jaws—In the same bottle. Fish. Body very compressed, pellucid & of a gelatinous texture. Length about 8 Inches, breadth about 1/4 Inch, mouth transparent but appears rather [un mot illisible], the under jaw longest, the upper part not unlike the upper mandible of a hawk, each arm'd with numerous denticulations which incline outward ; the Eye is small, pupil & exterior edge of the Iris black ; the Iris of a bright silvery white ; it appears to posses [*sic*] but one intestinal canal which appears like a fine white cord running the whole length of the body & which on one side branches into a few very minute spotted lines that are only discernable by the aid of a Lens & are not above 1 line in length ; we took 4 of this species—In the same bottle is an animal, orbicular, mouth central & placed beneath, underside brown. Back or upper part consists of numerous contractile ridges which radiate from the center & give the exterior margin rather a denticulate appearance ; colour of the sides bluish [6], upper parts brown mix'd with purple, diam. rather more than 1/2 Inch, 4 are preserved—Small animal. Shell long oval or rather flask shaped, pellucid & white, the inhabitant has some appearance of a *Sepia*. Length 1/3 Inch, width 1/3 its length³⁰, only one taken—We took several *Crustacea* at the same time, they are preserved in the C. [abinet] drawer N^o—. Eyes placed close together. Palpi 4, articulations long, thorax oval & very spinous, the abdomen consists of 6 joints with a sharp spine on the 5 first, from the last joint extend 2 long tails which are flat & edged with red.—Took also a species of *Squalus*, length about 15 Inches, which we suspect to be new [au crayon : Now pres^d. in Bottle No. 13] ” [A, p. 5-6 ; cf. B, p. 4].

April 18

“ The towing net, which was kept constantly overboard, gave us for the first time on the 18th, great numbers of perfectly diaphanous crustacea, resembling insects of glass ; they were of four different species, and considered by Dr. Smith as belonging to the genus *Scyllarus* (La Marc, p. 156). We also took a small squalus, of a species new to us, and which from the form of its teeth may be named *Squalus serrata* ” (H b, p. 40 : date ?).

April 19

April 20

“ April 20. Took 3 fish apparently belonging to the Gen. *Chateodons* [*sic*] Length about 2 Inches. Irides yellowish white. Pupil black, upper part of the head & back dark blue green, belly silvery but ting'd with yellowish, 2 dorsal fins, the first consists of 6 rays, the 3 nearest the head largest ; behind this fin are 2 small sharp spines, from thence the other fin continues uninterrupted to the tail. The pectoral

³⁰ “ . . . width 1/2 Inch when taken ” [B, p. 4].

fins are small & tongue shaped, the abdominal fins are short ray'd but the fin extends to one half the length of the body, the thoracic fins are oval with about 6 Rays in each. pres^d. N° 9 Lead " [A, p. 6-7 ; cf. B, p. 4].

April 21

" April 21. A few fish were observed round the vessel which seamen call Skip Jacks " [A, p. 6 ; cf. B, p. 4].

April 22

" April 22. Pres^d. Lead N° 10. Fish. Body & Head black, fins nearly white, particularly the tail. Dorsal fin consists of 15 Rays, those nearest the anterior part of the back considerably longest. Pectoral fins are long but very narrow & have each about 12 rays, abdominal fin very similar to the pectoral, ventral fin of 7 rays. Tail swallow shaped, the base of the membrane alone black, upper side of the head compressed & obtuse, a hollow spine projects over each eye, under jaw is considerably beyond the upper & arm'd with about 22 fangs, the extreme ones three times as long as the others & very much curved, in the upper jaw about 20 fangs those near the extreme part of the beak very long & answer to the fangs in the under jaw, at the exterior angle of the Eye a small oval yellow patch from which proceeds a branchio [. . .] membrane which is regularly dentated on the inner margin. Length of the largest 2 Inches, breadth at the widest part of the body $\frac{1}{4}$ Inch. The body is rather compressed, the Eyes are small, the Irides white. Pupil black, from the abdominal to the Vent fin are 2 rows of small silvery round spots—In the same bottle is a small specimen of the Flying fish, probably the young of *E. volitans*, the body appears minutely speckled with grey. Length 1 $\frac{1}{2}$ Inch, taken with the preceding. Also 3 shells.—*H. Janthina*—*Cheteodon* [*sic*]. Irides yellowish. Tail tinged with flesh colour, the upper part of the back is irregularly patch'd with small black patches. The Belly particularly the part that holds the intestines is ting'd with green gold. Length about 1 Inch [quelques mots en sténographie]. The same day we took a fish, probably belonging to Gen. *Balistes*. Length 5 $\frac{1}{2}$ Inches. Colour dull olive covered with irregular white spots, pupil of the Eye black. Irides grey, pectoral fin yellowish brown, dorsal fin of 25 rays, spotted the same as the body. Tail fin nearly black with 2 rows of white spots. Ventral fin contains 20 rays, a large spinous process & a few small spines anterior to the ventral fin, pectoral fin 15 double rays, mouth very small & orbicular, palate white.—A Shark (*Squalus glaucus*) was also taken at a hook the same day, it was near 7 feet in length³¹, it was soon secured & the actions of the seamen verified the accounts I had read. The tail was soon taken of [*sic*] as the second dangerous [7] member it possessed, soon after the belly was opened & yet it continued biting any substance that was placed near its voracious jaws ; on opening it proved a female, a long string of ova were taken out & several young about 2 Inches in length, 3 of them are preserved in bottle N° 11—The demolition of this general depredator was so rapid that I had not time to examine it attentively ; such a well known species however needs few additional remarks ; as they were drawing it up from the water I saw 2 or 3 fish apparently

³¹ "*Squalus glaucus* taken, length 4 $\frac{1}{2}$ feet . . ." [B, p. 4].

adhering to it & these the seamen call pilot fish, some of them I suspect were a species of Sucker (*Echeneis*), none were however brought on the deck—Adhering to the pectoral fins of the shark were a number of *Crustacea*, perhaps *Onisci*, many of which are preserved in Bottle N° 12 & a few are in the drawer of *Crustacea* N° —. I observed none on any of the other fins tho [*sic*] probably they extend occasionally to them all." [A, p. 6-7 ; cf. B, p. 4].

April 23

April 24

April 25

"Thursday 25. This morning 2 Sharks were taken (*S.* ———), they were both of small size, the largest was not above 4 feet long, in the stomach of one was a Flying fish & in the other was a few pieces of the first shark taken this day.—Attached to one of them were 4 sucking fish (*Echeneis* [*sic*] *remora*), the largest was rather above one foot in length & the smallest about 2 Inches, the only difference [*sic*] in structure was the largest had one more stria on the back than the least. 18. 17³². The general colour of this fish is of a dingy black, the Eyes are small & dusky, pupil black, around the Irides is a narrow silver line on the margin, the under jaw projects considerably beyond the upper, both are armed with numerous curved teeth, in the under jaw the 6 first from the corner of the mouth are disposed in pairs, in the upper jaw the teeth are numerous but irregular, a second double row is disposed in the backer part or palate of the mouth—at the base of the pectoral fins & exterior margin the fin is white, anal fin contains 22 rays. Dorsal fin very near the tail. Length of this specimen 9 Inches. pres^d. in Bottle N° 13."

"A very large shoal of Porpoises were seen at some distance from the vessel this afternoon, at a moderate estimate there were many hundreds.—We also saw a few birds, but they were to [*sic*] far distant to ascertain the species but most probably Gulls or Tropic birds" [A, p. 7 ; cf. B, p. 4].

"The first bonitos (*Scomber pelamis*) were seen on the 25th, in latitude 5°53, and many cavally or shipjack [*sic*] sported after showers of rain, while flocks of tropic and other oceanic birds hovered over the riplings they caused, in order to seize the flying fish frightened from their element" (H b, p. 41).

"Our only amusement now was the taking of sharks, all of the white species (*carcharias*), except one of the blue (*glaucus*), and the only one seen during the passage ; the largest of the former was a male, ten feet long, the latter a female impregnated, seven feet long ; she was unattended either by pilot-fish or sucking-fish, while the white sharks had many of both accompanying or attached to them" (H b, p. 41, pas de date).

April 26

"Friday 26. A white shark taken this morning about 4 feet long, we also hooked another of larger dimensions but this fellow had the fortune to escape. 2 Baracota or

³² Donc probablement *Remora remora*.

Albicores past along side, one of which was harpooned but afterwards got of [*sic*]; several Dolphins were seen at the stern but none taken.—We saw a few³³ of the Stormy Petrel (*P. Pelagica*):” [A, p. 7].

April 27

“Saturday 27. Two white Sharks³⁴ taken. A flock of Tropic birds passed near us, a few stormy Petrels were seen” [A, p. 7].

April 28

“Sunday 28. A few stormy Petrels were seen & Albicores & a small white Shark was taken” [A, p. 7].

April 29

“Monday 29. Tropic birds. Took a few *Crustacea* pres^d. in No. 12 & 2 *H. [elix] Janthina* & 3 small soft animals (Mollusca)” [A, p. 7; cf. B, p. 5].

April 30

“Tuesday 30. Three Mollusca. Three black fish with white fins, the same as be-[8]fore pres^d. in bottle N° —” [A, p. 7–8].

May 1

“May 1. Took in the nett 2 specimens of shrimp answering this description. Antennae more than twice the length of the body, composed of 2 long joints³⁵ at the base (on which are several sharp spines) and from thence consist of numerous fine articulations & which enlarge near the apex into an oval form, or not unlike the bowl of a tea spoon, each of the fine joints have a slight spine. The Eyes are black & pedunculated but the peduncle is very short, projecting over each Eye is a short spine & immediately behind which are two others; the sides of the thorax are smooth but raise in a ridge on the back, the first part of the Palpi is composed of 3 joints which are rather large & these are divided into 2 parts, that nearest the internal part of the antenna largest. Legs 10. The anterior & posterior pairs much the shortest, nails simple & sharp & of moderate length. Legs uniform in structure. Abdomen of 7 joints, the tail one largest which is rounded with an entire margin. Colour nearly white or very pellucid excepting the sides of the abdomen which are tinged with red & the extreme or spoon shaped part of the antenna which are brown. Length 1 Inch, bread[th] at the thorax about 1/3 the length—*Squalus*³⁶ the same species as before noticed & pres^d. in Bottle N° 11. This is of smaller size” [A, p. 8; cf. B, p. 5 et C, fig. 1, p. 32, non reproduite].

May 2

May 3

“May 3. Saw a shoal of Grampusses, within a few hundred yards of the vessel, some of them appeared of large dimensions—Took a small specimen of the Pilot

³³ “Three or 4 . . .” [B, p. 4]

³⁴ “Two sharks (*S. characias* [*sic*] taken” [B, p. 4].

³⁵ “3 long joints . . .” [B, p. 5].

³⁶ “*Squalus* supposed new” [B. p. 5].

fish³⁷, length about one Inch, it is pres^d. in bottle N^o glass 1909 " [A, p. 8 ; cf. B, p. 5].

May 4

" May 4. This day we saw many Tropic birds in flocks & some were floating on the surface of the sea & others were darting with great velocity apparently on fish near the ream [*sic*] of the water ; with these birds was also seen a large brown bird with a very long fork'd tail, which was supposed to be *Pel. aquilus*³⁸ or the Frigate bird, it came more than once within 200 yards of us, but the apparent expanse of the wings did not appear to me to be within many feet of what it is said this bird possesses [*sic*] (14 feet) & I should think 8 feet rather beyond that under the extent of the wings in this individual, it flew with great ease & swiftness & at times appeared almost stationary in the air as some species of Falcon do. It frequently darted down among the Tropic birds as if to attack them, or more probably to take from them any finny prey they had taken—Numbers of Flying & other fish were seen around were [*sic*] this bird & the Tropic bird were congregated together.—Some few Bonitos & Skip Jacks were seen round us " [A, p. 8 ; c.f. B, p. 5].

May 5

" May 5. A specimen of the Albicore (*Scomb.* —³⁹) taken by one of the seamen, I think it was rather upwards of 20 pounds & more than 2 feet long ; an immense shoal of Skip Jacks & other fish were seen at a little distance from the vessel " [A, p. 8].

" A large shoal of the bottle-nose porpoise or dolphin of naturalists (*Delphinus delphis*) was seen ; flocks of tropic birds, and a few men-of-war birds (*Pelicanus aquila*) now also accompanied our course ". (H b, p. 43).

May 6

" May 6. Two or 3 Albicores & Bonitos were caught this morning at the [9] bows of the vessel by the seamen ; one was taken with a grain a species of harpoon, which is fastened to end of a pole to which is added a quantity of lead to make the weapon more heavy & powerful. The others were caught at a hook baited with a rude resemblance of a Flying fish & which is allowed by the fisherman just so skim the surface of the sea. The fish taken were inferior in point of size to the one we yesterday procured. They both appear at first sight very nearly connected, the Albicore (*Scomb. Thynnus*) answers this description :—First Dorsal fin consists of 14 Rays, the three first considerably largest, the sides of each ray strongly tinged with orange, on the back is a sulcus or groove immediately below this first fin & which is capable of receiving the whole of the rays which the fish can at will compress within it & it is most commonly in this position on the death of the animal ; immediately behind this is another dorsal fin which consists of 13 close set & thick rays, this fin is also ting'd with orange on the exterior margin, from this to the tail are 8 small

³⁷ *Gasterosteus ductor* [B, p. 5].

³⁸ *Pelicanus Aquilex* [B, p. 5].

³⁹ *Scomber Thynnus* [B, p. 5].

spurious fins which in their recumbent state appear triangular in form but on being rais'd the base appears much narrowest & the fin gradually widens to the exterior edge in an irregular form to the exterior edge, these fins are placed nearly equidistant from each other & occupy the whole space between the second dorsal fin & the tail. The tail is large & crescent shaped & has at least 40 rays, the last 6 on each side considerably largest, on each side the tail is a lozenge wedg'd shaped membrane that projects from the sides & extends to the 2nd spurious fin ; the pectoral fins are scythe shaped & long & consist of 34 rays each, the fish has a groove on the side of the body, that receives this fin into it nearly its whole length, they were about 5 Inches long, the ventral fins are placed rather behind the pectoral & consist 6 strong short rays each, the anal fin has 13 rays which are placed very close to each other & guarded with a strong thick membrane, behind this are 8 small spurious fins, these as well as the fins on the opposite side of the back are strongly ting'd with orange. Eyes are large. Pupil black. Irides silvery, in some lights appear tinged with gold, the jaws are armed with a single row of small curved teeth & the upper part of the roof of the mouth is filled with very minute bony denticulations & which feel very rough to the touch of the finger. Branchiae 7. Colour of the fish in general of a deep blueish on the back, tinged with purple & other shades, sides very light brown, shaded with about 20 transverse white lines or stripes across the belly & sides, the number is however variable in different specimens, sides & head of the fish nearly smooth, the scales on the back are very small, but are larger near the base of the pectoral fins.—Length of this specimen about 2 feet, circumference [*sic*] at the largest part 16 Inches.—The Bonito differs from the former in a few particulars⁴⁰, the colour of the fish is nearly the same except the fins of this are very slightly if at all tinged with orange.—The first dorsal fin has 16 instead of 14 rays & there are but 14 spurious fins, 7 on each side the tail, the sides of this fish are more silvery & have 4 dark stripes on each, which extend the whole length of the body. The Pectoral fins are also shorter. But one strong specific character which Capt. Tuckey observed is in the roof of the mouth which in this species is quite smooth.—From the stomachs of some of these fish were taken a few flying fish, I believe their most common food.—& 2 other kinds of fishes, one was a small Globe fish.—They appear very active fish in the water & very tenacious of [10] life : that one lived for an hour after it was emboweled.—Those we had dressed were dry & rather strong tasted, very far inferior to the common Mackerel.—We this day saw a great number of Tropic Birds & 4 or 5 of the Frigate birds, but not apparently larger than the former in size, not. May 4. One of these was seen to pounce at & take a Flying fish as it was leaping from the sea " [A, p. 8-10 ; cf. B, p. 5].⁴¹

⁴⁰ D'après Tuckey (H b, p. 44) l'Albicore aurait 8/8 pinnules et le Bonito 8/7.

⁴¹ En ce qui concerne l'identification des Sombres rencontrés par Cranch, on peut admettre que son " albicore " est notre " albacore ", thon à nageoires jaunes ou Yellowfin (*Neothunnus albacora*) tandis que le " bonito " est la Bonite à ventre rayé (*Katsuwonus pelamis*) ; ces deux espèces, me signale E. Postel, se rencontrent souvent ensemble et dans la proportion signalée par Cranch ; d'autre part, il se trouve, me fait remarquer E. Postel, que la figure de la pectorale de l'Albicore de Cranch (A, p. 11) semble en fait être celle d'un Patudo (*Parathunnus obesus*), espèce dont on peut trouver des individus mélangés aux bancs d'albacores et dont les jeunes sont difficile à distinguer de ceux de ces derniers : Cranch, par conséquent, qui ne voyait depuis deux semaines que des albacores, sera tombé sans le savoir, le jour où il veut dessiner une pectorale d'albacore, sur un patudo. Quant au " cavally or shipjack " (H b, p. 41) ou " Skip Jacks " (A, p. 6 ; B, p. 4) on ne peut rien en dire, faute d'éléments d'identification.

May 7

" Tuesday 7. Took a specimen of *Ex. volitans* in the nett along side ; adhering to the pectoral fin was a species of *Oniscii*. Length 1 Inch, breadth 1/4 do. Body oval composed of 7 segments, the 4 & 5 from the head rather the widest. The tail consists of 6 joints & is not above 3/4 the width of the body & at the extremity is rounded & on its sides are 2 appendages, each has a joint from which issue 2 hooked points, these are about 1/8 on an inch in length, affixed to the body are 14 Legs 7 on each side, the 6 & 7 more distant than the anterior ones, the Legs consist of 3 joints or divisions, the first entire, the second has 3 small round articulations & is terminated by a simple hooked claw. The antennae are 4 & are rather strong for this genus, they consists [*sic*] of 5 articulations each & taper to the point, the head is rather truncate at the point or lip & a small obtuse spine projects over each eye. Eyes black & oblong. Colour dirty blue tinged with brown & the margin of each segment lightest. —If it proves a new species I propose the specific name of *volitans*. A sketch is given of this Insect below [lég. en sténographie]⁴². We this day saw also several Albicores & Bonitos. Also took a few Crustacea & which are preserved in Bottle Glass No. 1909 " [A, p. 10 ; cf. B, p. 5].

May 8

" Wednesday 8. A species of fish taken, it is pres^d. in Bottle 1909, length when taken about 8 Inches " [A, p. 10 ; cf. B, p. 5].

May 9

" Thursday 9. Numbers of Bonitos & Albicores were seen around us & 2 small Flying fish were drawn in my net (*E. volitans*) " [A, p. 10 ; cf. B, p. 6].

May 10

" Friday 10. An immense shoal of Albicores & Bonitos came almost alongside, there were some thousands.—A few Tropic & other birds were seen.—At night great numbers of fish were close to our stern but apparently at great depth, it was suspected they were flying fish " [A, p. 10 ; cf. B, p. 6].

" From the third to the tenth of May we had a southerly wind, that carried us far into the Bay of Guinea. Innumerable shoals of fish of different kinds, but chiefly Albicore and Bonitos, were swimming in all direction. Every day some of them were caught. Flocks of birds belonging to the tropical regions and now and then some men-of-war birds were seen " (H c, p. 255-256).

May 11

" Saturday 11. Took a few common flying fish⁴³ with several of the long compressed fish pres^d. in 1909, probably the former were part of the shoal we saw the night before under our stern " [A, p. 10].

⁴² Cf. Pl. III, fig. 2.

⁴³ " they were of small size " [B. p. 6].

May 12

" Sunday 12. A Bird about the size of a Jackdaw flew several times near the vessel & we thought it would perch on the rigging.—The plumage appeared nearly black. Seamen called it Booby (*Pelicanus*)⁴⁴.—A white Shark taken 6 feet long.—Saw a few stormy Petrels " [A, p. 10 ; cf. B, p. 6].

May 13

" Monday 13. Several Bonitos & Albicores were seen & a few taken.

[11 : figures de la 1^e et 2^e dorsales et de la pectorale de l' " Albicore " = il s'agirait ici d'après E. Postel du Patudo ou Big Eye, *Parathunnus obesus*]. "

[12] [2 aquarelles d'un Cirripède pédonculé (= *Conchoderma virgatum*)] : " this species of *Lepas* was nearly membranaceous the 4 accessory valves small, those near the apex very minute, the others at the sides of the mouth triangular & very white, the general colour was bluish, the peduncle much the darker with 3 darkish brown stripes on each side. "

" A species of Flying fish distinct from *E. volitans* was sent from the Congo for examination. The abdominal fins consist of 6 rays. Pectoral fin about 18 rays but so mutilated it was impossible to ascertain the length or form, ventral 6, behind the ventral fin 9 or 10 long bristly spines probably the rays of a fin.—Dorsal fin situate [*sic*] near the tail with a slight membrane connecting the rays at the base, 12 rays.—Tail similar to *E. volitans* with at least 5 transverse bars on it—This fish has 2 singular thread like appendages to the under lip which are full $\frac{4}{5}$ as long as the Body & taper towards the extremity, the pectoral & ventral fins are much further behind in this than in the common Fly⁸. fish, length not above 3 Inches.—Is it *E. Mesogaster* ?⁴⁵ "

" With the above fish was also another answering this description. Pectoral fin of 6 small rays & situate just below the gills.—Dorsal fin near the tail, of 8 rays, the anterior ones longest. Ventral fin has 12 rays.—From the gills to the vent are 4 distinct rows of tubercles, two on each side the line of the belly, consisting of about 24 in each row ; from the commencement of the ventral fin to the tail are 2 Rows of tubercles which in this specimen consist of 15 on each side, from the posterior part of the vent [ral] fin to the tail fin, the body of the fish continues of nearly equal size, the tail is rather forked & appears as if it had been spotted. The mouth is furnished with a single row of very small teeth.—Length of the fish 1 $\frac{1}{4}$ Inch ; breadth at the widest part $\frac{1}{4}$.—Never since taken this species but mutilate—full 2 Inches long. I suspect the spots or tubercles in row [?] are variable " [A, p. 10, 12 ; cf. B, p. 6 et pl. II, fig. 1 et 3].

May 14

" Tuesday 14. Many albicores & Bonitos seen & a few taken. At night 2 birds, a species of the Lin. *Pelicanus* were taken by the seamen on the ship, they call them Booboes⁴⁶, they answer this description. Bill black 2 Inches long from the base of the

⁴⁴ Sans doute *Sula leucogaster*.

⁴⁵ Apparemment un *Cypselurus* juv., cf. pl. 2, fig. 1.

⁴⁶ " 2 birds caught on the rigging, these proved to be *P. soola* of Linneus & the common name they are known to seamen by is Booby " (B, p. 6) : *Sula leucogaster* (immat., car le ventre blanc ne semble pas décrit).

mandibles & rather bent towards the point, margins smooth, tongue long & horny, at the corner of the mouth just at the inner edge there is a patch of orange yellow but this is not discernable until the mouth is partly open, the nostrils are open & full $1/4$ of an inch in length & divide a groove by the side that seems full $4/5$ the length of the upper mandible, the under mandible is slightly carinated full $3/4$ of its length.—Irides dark brown, the front of the head at upper base of the bill is nearly white but increases in shade at the top were it becomes a fine light grey. The feathers surrounding the eyes on the lower sides form a line of perfect white which continues to the posterior angle of the eye were [*sic*] it is interrupted by a small black patch, it commences again on the upper side of this spot [13] and continues to the front of the head. The whole plumage besides is of a fine deep brown, the primary quill feathers nearly approaching to black ; the under wing coverts rather lightest.—Tail feathers 12, considerably rounded.—Length from the beak to the extreme end of the tail 16 Inches.—Expense of the wings 2 feet 8 Inches.—Weight about 7 ounces.—Legs rather short & small but webb'd almost to the claws, the middle claw is slightly serrated on the inner side.—The female differs from the male only in the colour on the head which is much less white on that part " [A, p. 12-13].

" The bird named booby (*Pelicanus sula*) now frequently settled on the yards in the dusk of the evening, and two of them were taken ; the external characters of these birds seem by no means to authorize their being placed in the genus of Pelican. Of the two individuals now taken, the largest measured 18 inches from the point of the bill to the extremity of the tail, and weighed seven ounces ; the plumage a rusty brown, deepest and rather glossy on the upper side of the wing quill feathers, the crown of the head only being of a dove colour, lightest towards the forehead. The upper sides of the wing quill feathers black, the under side a dirty white ; the bill conical, slightly curved ; the nostrils very open, being two wide longitudinal slits on the sides of, and about the middle of the upper mandible ; the eye a dark brown approaching to black, surrounded by a [p. 47] circle of minute white feathers ; three toes full webbed, the fourth toe behind very small, and quite free ; bill and legs black. This specimen on examination proved to be a full grown male.

The second specimen, which was found to be a young female, was somewhat less than the first ; the dove colour on the crown of the head was deeper, nearly mixing with the general brown ; and the circle of minute feathers round the eye was black ; it differed in no other respects from the male. These birds were observed generally in pairs ; they fly close to the water with the neck stretched out and the tail spread " (H b, p. 46-47).

May 15

" Wednesday 15. Numbers of Albicores were around the vessel not less than 31 were taken (Alb. & Bonitos) by the seamen but they were generally of small size " [A, p. 13 ; cf. B, p. 6].

" A number of brown —⁴⁷ indicated that we were not far from land ; and on the 16th in the morning, we came in sight of Prince's island . . . " (H b, p. 256).

" The swarms of albicore round the ship were now such as almost to justify the

⁴⁷ Le mot n'a pu être lu par l'éditeur : il y avait sans doute " boobies ".

hyperbole of their obstructing the ship's way ; and twenty a day was the usual success of our fishery with hook and line, the flying-fish found within them serving as bait. The proportion of bonito appeared to be small, not one being taken to 10 albacores " (H b, p. 47, sans date mais avant le 16 mai).

" After passing Cape Palmas and entering the Gulf of Guinea, the sea appeared of a whitish colour, growing more so until Prince's island, and its luminosity also increasing, so that at night the ship seemed to be sailing in a sea of milk. In order to discover the cause of these appearances, a bag of bunting, the mouth extended by a hoop, was kept overboard, and in it were collected vast numbers of animals of various kinds, particularly pellucid *Salpæ*, with innumerable little crustaceous animals of the *Scyllarus* genus attached to them, to which I think the whitish colour of the water may be principally ascribed. Of Cancers, we reckoned 13 different species, eight having the shape of crabs, and five that of shrimps, and none more than a quarter of an inch in length ; among them the *Cancer* [p. 49] *fulgens* was conspicuous. In another species (when put into the microscope by candle light), the luminous property was observed to be in the brain, which, where the animal was at rest, resembled a most brilliant amethyst about the size of a large pin's head, and from which, where it moved, darted flashes of a brilliant silvery light. Beroes, beautiful holothurians and various gelatinous animals were also taken up in great numbers. Indeed the Gulf of Guinea appears to be a most prolific region in these sort of animals ; and I have no doubt but the marine entomologist would here be able to add immensely to this branch of natural history. As it was found impossible to preserve the far greater number of these animals by reason of their delicate organization, the spirit of wine dissolving some, and extracting the colours of others, and as most of them require the aid of a microscope to describe them, a great portion of them were lost on us, from the want of a person either to describe or draw them from that instrument " (H b, 48-49, sans date).

May 16

" Thursday 16. This day immense flocks of birds of the Pelican & Gull species came within a short distance of us, many of the latter were floating on the surface of the sea, while others were darting on the flying fish that were abundant, none however came near enough to be shot, they were supposed to be the brown gull which is plentiful in the Canary Islands " [A, p. 13, cf. B, p. 6].

May 17

" Friday 17. Numbers of birds of the same species seen yesterday of birds were observed.—of Fish, Albacores, Bonitos & immense shoals of *E. volitans* & other small species, it was amusing to observe the activity exerted by the one species to escape from the predatory jaws of the other, we saw many of the Albacores & Bon. [itos] seize the flying fish when at some distance from the surface.—We took several *Crustacea* in the nett this morning.—One answers this description. Eyes on short but thick peduncles, their extremities fine blue. Antennæ 4 very short, the largest not exceeding in length the peduncles of the eye & appearing to the naked eye like hairs but under the lens are found to consist of several small articulations terminating

in a fine point ; the inferior antennae are extremely minute & scarcely perceptible without the aid of a glass, on the upper part of the socket for the eyes on each side projects a single spine, which bends rather downwards at the point & scarcely reaches the extremity of the Eye, from the centre of the anterior part of the thorax extends a hollow & rather obtuse spine & reaches a trifle beyond the margin of the upper lip, the thorax appears nearly smooth but under the magnifying glass are discernable a number of very fine hairs ; abdomen very narrow consisting of 7 distinct joints, the caudal fin very narrow & divided into about 5 pellucid joints.—Legs ten, the anterior very short & small, chelate, wrist small, the finger & thumb smooth on the inner margin ; other Legs rather long & double at the points or nails & on the margin near the nails are several small spines ; colour of the Insect pale brown tinged with red, with numerous minute red spots on the legs. Length about $\frac{1}{4}$ Inch, breadth $\frac{1}{3}$ its length ; the annex'd is an outline [of] this species⁴⁸. [14] Crustacea.—2. Colour of the Eyes rich blue, peduncle very short, but the Eyes larger & prominent, from between the eyes projects forward a long spine or rostrum more than $\frac{1}{4}$ an inch in length & a similar spine projects from each side of the thorax, at the base of the former are 2 small spines near the eyes.—Legs 8, with 2 small appendages between the 3 & 4 pair which at first sight appear as the rudiments of another pair but which on close examination are perfect parts of the animal ; the legs are very small & can be almost concealed with the tail under the thoracic plates ; the spines which project from the sides appear on the under part to be nearly hollow, antennae slender not one half the length of the horn in front.—The side spines on the thorax bend rather downwards & forwards.—Abdomen narrow & consists of 7 segments, the caudal fin is very narrow & forked, on each side of the fork are a few long bristles.—A *Crustacea* somewhat similar was also taken but the spine on the back seems to be much bent & is not quite so long, perhaps a sexual distinction.—Length of the body $\frac{1}{4}$ Inch exclusive of the horn in front which makes the whole animal near $\frac{3}{4}$ Inch long " [A, p. 13-14 ; cf. B, p. 6].

May 18

" May 18. Fish—Body very compressed, rays of the dorsal fin short & this fin runs from over the eye the whole length of the back. Abdominal of Belly fins run near the whole length of the under side of the body. Tail short & small rather rounded & consists of several very fine rays. Rostrum rather projecting & appears as if truncated or cut of [*sic*] at the end, the under part of the mouth is rather shortest. Eyes small. Irides bright & silvery white. Length about one Inch, breadth nearly equal to its length. This fish is so remarkably thin & pellucid that the brain & all the intestines can be easily seen through, 6 red dotted lines run the whole length of sides.—3 of these fish are preserved " [A, p. 14 ; cf. B, p. 6].

May 19

May 20

" 20. Took a number of *Crustacea* in the [ou : tow ?] net " [A, p. 14].

⁴⁸ *Mégalope*, non reproduit.

May 21

"21. Fish. *Thoracici*. Length about 2 Inches, breadth $\frac{3}{4}$ Inch. Eyes black, Irides golden yellow. Upper part of the back & head olive green beautifully tinged with green gold & silvery shades, the belly & sides much lighter, the first dorsal fin is situate [sic] near $\frac{1}{4}$ Inch behind the head & consists [15] of 7 rays, the 3 from the anterior are longest, the last spine or ray very short & appears almost to connect it with the 2 dorsal fin ; this fin reaches quite to the tail & consists of near 30 rays, the first 10 longest ; the length of the longest ray on each of these fins is ab^t. $\frac{1}{8}$ of an inch, the pectoral fins are short & very slight & contain about 15 finely divided rays, the ventral fin has 2 short but very strong rays, which are connected at the base only by a membrane, the abdominal fins contain about 20 rays in each & reaches to the base of the caudal fin. The tail fin is moderately long & rather forked & contains upwards of 20 rays ; the lateral line is considerably bent or arch'd immediately behind the gill & then continues in a straight line to the extremity of the tail, about $\frac{3}{4}$ down the side of the fish this line becomes very strong and from it appear numerous radiations which are rather elevated on that part & slightly dentated ; the denticles fine & regularly set ; the fins in general are strongly tinged with orange."

"Fish. Teeth many, conical with a fine serrated margin. Irides nearly red. Pectoral fins small, ventral fins nearly black, 4 long spines round the head ; dorsal fins : the first small & short the second reaches near $\frac{2}{3}$ the length of the body, abdominal fin almost like a very thin membrane, tail white & a little rounded. Length $\frac{1}{2}$ Inch [au crayon : Bot[le] 17]."

"Fish. Body rather long & compressed a little. Head small. Irides silvery white. Body paleish white. Dorsal fin runs nearly the length of the body. Abdominal fin from the tail to the stomach, the intestines of which are quite visible through the body ; the pectoral fins are rather long, the tips of which are red.—Ventral fins small, caudal fin rather forked, with a brown bar across at the base ; length $\frac{1}{2}$ Inch, breadth ab^t. $\frac{1}{4}$ of Inch. [Bot. 17]."

"This day vast numbers of those Pelagic fish Albicore & Bonitos & innumerable *Exocetii*, the flight of this fish as far as I have hitherto observed consists of one leap & the vibration of the wings if any is certainly very limited, some of them flew at least 200 yards & on the first exertion were more than 20 feet above the surface of the sea ; in general they raise against the wind—We saw at least 2 species [of] Gulls and other sea birds, apparently *pelicanii* were very plentiful" [A, p. 14-15 ; cf. B, p. 7].

May 22

"May 22. Fish.⁴⁹ Pectoral fins small & like a very thin membrane, consisting of 18 rays.—Irides silvery, ventral fins more forward, consisting of very fine long black rays, when closed appeared as one ray, body compressed & in shape not very unlike 2 triangles united, the first abdominal fin consist of about 6 rays, the anterior of which extend to near 2 [16] inches in length & terminates in a thread like appendage ; behind this is a fin of 12 rays extremely thin & delicate, on the middle of the back a kind of hump from whence projects a fin of 6 Rays, the 2 middle ones extending similar to the first abdominal fin below ; the tail is moderately long but the

⁴⁹ "Fish of the Genus *Zeus* . . ." [B, p. 7].

caudal fin is slender, the second dorsal fin extends from the base of the first to the base of the tail & has at least 15 fine rays ; the long appendages from the back & belly of this fish make it a curious subject ; the sides & belly were silvery white. Head & back blueish tinged, with silvery scales ; the mouth appears to be destitute of teeth. Length of the body full one inch, breadth nearly the same, length of the dorsal & abdominal rays including the 2 appendages full 2 Inches each ; these long rays were blueish.

Took also a few *Aphrodita* from a piece of wood. " [A, p. 15-16].

May 23

" 23. Fish⁵⁰. *Thoracica*. Head with the upper part covered with numerous irregular ridges that give it a very rough appearance, from the back part project 2 large white spines which are serrated on the inner edge. Irides silvery ; from the covering of the gills project 2 spines which are also serrated, these are full 1/4 Inch long ; the pectoral fins are remarkably small, dorsal fins are fine & situate or rather commence just behind the point of the spine on the back of the head, abdominal fins come about half way forward the body from the tail ; tail of moderate length & rather truncate at the end.—Vent fins extremely small.—Length 1/2 Inch. "

" Fish. *Diodon*. Length about 1 Inch, colour on the back olive yellow, on the Belly white. Irides yellow with 4 or 5 black spots on each. Tail rounded with 6 treble rays, abdominal fin 15 rays, the first 6 with double lines on each, this fin is situated close to the tail. Dorsal fin of 12 rays, with 2 lines on each, the gills are far behind the head & are very small at the openings ; all the fins are nearly white with very minute lines. The whole fish is irregularly spotted with black, the base of many of the spines yellow [17], the mouth oval, the lips large & transparent & horny, within the mouth in the palate are 4 transverse ridges which serve as denticles. "

" 2 Albicore taken this morning, weight 84 & 85 lb^s. Length 4 f. 6 l., 4 f. 10 l. ; these large ones had short white streaks on the sides & so powerful were they that 2 heavy men were lifted with ease by the strength of their tails—Fish was this day & sev^l. preceding was very plentiful around us & numbers of Albicore & Bonitos taken " [A, p. 16-17 ; cf. B, p. 7].

May 24

" 24. Fish very plentiful as Albicore, *Exocetii*, &c " [A, p. 17].

" 24. A few *Crustacea* taken, also a White Shark " [B, p. 7]⁵¹

May 25

May 26

" 26. *Crustacea*. Eyes on large & moderately long peduncles, the tips of a rich green colour, antennae about twice the length of the eyes & consists of 5 joints from

⁵⁰ " *Cottus* " [B. p. 7, avec la date du " 22 "].

⁵¹ Cette indication se rapporte sans doute, en réalité, au 20.

the shorter of which proceed 3 bristles on the inner side. Abdomen of 7 smooth joints, the last of which or caudal fin has a small notch in the middle & three spines on each side, those at the posterior angles twice as long as the others & each joint has 4 (?) fin appendages, of an oval form. Thorax ridged, the sides towards the under part very much bent inward, a long spine projects in the centre of the front & on each side of the posterior angles a very small spine on each side the long one in front (?) & 4 other spines round the margin of the thorax & a very small one that rises from the ridge of the back—Fore legs of 3 joints, the third flat & oval & from the edge of which some very small hairs are discernable by the aid of a lens & at the base of which is a small appenda [ge] of 4 or 5 joints. Legs at least 10, the second pair very long, having long & simple nails, other legs very small & short. The mouth is placed just between the eyes & is apparently a small round projecting point. Length seldom above 1/2 Inch, breadth 1/4 ,pres^d. in Bottle 3662."

"A shark taken this morning."

"Animal of shells pres^d. No. 7. Two membranes from it similar to wings which it moves with great quickness, the centre of these purple.—Dr Smith has drawn a good figure of it" [A, p. 17].

May 27

"The sea is here uncommonly abundant in fish. The whole surface is often put in motion by the flying-fishes, when chased by others. Their number is immense. Shoals of them constantly surrounded the vessel, and at night they give out a white light, resembling that of the moon, when reflected by the sea. It was also chiefly at night that we were enabled to catch, with the net, the greatest number of mollusca and crustacea. Many different substances contribute to make the surface of the sea light. Some parts of the bodies of most of the crustacea have certain glittering points, and two or three species of crabs were perceived to give out the most brilliant light. The points, which are to be seen on the mollusca are larger, but less bright. But that luminous [p. 259] appearance which diffuses itself over the whole surface of the sea, arises from a dissolved slimy matter, which spreads its light like that proceeding from phosphorus. The most minute glittering particles, when highly magnified, had the appearance of small and solid spherical bodies" (H c, p. 258–259, sans date, mais après le 26 mai).

May 28

"I am often up at night fishing for marine animals, of some of which I make sketches" (H c, p. 259).

"May 28 : We saw for the first time this day one of these floating islands, often mentioned, and which probably come out of one of the rivers of Africa. The Captain permitted us to put out a boat, in order to examine it. It was about 120 feet in length, and consisted of reeds, resembling the *Donax*, and a species of *Agrostis* ? among which were still growing some branches of *Justicia* ; and in the midst of these were seen a number of animals (*Sepiæ*) ?" (H c, p. 259).

May 29

May 30

"30. We took several Crustacea and on board the Congo was taken a specimen of *Argonauta Hians* having its animal inhabitant" [A, p. 17 ; cf. B, p. 7].

May 31

Légende d'un dessin de Siphonophore : "May 31. This animal has frequently been taken by us from May 30 to June 5, but seldom perfect, in fact the long appendage [?] the head is but little more than ova attached to a long thread like [?] which severs from the head on the slightest touch, the string is of a beautiful orange & black colour & is sometimes a yard in length. The head & stomach of the animal are pellucid but very beautifully punctured all over. A, the head mag^d., b the whole an. [imal], & c the mouth ; parts of this are luminous" [C, p. 40].

June 1

"June 1. *Crustacea*. Body nearly oval with 4 long smooth sharp spines, one projecting in front, one on each side & one near the centre of the back, this inclines a trifle forward ; these spines were tip'd with red. Eyes blue, at the base of the head is red, the abdomen is extremely narrow & roundish consisting of 7 joints, the last joint a tail [18] forked & tip[pe]d with red. Legs remarkably small, pres^d. Bottle 821. Length 1/4 Inch."

"*Crustacea*. Thorax on the upper side oval, the sides bend in much & conceal the legs, from the front projects forward a single spine very slender full 1/2 an inch in length, this is alternately banded with blue & brown, from the posterior part of the thorax 2 appendages full one eighth of an inch in length, these through the lens appear articulated having 4 or 5 joints in each, the abdomen is very small & nearly concealed within the bent sides of the thorax, it consists of 7 joints, the last is nearly 1/3 its length & is of an obtuse triangular form with 14 or 15 long bristles on its margin. Eyes blue pedunculate, but the peduncle very short. Fore legs or claws chelate. Antennae 4, short spines at their base, small legs 10. Length of the body 1/8 Inch including front spine near 1/2 Inch—Bottle 821.⁵²"

"Sev¹. *Beroe* pres^d. in Bottle 962, the bag or covering is of a long oval finely reticulated with purple veins, some of them were full 7 inches in length."

"Bottle 635. 35. *Lepas* shell of 5 unequal valves nearly transparent, the back plate large, round the margin of the valves a purplish tinge, shells slightly striated, tentacles 24, these are rather long & of a rich purple colour, the peduncle scarcely retractile & nearly pellucid—Length of the largest 1 Inch long, 1/2 Inch broad, Sev¹. are pres^d. from floating wood &c."

"June 1. Fish *Thoracici*. 4 Rays in the branchia. Body very compressed about 1 Inch in length & nearly the same in width, pectoral fin of 10 rays apparently unconnected, head sloping above the mouth, under lip projects beyond the upper part, before the dorsal fin are 4 small spinous hooks. Dorsal fin consists of 7 ciliae or hairs, ventral fins small, immediately behind which is a notch in the body from thence to the tail the anal fin consists of about 12 rays, unconnected & 3 anterior

⁵² Zoé de Porcellanidé, cf. p. 56.

spines—Tail slightly forked & has about 30 rays, the upper part of the back are bluish, the sides & belly silvery—Irides bright yellow ” [A, p. 17-18 ; cf. B, p. 7].

June 2

June 3

“ June 3. A few *Medusae* of very large size were taken. Several small land insects, as *Ichneumon* & one or 2 *Lepidoptera* ” [A, p. 18]

“ 3. Several *Mollusca*, a few *Lepas* & 2 or three small fish taken [B, p. 7].

“ The albicores which had accompanied us in vast shoals to the edge of soundings, and were taken in such numbers, that besides being consumed fresh to satiety, the crews of both vessels pickled and salted several barrels, now entirely disappeared, and with them the sea birds ; the white colour of the water changed to the oceanic blue before we struck soundings, the marine animals much decreased, and the sea lost a great portion of its luminosity ” (H b, p. 52, pas de date ; probablement début juin, après l'approche de la côte).

“ The dredge was put over board, and brought up two or three species of echini, some small cancri, bits of coral, &c. While in soundings no fish were seen, nor any birds except an occasional solitary tropic bird or pair of boobies ” (H b, p. 53, pas de date ; évidemment : début juin).

June 4

“ 4. A few *Medusae*. ”

“ *Crustacea*. Antennae about the length of the body, very slender. Eyes extremely large & on short peduncles, rostrum short extending very little beyond the eyes having 8 sharp spines on the upper & 6 on the lower side. Thorax finely punctured with 5 spines on it, one at each angle near the eye, one on each side & one immediately at the base of the rostrum ; the abdomen consists of 7 smooth joints the first 4 of which are carinated, the first from the tail terminates in a sharp spine ; on each joint are two swimmers on each side, these are rounded. Legs 12, the foremost chelate & small, the others very long, nails simple—The first 5 segments of the abdomen have hooked appendages which are long & pointed. Length 1 1/2 Inch, breadth 1/4 Inch ; palpi large plates covering the sides of the mouth, broad & [19] thin. Colour when alive red, the whole body red & punctured, pres^d. Bottle 2075 ” [A, p. 18-19].

C'est du 4 juin qu'est datée, également, une page (de 48 lignes) entièrement écrite en sténographie (à l'exception du mot “ catastrophes ”). Malgré l'aimable intervention de Mr F. Higenbottom (Royal Museum and Public Library, Canterbury) il n'a pas été possible d'identifier le système employé ; c'est d'autant plus regrettable que si Cranch a éprouvé le besoin de soustraire à la curiosité de lecteurs éventuels cet assez long texte, c'est qu'il avait quelque chose de sérieux à tenir secret.

June 5

“ Thursday 5. Took 2 Paper *Nautili* or rather *Argonauta*, the species *hians*, one of these certainly had very recently had its animal inhabitant, a thin membrane of

which completely cov^d. the aperture. Sev^l. small Crustacea taken " [A, p. 19 ; cf. B, p. 7].

June 6

" Friday 6. A few *Mollusca*—A species of swallow came along side, it appeared to me [?] the House Martin (*Hir. [undo]* —) if not the same, it was shot at but unfortunately missed " [A, p. 19].

June 7

" Saturday 7. Took a fish, order *Apodea*. Certainly closely allied if not the same genus as Montagu's *Zyphoteca*⁵³ (Wer. Mem.). Length 18 Inches, breadth near the gills 1 1/2 Inch. Body compressed and carinated on both sides. Dorsal fin commencing near the back of the head & continuing to within 1/2 Inch of the tail, it contains about 110 rays connected by a very thin membrane, the rays are nearly equidistant & of equal length, not exceeding 1/3 of an inch. Head lengthend, the upper part between the eyes projecting into a sharp ridge. Jaws long & prominent, the under one extends beyond the upper, teeth placed in a single row round the edges of each lip, about 30 in the under & 26 in the upper, 6 of them at the extreme point three times as long & large as any of the others, the other teeth, 2 only excepted, are nearly of equal size ; these 2 are placed at the point of the under jaw, tongue small & much shorter than the mouth of a dark colour & perfectly smooth. Eyes very large & prominent. Irides silvery. Length of the head 3 1/2 Inches—Branchiostegous rays 4, toothed on the inner margin—Pectoral fins of 12 rays, the last 4 from the sides considerably largest ; about half way down the belly is the vent which is very small & nearly behind which is a simple scale about 4 inches from the tail. The anal fin commences about 3 1/2 inches from the tail & contains about 40 equal rays, the connecting membrane extremely thin so that the slightest touch divides them, about 1/4 of an inch from the caudal fin the body becomes nearly round ; the tail fin is small but much forked & has about 33 rays, the body runs nearly equal in size at least 7/8 of its length & then gradually decreases to within about 1/2 Inch from the tail were [*sic*] it becomes suddenly very small in this part & rounded.—The Body is covered with very minute silvery scales which gives [*sic*] the fish a rich polished appearance but these scales so easily separate that it is impossible to fully preserve their beauty long out of the water or even after the fish has been dead a short time—The fins are white, at the base of the Dorsal is a darkish shade running the whole length of the back, the upper part of the head is also darkish—Every other part of the fish appears like the highest polished silver & in a recent state is a most beautiful object "⁵⁴ [A, p. 19 ; cf. B, p. 7].

[20] " June 7. In the after part of this day we saw two very large Grampusses

⁵³ Le document B (p. 7) donne *Ziphotheca* ; or Montagu (Mem. Wern. Nat. Hist. Soc., I, 1808-10 [1811], p. 81 avait écrit *Ziphotheca* et c'est Swainson qui en 1839 (Nat. Hist. Fishes, . . . II, p. 239) a corrigé en *Zyphothya*. Jordan écrit *Zyphothya* (Gen. Fishes, II, p. 200), *Zyphothya* (Class. Fish. p. 180) et attribue même un *Xiphotheca* à Montagu (*eod. loco*)—appelé " Montague " dans le Gen. Fishes, II, p. 200—et (I, p. 84) un *Xiphotheca* ; de plus, le même genre *Ziphotheca* est placé dans 2 familles différentes, étant tenu pour synonyme tantôt de *Lepidopus* (Gen. Fishes, I, p. 84), tantôt de *Gempylus* (II, p. 200) : le *Ziphotheca* de Montagu est synonyme de *Lepidopus*.

⁵⁴ Paraît pouvoir être le *Lepidopus caudatus*.

at a few hund^d. yards distant, they remained under water not above 5 or 6 minutes at a time" [A, p. 20].

June 8

June 9

June 10

"Tuesday 10. Took 2 singular fish. Length of the largest about 2 inches, at first sight they appeared as animals allied to *Laplisia* [sic, = *Aplysia*] but the last specimen being perfect proves they are a species of cartilaginous fish. The order is doubtful, much more the genera they ought to be placed in. The first answers this description—Body of a long oval, moderately thick & rather tapering towards the tail, head blunt, skin of the body smooth. Eyes small & situate [sic] near the middle of the upper jaw. Irides silvery or rather gilt, mouth nearly orbicular, but the under jaw rather projects a little forward, both jaws are armed with numerous fine teeth set in at least double rows, the teeth are very small & sharp, tongue rather large, immediately on the head in a line from the centre of the upper jaw are two fleshy prominences which bear some resemblance to horns & are about $\frac{1}{8}$ of an inch in length, there are hollows on the back part forming a kind of small sack which the fish can depress or erect at will. No apparent gills or openings for breathing but just behind the head are 2 very thin membranes—above this are 2 pectoral members about $\frac{1}{2}$ an inch in length which protrude from the side about $\frac{1}{2}$ an inch in length, these spread upwards in a fanlike form, the extreme membrane of which is moveable in 2 or 3 directions, these fins move alternately in assisting the progressive motion of the fish, immediately behind these & protruding from the belly is a small fork-like shallow [?] body which is divided about $\frac{1}{2}$ its length into 2 fins that spread out from the sides & consists of several rays the points of which are not connected by any membrane, the Dorsal fin commences a trifle behind the back of the head & continues within $\frac{1}{8}$ of an Inch of the tail, the first anterior 4 rays are longer than the 9 succeeding ones & behind which the posterior ones are the longest rays in the fin, anal fin situate [sic] near the tail and consists of about 7 stiff rays—tail considerably rounded, of 7 double rays—the colour of the fish dusky with a number of small irregular brown or purplish spots & varying in the specimens procured which are 3 in number & preserved in Bottle 774."

[plusieurs dessins au crayon]

"perhaps allied to the gen. *Lophius* —a small aperture near the base of pectoral membranes" [cf. B, p. 7, mais au 9 juin]

[21] "*Balistes*. Length rather more than 2 Inches, colour dark brown with a few small light spots on the back & sides, belly lighter, mouth very small. Irides yellow, the spine on the back has a triple row of small spines on it, those on the front sides are longest, this spine is about $\frac{1}{10}$ [?] of an Inch in length, the Dorsal fin commences more than $\frac{1}{2}$ way down the back & contains 28 rays, the tail is of moderate length & rounded & has about 12 rays, the anal fin commences nearly opposite the dorsal & reaches to within $\frac{1}{4}$ of an Inch of the caudal fin ; at the bottom [?] of the belly, near its centre is a short protuberance covered with small spines & near which the vent

is situate [*sic*], the pectoral fins are very small—June 13⁵⁵, pres^d. in Bottle 39 " [A, p. 20–21 et un dessin au crayon].

June 11

June 12

June 13

" 13. This evening took 2 of *Argon*. [*auta*] *Hians* with their animal inhabitants, these very much resemble *Sepia octopodia*, having 8 short & rather broad tentacula from which proceed numerous papillae, colour in general similar to that animal.—On these 2 animals being placed in a cup of sea water, they easily protruded themselves from their shells & swam at the surface or any intermediate depth, having all the actions & manners of the common cuttle. These animals by means of the papillae on the tentacles has [*sic*] the power of firmly adhering to any substance it comes in contact with & at times they fastened to the bottom & sides of the glass vessel they were in as firmly as many of the *Patellae* do to rocks &, the shell in that case serving them as a complete testaceous covering, in this position the shell may be easily drawn [?] from the animal as the attachment is very slight if it has any membrane whatever.—It is certainly capable of withdrawing itself wholly within its shell, much more so than some of the *Helices*, *H. Janthina* as an example. It ejects water to considerable distance from a small syphon or tube & also that dark inky matter so commonly emitted by the cuttle ; that this animal can wholly leave its shell there can be no doubt, for although one of the specimens we took withdrew within it & remained some considerable time & was placed in spirit of wine in that position, yet the other specimen by a considerable effort came quite out & left the shell not leaving the slightest membrane attached to the shell, the water was frequently changed to see if it had the inclination again to return into it but nothing of that sort that we could observe was [?] although it was lively for some hours.—Another we afterwards took the day following appeared to leave a very slight membrane when it quitted the shell.—On board the Congo M. Hawkey took several, the animal inhabitants were all similar, one of which he sent us & it is pres^d. with the others in Bottle [—] as well as I recollect the fig. in Wood's Zoography of this animal is quite correct " [A, p. 21 ; cf. B, p. 7].

" . . . many of the paper nautilus (*Argonauta sulcata*), with the living animals, which, in contradiction to the opinion of the French naturalists, proved to be perfect *Octopi** ".

* L'animal qui forme cette coquille ne peut être un poulpe La Marc, Animaux sans Vertèbres, p. 99 (H b, p. 55, sans date précise).

June 14

" A dead albatros (a bird rarely to be met [p. 261] with so far to the north,) was fished up " (H b, p. 260–261).⁵⁶

⁵⁵ D'après B, p. 7 et la figure le petit *Balistes* serait bien du 10 et non du 13 juin.

⁵⁶ Il y a certainement une erreur de date, la rencontre du cadavre d'Albatros paraissant avoir eu lieu le 18 juin.

June 15

" 15. Took a fish pres^d. in Bottle [—] I cannot refer it to any known genera " [A, p. 21 ; cf. B, p. 7].

June 16

" 16. A small specimen of the same fish we took yesterday " [B, p. 7].

June 17

" 17. Another specimen of the fish taken 15., of smaller size " [A, p. 21].⁵⁷

June 18

" Tuesday 18. The sea was extremely luminous this night with a small species of *Crustacea* a few of which are pres^d. & Dr Smith made a drawing from them " [A, p. 21 ; cf. B, p. 7].

[Wednesday 19]⁵⁸

" An Albatross picked up along side the vessel but quite in a putrid state, most likely washed from more southern latitudes by the current, we also saw a few of the common Tropic bird & 3 or 4 *Pro. Pelagica* " [A, p. 21 ; cf. B, p. 8].

" The same day a whale (apparently a species of *Physeter*, having large humps behind the back fin), struck our rudder with his tail in rising, and one of these fish rose directly under the Congo ; and according to the expression of those on board her, lifted her almost out of the water. These animals indeed were now extremely numerous " (H b, p. 55).

June 19**June 20**

" On the 20th, a whale was swimming close to the vessel " (H c, p. 261).

June 21

[22] " Friday 21. A whale of about 20 feet long came very near us. This & the 2 preceeding nights the sea has been extremely luminous arising principally from myriads of *Crustacea* which rise on its surface at night. On lifting up the anchor a few fragments of shells were drawn up from the bottom, one is certainly the *V. cincta* of Pultney so common on British shores, another specimen very resembles the young of *Buc. [cinnum] reticulatum* of Montagu &, allowing a slight variation from climate, is beyond doubt that shell . . . A few stormy Petrels were the only birds we saw this day " [A, p. 22 ; cf. B, p. 8].

June 22

⁵⁷ C'est évidemment la même phrase que celle de B, p. 7 pour le 16 juin : lequel des deux documents se trompe, A en donnant 17 pour 16 ou B avec 16 pour 17 ?

⁵⁸ Le document B (p. 8) donne 18 juin ; et Tuckey note (H b, p. 55) : " The day we made the land a dead albatross (*Diomedea exulans*) was picked up floating in a putrid state, which seems to show that these birds wander farther towards the equator than is generally supposed " ; comme la terre a été reconnue le 18, la date " Wednesday 19 " est sans doute erronée.

June 23

" Sunday 23. Several fishes were this morning taken belonging to the genus *Sparus*. The largest I have yet seen answers this description. Mouth with a single row of teeth, close set, 4 in each jaw, at the anterior part considerably largest & these are of a canine form. Branch [iostegous] memb[rane] of 5 rays. Dorsal fin contains about 12 rays, commences about one inch behind the opercle of the gills and continues to within 2 inches of the tail fin, it has 23 rays⁵⁹, the 2 first very short, the next 4 longer than any of the others, from thence the rays gradually decrease towards the tail but I find the length of rays varies in dif[ferent] species & I find in a small specimen that 2 first in the Dorsal fin are quite equal to the 4 following, the pectoral fin is [?] and has 14 rays, ventral fin with 6 short stiff rays & this fin is nearly white—Anal fin of 14 rays, the first short, the following ones longer, then decrease toward the tail. Irides golden colour, the tail fin consists of about 20 closely connected rays & is forked ; the body is covered with silvery distinct scales. Colour on the back red, belly & sides rather lighter, anal fin tinged with bluish, Dorsal and tail same colour as the back, considerably darkest at the base & sides of the rays ; length 16 inches, breadth about 8. In the young of this species about 8 Inches in length the canine teeth of this species are scarcely visible ; many of these were taken by the hook, perhaps a common ground fish on this part of the coast. On this day we drew up with the anchor a few fragments of shells of which one is similar to *Tel. [lina] crassa* var. of Mont.[agu] ; in the afternoon [a] large specimen of the fish above noticed weighing 15 pounds was taken, this appeared to have a large bump just behind the head but evidently the same fish in a more adult state—One next day, 18 pounds, length 2 feet " [A, p. 22 ; cf. B, p. 8].

" Whales (probably *Physeter* . . .) are seen daily swimming near the vessel. We catch every day a number of *Sparus* resembling *Pagrus*. Its flesh, though dry, has a very good taste " (H c, p. 262).

" . . . took a good number of fish of the *Sparus* genus, named by the seamen sea-bream, and light-horsemen, the latter, from a reddish protuberance on the back of the head (fancifully thought to resemble a helmet) ; they were taken with the hook close to the ground, and baited with fresh pork or their own livers ; the largest weighed 18 lbs., and though rather dry and insipid, were infinitely preferable to the albicore and bonito with which we had been surfeited in the Gulf of Guinea " (H b, p. 57).

June 24

" Monday 24. Two whales seen in the after part of the day—A small species of *Certhia* perched on the yard of our vessel, several Petrels, *P. pelagaci* were within a short distance of us " [A, p. 24 ; cf. B, p. 8].

" Sea birds had also entirely dissappeared, with the exception of an occasional tropic bird, and a few of Mother Carey's chickens (Storm petrel) ". [H b, p. 57, date non précisée].

June 25

" Tuesday 25. Took a few *Tipula* as they floated by on the surface of the water

⁵⁹ Il s'agit évidemment de la deuxième partie de la dorsale.

these insects were in great abundance & many of them living, took also a specimen of *Phal.[aena]*— Two whales were seen " [A, p. 22 ; cf. B, p. 8].

June 26

" Wednesday 26. Many large shoals of small fish were near us on the surface— Some few Petrels, *P. pel. [agica]*—In the morning several spots in the sea appeared of a blood red colour, on examining some of the water it proved to be occasioned by a species of *infusoria* " [A, p. 22 ; cf. B, p. 8].

" *Salpa*. Very common on the surface by day or night. The eye looks like a globule of silver when 2 or 3 dozen are sometimes seen together, looking by their eyes like a string of beads [in] the water, the other parts of the animal pure white, but so soft as not to be kept [?], it appears to possess but very little locomotive power " [C, p. 40].

June 27

" Thursday 27. As we lay at anchor 3 fish of the Genus *Diodon* were taken with the hook. Largest length about 10 Inches, width about 3. Irides brown. Dorsal fin small situate [*sic*] within 2 Inches of the tail & consists of 12 rays. Lateral line very curved. Tail forked with 12 double rays. Anal fin made of 12 [23] rays. Pectoral fin truncate of 22 rays, back dark, the colour tinged with black sides of the head olive green, the inflated part of the body of a pure white, belly d^o. & silvery, base of the pectoral fin quite black, a semi-circular white mark next it & beyond which the fin is of an olive green—Took also a specimen of *Ichneumon* length ab^t. 1 Inch, banded & spotted with yellow—Sea at night very luminous " [A, p. 22-23 ; cf. B, p. 8].

June 28

June 29

" Saturday 29. Two large whales & a thresher seen in combat at a short distance from the vessel. These animals row with prodigious fury[?] one against the other " [A, p. 23 ; cf. B, p. 8].

" Dorothy, June 29, 1816

Sir,

The duties of the situation I have the honour to hold in this expedition demand I should embrace any opportunity that presents itself to communicate such observations as have occur^d. & at the same time to transmit a specimen of each subject of Natural History I have pres^d. during this voyage. I have therefore accordant to those parts of my Instructions selected such as are needful & transmit with them a copy of my Journal to this day. I have endeavoured as far as circumstances would permit to keep an individual or more of every species taken & trust it will appear by the condition of the specimens sent that nothing has been omitted on my part to endeavour to preserve them as perfect as possible. Many of the *Mollusca* tho [*sic*] extremely interesting when alive could not be preserved but my friend and companion Dr Smith has very kindly taken some correct drawings of the most remarkable

& which will hereafter answer every purpose to identify those species in future. I have endeavoured as far as my abilities will admit to retain in description some of those characters which are perishable in spirit &c. The dates also & peculiar circumstances under which some of these animals were taken are noticed. This may hereafter tend to assist in ascertaining the Geography of a few but in my opinion it would require many voyages to ascertain with a degree of certainty the places & under what circumstances in general many species of animals appear. The slight knowledge I have of General Zoology will I hope plead sufficient excuse for my not entering so minutely into description as I should otherwise do if I were well acquainted with the subject myself. I flatter myself however the species now sent will hereafter meet that attention which perhaps their peculiarities [*sic*] may deserve.

I remain your obedient servant

John Cranch " [B, p. 1]

" Some days ago the sea had a colour as of blood. Some of us supposed it to be owing to the whales, which at this time approach the coasts in order to bring forth their [p. 264] young. It is however, a phenomenon which is generally known, has often been described, and is owing to myriads of infused animalcules. I examined some of them taken in this blood-coloured water : when highly magnified, they do not appear larger than the head of a small pin. They were at first in a rapid motion, which however soon ceased, and at the same instant the whole animal separated into a number of small spherical particles. The sea has again assumed a reddish appearance ; but this is probably owing to mud, that has been dissolved " (H c, p. 263-264, probablement 29 juin).

June 30

" Sunday 30. A few shoals of small fish seen, in the after part of the day several Tropic birds " [A, p. 23 ; cf. B, p. 8].

July 1

" Monday 1. A species of Dove was seen flying towards shore " [A, p. 23 ; cf. B, p. 8].

July 2

" Tuesday 2. A few crustaceans were taken this day in the dredge and preserved in bottles also a few valves of the hollow ridged cockle and 4 specimens of *Mytilus* " [A, p. 23 ; cf. B, p. 8].

July 3

" Wednesday 3. A few Tropic birds seen & a specimen of *Phal. [aena] Bombyx Major* taken on board, a large *Papilio* & a *Sphinx* were also seen but could not be taken " [A, p. 23 ; cf. B, p. 9].

" With the drag we have fished up several kinds of shells and crustacea. An uncommonly large cel of a very good taste was caught on board the Congo " (H c, p. 271 : la capture de l'Apode est sans doute celle du 6 juin).

July 4**July 5**

"Friday 5. A species of *Anas* flew over the vessel" [A, p. 23].

En sondant "nothing was taken up but branches of an *Antipathes*" (H c, p. 271).

July 6

"Saturday 6. An Eel sent from the Congo. Length upwards of 3 feet, circumference at the largest part 10 Inches. Body very compressed near the tail, upper part of the nostrils very conspicuous & open & placed about 1 1/2 Inch from the mouth. Irides very silvery. Branchiostegous rays 4, smooth on the inner margin. Jaws armed with very strong teeth, in the upper the outer row for 3/4 the length of the mouth very much the largest & within which are many irregular denticulations very thinly set, at the extremity of this jaw are 2 very long canine teeth & immediately behind this are several small irregular teeth, from the roof of the anterior part of the mouth rises a single row of ten teeth that are canine in form, the first from the front smallest, the under jaw has several rows of teeth, the first or marginal are small, the second considerably largest [*sic*], it has also several canine teeth in front that are larger than any of the others—the dorsal fin commences about 2 inches behind the head & continues to the tail, it is [?] about 1/2 an inch in breadth at the widest part. The lateral line is nearly straight but [?] broad & large & appears to consist of transverse or oblique short rays that nearly connect with each other—Pectoral fins small but acuminate—anal fin begins about 2/3 down the body & is not wider than the dorsal—Colour [3 mots ill.] on the back brownish, sides and belly silvery white & the pectoral fin bluish—At dusk when we anchored 2 or 3 Parrots flew [?] us." [A. p. 23 ; cf. B, p. 9].

July 7

"Mr Cranch shot some birds, amongst which were an eagle, an anHINGA, several varieties of the king fisher, a toukan, and many small birds" (H b, p. 82).

July 11

" . . . in one haul [of the seine] thirty large fishes were taken, some weighing 60 lbs ; there were all of one kind, of the *Sparus* genus, and named *Vela* by the natives. They were found to be excellent in taste and firmness, much resembling the cod. The only other species taken were a large catfish (*Lophius*) and a few small mullets" (H b, p. 83).

" . . . a pool of water like a fishing-pond, where Cranch had just shot an *AnHINGA*. We went down to the river side, and to our great joy found here the whole company, who had just had an immense draught of large fishes of a species of *Sparus* . . . Cranch had not been very fortunate. We observed but few insects, and the birds were very shy. I saw a number of parrots, small parroquets, a black-bird on the wing, and two small *Motacillae* [*sic*], but did not fire a single shot". (H c, p. 283).

July 15

"The collection of birds and insects is small" (H c, p. 286).

July 16

"We saw traces of buffaloes on the sand of the shore. Of birds, we saw two species of the eagle, an *Ardea alba*, and *Platus* [sic] *anhinga*, three *Certhiae*, two *Alcedines*, two *Fringillae*, a large grey parrot and a parroquet". (H c, p. 287).

July 20

July 20. *Scarus*. Dorsal fin commences about 2 Inches behind the pectoral & contains 40 rays, the first very short, the succeeding nearly uniform & the whole rather spinous. Pectoral fin rather slender, 15 rays; abdominal f. very short with 6 strong rays; anal f. d^o, 8 stiff rays. Body & head cov^d. with very strong scales richly [?] & with num. strong purple rays running transversely across the back. Teeth uniform conic in a simple row except at the ant. part of the jaw were [sic] 2 long project far beyond the others. Palate smooth. Branchiostegous [?] 4—Length 3 feet, common at Sharks Point and near Sherwoods Creek—Used as food but not of any fine flavour—Native name Lovi."

"*Scarus*. Body compressed. Jaws smooth much retractile. Dorsal fin commencing rather behind the center of the back & consists of 21 not well defined rays. The first 6 considerably longest; this fin extends to within 1 Inch of the tail & from thence to (?) the tail fin the body is rather rounded. Tail much forked. Anal fin nearly opposite the dorsal & about the seam length. Abdominal fin near the center of the belly [2 mots ill.], between this & the anal f. are 2 short stiff spines. Length from 8 to 12 Inches. Native name Covee. At Sharks point, Sherwoods Creek, &c."

"*Scarus*. Length near 2 feet. Body thick. Dorsal fin begins just behind the gills & consists of 22 rays, the first 10 much the longest, the points quite spinous. Tail rather truncate, the Rays wide but not well defined—Pectoral fin of 12 R. [ays], the first 5 nearer the base considerably longest. Abd. fin of 6 strong rays. Anal opening about 2 Inches behind, large & very conspicuous, beyond (?) this at the beginning of the Anal fin are 3 very strong spines, the middle one extremely large; the Anal fin has a rounded form & consists of 10 small rays. Branch [iostegous] [?] 4. Mouth beset with a single row of teeth very distant from each other, 7 in the front of the jaws longer (?) than the others. July 20—plentiful at Sherwoods creek. Native name Comba" [C, p. 17-18].

July 21

"This morning we sent a party to haul the seine on one of the banks which lie close to Knox's island, and took great abundance of fish of four species, one being a *Sparus* of a large size, a mullett (*Surmuletus*), and an old wife (*Ballistes*)". (H b, p. 90).

July 22

"A large monkey was seen on the shore from the Congo. The *Simio* [sic] *cephus* was frequently brought to us by the inhabitants" (H c, p. 289).

July 23

"Tudor chased several water-fowl, but with little success. Traces of *Hippopotami*

were seen every where in the sand. A singular species of *Sterna* and an *Alcedo* were shot " (H c, p. 290).

July 24

(Monkey's Island)

" The fishing for oysters seem to be the main object of the negroes who live here. Large heaps of the shells of a *Mya* lay spread all over the shore, and a great quantity of dried and half-roasted oysters were hanging under the straw huts " (H c, p. 291).

August 3

" The wild animals of whose existence we have any certainty, are elephants in small numbers, this hilly country being unfavourable to them. Buffaloes, which are said to be abundant. Antelopes, of which a few have been seen ; wild hogs, the skeleton of the head of one being found. Tiger and tiger cats, the skins being seen with the natives. Monkeys in abundance (*Simia sephus*). The hippopotamus and alligator appear to be numerous. The only species of fish we have seen to be peculiar to the river is a kind of cat-fish, and some small ones resembling the bleak.

Among the birds are the grey and other parrots, the toucans, the common royston crow, a great variety of king- [p. 122] fishers, and many of the falcon tribe. A species of water-hen is also very numerous " (H b, p. 121-122).

August 4

" We found several curious insects . . . We saw monkeys running to and fro on the branches of the trees (*Simia cephus*), and several birds, among which was a spotted *Alcedo* " (H c, p. 308).

August 6

[B, p. 9-11]

" Boma Aug^t. 6, 1816

Congo River

It might be reasonably expected from the reports which were currant [*sic*] before we left England relative to the natural production of this River that the collector would here find a golden harvest in every branch of Zoology ; from the short experience I however now had up to this part of the River we are now ascended, I can declare excepting Birds (& those not numerous in point of species) all other classes of animals are extremely scanty & not easily obtained. Of Fish I have noticed about 4 or 5 species, 2 of which are pres^d. & sent, both of which I am inclined to think are well known. Reptiles are certainly rare at the mouth of the River or on its banks any were [*sic*] as far as I have had opportunity to penetrate ; I believe but one snake has been by any of the party seen alive & this was taken in the Captains boat. Three or 4 Hippopotames have been seen but these animals are very far from common in any part up to this in the River. One aligator has been killed, it measured 9 feet 3 Inches long, in external appearance it had not the slightest variation from those found in India & America, a few others not above 4 or 5 have been hitherto seen. It

remains now for me to give a list of the birds &c sent, few if any of which I think are new.

Birds &c sent in Tin Case.

No. 11

1. *Certhia*. Length abt. 4 1/2 Inches. Bill much curved & black. Irides dusky color [sic] of the head, neck & whole upper part of the back brightish green. Gorget composed of a line of purple & red. Belly, Tail, Legs & wings black.

2. *Certhia*. Length 4 Inches. Colour in general rusty brown. Legs & tail black, throat a little tinged with purple, back feathers lightish brown. This & the proceeding were shot at Sherwoods Creek. I suspect the last is but the young of the former in an immature [10] state.

3. *Certhia*. Length abt. 4 Inches. Back & upper parts ash colour, throat & belly yellow. Sherwoods Creek. The natives name of the three preceding species is songa.

4. *Sciurus*. Head & Body yellowish brown & black, a light stripe on each side, tail barred with black, given by M. Fitzmaurice, it was brought on board the Dorothy by the natives near Sharks Point. Native name Conchae.

5. Toucan. Length 1 foot, Bill 4 Inches, very irregularly notched. Colour pied, black most predominant. Shot by Dr McKerrow the surgeon in this expedition whose kindness & wish to contribute birds &c to the stock collected demands & has my most sincere acknowledgements.

6. *Mus*. Length about 6 Inches. Tail short, general colour dirty brown, near Sharks point from floating wood picked up along side. Nati[ve] name Nooge.

7. *Scarus*. This fish is plentiful at Sharks point, Sherwoods creek, &c.

8. *Ibis*. General colour brown, back a little glossed with purple. Length abt. one foot, upper mandible of the bill much bent.

9. *Certhia*. Length 4 Inches. Dirty brown. Belly & sides lighter. Legs & bill black.

10. *P. [clecanus] Soola*. Taken at sea on board the Dorothy, it certainly is not a true *Pelicanus*.

11. *Alcedo* — from St Jago, the native names [sic] is Passerine.

12. *Scarus*. Sharks point, Congo R[iver], native name Combe, very common & used as food by the natives.

13. *Ardea* supposed to be the female of *A. [rdea] cinerea*, it is not uncommon in this River. Irides bright yellow. Natives call them En Zeddee.

14. *Plotus Ahinga*, shot near Sharks point. It is not unfrequent in other parts of the River between that & Boma.

15, 16. *Alcedo*. Black & white variegated, common every where [sic] up the River as far as we have yet been. Native name Sympalale Kongatoo^{59a}.

17. Supposed a [?] or a genus akin to it. Bill yellowish orange, lightest at the point, mandibles very compressed, margins extremely thin, the upper valve fits into a groove in the under one. Eyes yellow, color [sic] [11] white & dark brown. Length 1 foot, expands 20 Inches. Common at Sherwoods Creek⁶⁰.

[manque le n^o 18]

^{59a} *Ceryle rudis*, évidemment.

⁶⁰ Evidemment le *Rhynchops flavirostris*.

19. *Ardea Egretta*. Shot & given by Lieut. Hawkey.
 20. *Ardea*. Length one foot. Back, scapulars & wing coverts green. Bill black, the upper part of the lower mandible yellowish. Irides bright yellow.
 21. *Certhia*. Common
 22. *Alcedo* pres^d. by M. Hawkey
 23. *Certhia*. Common
 24. *Certhia*. Sherwoods Creek
 25. *Certhia*. Above Sherwoods Creek, common.
 26. *Falco*. General colour black & white. Irides yellow. Bill light horn colour. Legs dusky, claws long & black, common on the shores of the River.
 27. *Falco*. From Porto Praya, St Jago, shot & given by M. Fitzmaurice.
 28. *Ardea*. Same as 20.
 29. *Corvus*, supposed the collared Raven of Valliant [sic], common here⁶¹
 30. *Ardea*, supp^d. male of the cinerea.
 31. *Caprimulgus*, similar if not the same species as Whip Poor Will of N. America, the note of this bird is also like it, common above Sherwoods creek.
 32. Supposed *Oriolus*, common.
 33. *Ibis*.
 34. *Avocetta Recurvirostra*.
 35, 36. supposed *Coriaceus* [sic, = *Coracias*], common.
 37. *Alauda*, shot at a plantation near Fetish Rock above Sherwoods creek, given by Dr McKerrow.
 38. *Certhia*.
 39. *Caprimulgus Europæus*.
 40. *Tringa squataria* [sic]
 41. *Pelicanus sola*, taken at sea.
 42. *Ardea alba*''.

[B, p. 9-11]

August 7

Benoo

Wednesday August 7

"Shot this morning in one of the creeks near [?] the following birds.

1. Genera not certain : characters external agree with the following description.

Bill rather conic, the upper mandible a trifle largest, 2 long fleshy appendages, from the anterior part of the eye & a horny spine projects from the [?] part of the wing. Legs [bare of feathers] thighs full 3/4 do. Claws 3 all placed forward. Claws short & slightly bent. The individual accords as follows. Bill rather strong & conic, the base yellow, the anterior part black. Nostrils very open. Length bill 1 1/4 Inch. Irides of a pale yellow, from the anterior part of the Eye project 2 fleshy & thin appendages, full 1 3/4 Inch in Length, these are irregular in form & rather taper towards the point, on the upper side orange yellow, as the under for half its length black, from the base of the upper mandible to the nape (?) of the neck across the crown of the head [to the nape (?)] of the neck the feathers are pure white, neck on the upper part & sides ash colour, on the under a slight streak of white extends from the base of

⁶¹ *Corvus albus*.

the mandible. The under part of the breast, belly, thighs, under wing coverts Primaries (the 3 first excepted which have about 3 Inches of the exterior points black), secondaries, coverts of the Primaries, under & upper tail coverts with a small ring on the extreme part of the neck & ab^l. one third from the base of the tail feathers white. Neck bluish ash colour, principal part of the wing coverts, the tip of the tail feathers black. Back lightest brown. Spurs at the extremity full an Inch in length, black, tapering to a point. Legs & feet pale green, toes & nails black. Length 13 Inches from bill to tail (?) do. legs 15 Inches. Length of the leg & thigh (?) full 7 1/2 Inches, the first 6 of which are bare of feathers. Expanse being 2 feet. The only individual noticed & was killed sitting on the sand⁶².

[2] 2. *Ardea*. Bill rather strong, length 3 Inches, the under part of the lower mandible for 3/4 its length dirty yellow. Nostrils open their [?] part yellow; bare space from the bill to the eye & around it dirty yellow. Head black & belly & thighs rather paler, on the upper part of the back are a few long white feathers, the other parts do. are rather dusky blue, primaries secondaries coverts & all upper parts dusky blue. Legs & bare parts of the thighs yellowish. Claws rather long, the middle toe sharply serrated, inner part of the wings rather lighter. Length from the bill to the end of the toes full 2 feet 2, to the end of the tail 4 Inches less. Eye extremely large the irides brown. Shot by Dr Smith as flying across a small creek, Aug. 7. Tail short, feathers 12, a trifle rounded.

3. *Gallinula*⁶³. Length from bill to toes 17 Inches. To the tail very little more than 10. Bill blueish, crown of the head, upper part of the neck with a small spot at the base of the upper mandible black, cheeks, a streak above the eyes & sides of the neck white. Throat & lower parts of the breast yellowish. Back & belly reddish brown darkest on the latter. Primaries & principle [sic] part of the secondaries of a dark greenish tinge. Legs dusky, the toes remarkably long, the largest being 3 1/4 Inches.

4. *Tringa*. Evidently the Purre of Montagu⁶⁴, it is not a common bird here.

A species of Heron was also seen perhaps allied to cinerea & a few other birds".

[D, p. 1-2]

August 8

"August 8. On the adjacent shore of [sic] which we lay shot in the morning 3 birds—1 *Psittacus*. Bill bluish, the base & point of the upper mandible black. Irides bright yellow. Space immediately beyond (?) the [1 mot manquant] rather dusky & bare of feathers, at the base of the bill & front of the head black the feathers edged with grey. Head back, upper part of the tail feathers dusky brown, under side (?) of the body & tail rather lighter, the latter more inclined to rufous. Legs & feet nearly red, particularly on their anterior part, nails quite black. Back a fine red brown, wing coverts & quills nearly the colour of the head. Tail of 10 feathers, the 4th from the exterior one at least 2 Inches longer than any of the others. Length from bill to neck (?) 5 Inches, from do. to tail 1 foot, flies in flocks⁶⁵.

⁶² *Xiphidiopterus albiceps*.

⁶³ Evidemment *Actophilornis africana*.

⁶⁴ Ornithol. Dict., éd. E. Newman, s.d., p. 260 (*Tringa cinclus*).

⁶⁵ S'il s'agit bien comme on peut le penser du *Psittacus erithacus*, comment se fait-il que Cranch ait oublié la queue rouge?

[3] Aug^t 8

2. *Columba. Rustica*.—A specimen this day that differs so [?] from the European species that description is unnecessary.

3. *Turdus*. Length 8 Inches from bill to extremity of tail. General colour the head & back olive green, throat & belly very pale yellow. Irides yellow. Tail very slightly rounded (?) & the same colour as the head. Legs pale flesh colour. Bill dusky, under wing coverts yellowish.

[?] few other birds were seen & not a single animal of any description " [D, p. 2-3]

August 11

"Sunday 11. Fish. Length 2 f. 4, greatest depth ab^t. 6 Inches. Branch. rays 4. Head rather depressed. Snout obtuse, lips double, a simple row of teeth ab^t. 30 in each jaw, which are truncate at the ends, nearly uniform in size & rather distant from each other. Head very smooth. The eyes sit. [uated] ab. 1 1/2 Inch from the snout, there [sic] are remark. [ably] small not exceeding 1/8 Inch diam. The skin of the h^d forms a complete covering over them, the body is rather thick. Back appears completely smooth, sides cover^d with large reddish scales very soft in texture but firmly united to the body. Tail slightly fork'd the points however are rounded. The dorsal fin commences ab^t 10 Inches from the tail & terminates about 4 from the caudal fin, 23 rays, these gradually decrease from the first 4 or five. Pectoral fins ab. 3 Inches long, 10 rays & are a trifle rounded, abdom^l fins very small, not exc^d an inch [sic] in length, of stiff 6 rays, anal opening very conspicuous, immed. behind which commences the a. fin 46 rays gradually declining in length of rays from the 6 or 7th. Irides yell[ow]. General colour of the head yellowish, back & sides yel. brown the latter strongly red, tail nearly red. Weigh ab. 8 pounds. Tu bulue, Tu bulo, native name. Said to be not uncommon & of superior size at Dooki Congi. Native say 2 these [?] the only one I have seen given by Captⁿ Tuckey⁶⁶."

August 12

[4] "Monday 12. 1. Bird.—Length from the bill to the extreme end of the centr[al] tail feather 9 Inches. Bill lead colour, inside of the mouth yellow. The upper mandible slightly hooked & extending ab. 1/16 I[nch] beyond the other 3/4 I[nch] in length, several long black bristles at the base of the mouth. Irides dusky. Head, upper part of the throat & hind part of the neck deep & bottle (?) green, under part of the neck, belly, thighs smowky [sic] blue. Back, tail, under coverts, upper wing coverts & the outer edge of the second[ary] feath[ers] of a rich brown. Tail of 12 feathers, the centr.[al] one near 1 Inch long[er] than any others prim^s quills f.[eathers] nearly black, the edges very slight[ly.] ting^d. with brown. Legs black. Perhaps shrike.

Very few birds frequented the place (Nookae) were [sic] this solitary individual was shot.—Doves . . .

2. At a small island ([?] Kacanso) M. Hawkey shot a Toucan—Length 2 feet, bill ab^t 3 1/2 [Inches] long very slihgly notched. Irides reddish, bill very pale horn

⁶⁶ *Mormyrops deliciosus* ; un croquis à l'encre.

colour. Feathers on the h^d a trifle elongate forming a thick crest. Head, neck, back, breast deep glossy green. Primaries heavy black. Secondaries 2/3 of the [?] white. Tail coverts, belly, thighs & one half the exterior of the tail white. Legs brown. Tail rather rounded. Legs feather^d below the knee.

3. Toucan. Length 21 I[nches]. Bill orange, the notches irregular but more distant than in the former, base nearly white 3 1/4 I[nches], whole upper parts ash colour. Head slightly variegated [sic] with white. Belly, thighs & tips of tail fea[thers] white, 10 f.[eathers] on tail longer than the former, prim.[aries] & tail nearly black. Irides bright yellow. Legs & claws dusky.

4. Plover. Base of the bill red, point black, length of body 7 1/2 Inches. Upper parts light ash colour, a streak of white from the eye round the neck, belly, head & upper tail coverts white. Tail slightly forked, the bar (?) white the [?] ones 2/3 do, expanse ab^t 16 Inches. Legs red, claws black. Flies in flock on the main land opposite the island before ment^d. [?] *Alcedo*, not uncommon " [D, p. 4]

Les entrées des 13-16 août trop peu lisibles pour pouvoir être utilement transcrites. La note du Friday 16 se termine par " Hippopotamus heard in night "; pour Saturday 17 il n'y a que la date : c'est sans doute, dans le présent dossier, le dernier mot écrit par Cranch, peu avant de tomber malade le 23 août.

August 17

(Nomaza Cove, au retour de l'expédition à Yellala)

" During my absence the seine was hauled, but not a single fish was taken. The only implements of fishing seen with the natives were the scoopnet, already spoken of, and a kind of fish pot of reeds. The fish we could prove from them are all very small, with the exception of one which I bought, and whose skin Mr. Cranch preserved. It appears to be of the genus *Murena*. Testaceous fish are extremely few ; a single shell (*Helix*) found on the summit of one of the hills near a fishing hut, and an oyster taken up by the dredge, are all we have been able to procure " (H b, p. 157).

August 22

" In the morning we found we had pitched our tent over a nest of pismires ; but although we were covered with them, not a person was bitten, any more than by the musquitoes, who, from its shade and humidity, had chosen this as their head quarters. At day-light we were roused by the discordant concert of a legion of monkeys and parrots chattering, joined with that of a bird named by the natives booiloso (a crested Toucan) having a scream between the bray of an ass and the bleat of a lamb ; another, with a note resembling the cuckoo, but much hoarser ; and another crying " whip poor will " (a species of goat sucker). We also found that several buffaloes had been to drink at one of the holes in the rocks, about 200 yards from one of our tents." (H b, p. 173)

September 6

Bay of Bobonga : " An alligator was swimming in the lake, and another before the mouth. Traces of hippopotamis were seen everywhere. Shoals of fish abounded in the small creeks. A *Haematopus* and several other birds were seen " (H c, p. 334)

September 7

“ Near some rocky island, a number of small *Charadrii* were seen ” (H c, p. 334).

September 8

“ A young *Mustela* was seen ” (H c, p. 335)

V. LES ILLUSTRATIONS

Le ms 681 renferme un certain nombre de dessins en noir, au crayon ou à la plume et en couleurs (aquarelle).

Les pièces comportant des illustrations sont les suivantes :

1. A, cf. p. 9-10
2. C, cf. p. 10-11.
3. G, recueil de 35 feuillets illustrés (35 Poissons, 1 Crustacé, 1 Céphalopode) ; cf. p. 11.

On retrouvera reproduites ici quelques illustrations parmi les plus intéressantes et plus faciles à reproduire. Divers croquis de personnages non reproduits sont amusants d'ailleurs par leur extrême maladresse.*

Si les figures de A et de C sont certainement de Cranch, celles de G sont ou sans auteur indigué avec pourtant la mention “ Hawkie ” ou, plus rarement, “ Smith ”. Quand le même poisson se retrouve dans un manuscrit de Cranch et dans le recueil G, on se demandera si l'une des figurations dépend de l'autre et, dans ce cas, laquelle.

“ 35 drawings or sketches of Fishes.—From the voyage to the river Congo by Smith, Hawkie (*sic*) & J. Cranch ”.

A = auteur, D = description, Aq = aquarelle, C = crayon, I = identification.

- [1] “ April 10th ” ; Aq (bleu clair) ; A : ? ; date probablement fausse : le 10 avril, Cranch était à Porto Praya ; I : *Sternoptyx diaphana* Hermann 1781.
- [2] “ April 26 ” ; C : “ Red, fins scarlet ” ; A : ? (sans doute Cranch puisqu'il y a, de la même espèce, 1 croquis doc. C, p. 9) ; I : on pourrait songer à un jeune *Vomer* (mais la couleur rouge ?) ou à quelque Ptéraclididé (aff. *Pterycombus*).
- [3] “ May 2nd to the termination ” ; Aq (vert très pâle) ; A : I : Leptocéphale.
- [4] “ May 3. 1816 ” ; Aq (gris) avec un croquis au crayon de la bouche (dents sectoriales en bas, coniques en haut) ; A : ? ; I : apparemment un Dalatiidé, par les dents, mais les 2 dorsales sont figurées bien rapprochées ; ou un Echiurhinidé car *Echinorhinus brucus* (Bonnaterre 1788) a bien les 2 dorsales rapprochées ; serait-ce un *Echinorhinus* juv. ?
- [5] “ May 4. ” ; Aq (gris) avec un croquis de la tête au crayon ; A : ? ; I : Leptocéphale.
- [6] “ May 4. Preserved in Bot. 1909 ” ; Aq (gris pâle) ; A : ? ; I : probt. un jeune *Lepidopus*.
- [7] “ May 5. 1816. Preserved in Bot. 1909. 2 specimens ” ; Aq (bleu avec bandes verticales outremer) ; A : ? ; I : évidemment le *Nomeus albula* (Meuschen) = *N. gronovii* (Gmel.)

* Des photographies des illustrations non reproduites dans cet ouvrage ont été déposées dans la BIOLOGICAL DATA COLLECTION, General Library, British Museum (Natural History), où elles peuvent être examinées.

- [8] sans date, " Preserved in Bot. 1909 " ; Aq (gris-bleu, à bandes verticales) ; A : ? ; I : probablement encore un *Nomeus*, mais bien mal dessiné.
- [9] " May 13.1816 " ; C ; A : ? (sans doute Cranch puisqu'il y a 2 autres croquis, doc. A, p. 12 (haut) et C, p. 27, haut) ; D : doc. A, p. 12) ; I : Exocétidé juv. à appendices mentonniers (? *Cypselurus* ou *Cheilopogon*).
- [10] " May 13.1816 " ; C : " no scales, yellow, eyes yellow, pupil purple " ; A : ? (sans doute Cranch puisqu'il y a 2 croquis, doc. A, p. 12 (bas) et C, p. 27, bas) ; D : doc. A, p. 12 ; I : un Gonostomatidé (*Cyclothone*?) mal figuré? On voit assez bien les organes lumineux.
- [11] " May 20. Length 2 inches. Depth 3 1/8—. No teeth, no scales perceptible " ; Aq (dos bleu foncé, côtés et ventre bleu pâle avec des points jaune verdâtre) ; A : " Hawkie " ; I : un jeune *Naucrates* ?
- [12] " May 22.1816 ". Aq (bleu à petites taches jaunâtres) ; A : ? (il y a 1 croquis doc. A, p. 16) ; D : doc. A, p. 15-16 ; I : jeune de *Scyris* (ou genre voisin) ?
- [13] " May 25.1816. Length 4 inches. *Syngnathus* " ; Aq (brunâtre) ; A : " Hawkie " ; I : probt. le jeune de *Syngnathus pelagicus*.
- [14] " May 26. Teeth. 1 1/4 Inch Long, 1 1/2—deep " ; Aq (gris à bandes verticales) ; A : " Hawkie " ; I : très jeune *Naucrates* ? (cf. n° 11).
- [15] " May 27. No scales. Slimy fish. Length 2 1/2 inches. Depth 1/2 inch " ; Aq (gris) ; A : " Hawkie " ; I : très jeune *Coryphaena* ?
- [16] " May 28. 2 inches long, 3 1/4—deep " ; Aq (brun, rose et jaunâtre) ; A : " Hawkie " ; I : Monacanthidé juv. (*Alutera*?).
- [17] " May 29. Length 6 1/2 inches. Tail 3 " ; Aq (gris et rose) ; A : " Hawkie " ; I : d'une autre écriture : " *Syngnathus Hawkianus* ", en réalité une jeune Fistulaire, avec les lobes latéraux de la caudale non figurés.
- [18] " May 30. Natural size " [70 mm] ; Aq (du rose et du jaune) ; A : " Hawkie " ; D : doc. A, p. 18 mais à la date de " June 1 " ; I : zoé géante de Porcellanidé.
- [19] " May 30 " ; Aq (blanchâtre ponctué de rose) ; A : " Hawkie " ; I : Céphalopode (*Cranchia maculata*, plutôt que *scabra* puisque la surface du corps semble lisse).
- [20] " May 30th, full size [12 mm], pale blue " ; Aq ; A : " Hawkie " ; I : Téléostéen juv.
- [21] " May 30, full size " [24 mm] ; Aq (dos bleu, ventre rosé) ; A : Hawkie ; I : jeune de Carangidé (*Scyris*?).
- [22] " May 30. Natural size " [21 et 22 mm] ; Aq (dos gris bleu) ; A : Hawkie ; I : deux très jeunes Tétrodontidés.
- [23] " June 10. 1816. Red with golden spots " ; Aq ; A : ? ; D : doc. A, p. 21, avec croquis ; I : *Balistes* juv. (ou Monacanthidé?).
- [24] " 10th June. Natural size " [2 images, 50 et 44 mm] ; Aq (brun) ; A : " Hawkie " ; D : doc. A, p. 20 ; I : *Histrío histrío*.
- [25] " June 10. 1816 " ; Aq (bleu foncé à taches dorées) ; A : ? (probt. Hawkey) ; D : doc. A, p. 20 (le même texte pourrait s'appliquer aux 2 spécimens 24 et 25), avec croquis bien moins mauvais que l'aquarelle ; I : sans doute encore *Histrío histrío*, mais la coloration semble un peu surprenante.
- [26] Aq (brun tacheté) ; A : " Hawkie " ; I : encore *Histrío histrío*.

- [27] " 11th June " ; Aq (gris et rosé) ; A : ? ; I : figure reconnaissable d'*Argyrolepecus affinis*.
- [28] " 15 June " ; Aq (gris foncé) ; A : ? ; I : tout à fait énigmatique ; je ne vois même pas la famille.
- [29] " 15 June " ; Aq (gris) ; A : " Hawkie " ; I : un Exocétidé juv.
- [30] " 16 June " ; Aq (gris et rose) ; A : " Hawkie " ; I : je ne puis même pas identifier la famille.
- [31] " No scales " ; Aq (jaune à bandes verticales beues) ; A : ? ; I : même remarque que pour le précédent.
- [32] Aq (gris brun avec une série de taches marginales) ; A : " Hawkie " ; I : d'une autre main : "*Solea chrysophthalmata*", mais ce Pleuronecte juvénile est totalement inidentifiable, naturellement.
- [33] C ; A : Smith ; I : apparemment un Pleuronecte très jeune (le dessin n'est pas mauvais).
- [34] Aq (jaunâtre) et détail de la tête ; A : Smith ; I : Leptocéphale.
- [35] " Preserved in Bot. 1909. 1 specimen " ; Aq (gris avec lignes transversales-obliques de petits points bleus) ; A : ? ; I : Leptocéphale.

VI. LES COLLECTIONS

On l'a vu par l'inventaire du MS. 681, ce dossier renferme, outre plusieurs états d'un journal où sont mentionnés de très nombreux animaux observés ou capturés, une série de listes se rapportant à des récoltes (C/6, 9-13 et E). Il ne m'a pas semblé nécessaire de reproduire toutes ces listes et je me contenterai de donner le document E, " A List of specimens pres^d in spirit ".

C'est un document intéressant ; il n'est pas daté et la dernière date de récolte y est le 15 juin ; on pourra donc se demander s'il ne s'agit pas du catalogue d'un premier envoi et qu'aurait accompagné, avec la lettre à Banks du 29 juin, le document B.

La liste est divisée en colonnes : Numb.[ers], subdivisés en " Lead " et " Glass "—Genera—Number pres^d—When taken—Remarks.

Le système d'inscription et de numérotation est incompréhensible : si la série " Lead " est régulière (1-48), la série " Glass ", d'ailleurs lacunaire, ne paraît suivre aucun ordre : 95-757- $\frac{1352}{Z.2}$ -295- $\frac{5340}{N.2}$ -191, etc ; les dates ne se suivent pas non plus. On eût pu penser que " Lead " représentait une série de contenants principaux⁶⁷ à l'intérieur desquels des récipients plus petits (série " Glass ") eussent trouvé place, mais il semble cependant qu'il n'y ait qu'un numéro " Glass " par numéro " Lead ".

Un document conservé dans le dossier P.R.O., Admiralty e/2617 donne une liste d'objets " forwarded from Boma by Tuckey " ;

- 16 spec. of minerals—Smith
- 2 spec. of the country money—Tuckey
- 1 musical instrument—Tuckey
- 1 specimen of hard wovel—Tuckey
- 1 tin case of seeds—Smith

⁶⁷ Pour lesquels on se fût d'ailleurs plutôt attendu à une désignation telle que " barrel ", etc.

TABLE I
A List of specimens preserved in spirit

Lead	Numb.	Genera	Number pres ^d	When taken	Remarks
1	Glass 299 62	<i>Lepas</i>	Several	March 28	From the back of a Turtle.—It includes at least 2 distinct species one the <i>L. anatifera</i> of Linne & the other very nearly allied if not <i>L. membranacea</i> of Montagu.
2	482	Thalide	Few	April 17	Floating on the surface of the sea. the margin is of a bright blue, or green. the tentacles on the under side principally white.
3	328	<i>Salpa</i>	Three	April 3	These animals look very beautiful floating on the sea.
4	452	Vellele	Several	3	the crest is generally above the water. tentacles & sides are of a fine blue
5	—	<i>Lepas</i>	Several	5	Most of these <i>Lepas</i> are adhering to <i>Nautilus sprula</i> . The peduncle is blue. I suspect there are 2 species in the bottle.
6	—	<i>Tetrodon</i> } <i>Diodon</i> }	One Three	7 May 22.23	One <i>Tetrodon</i> in this bottle was olivesh when taken it was a pretty subject. the back was bright blue with dark stripes across it. The 3 <i>Diodon</i> were also living when taken from the net.
7	—		Few	April 3. 23	It appears to me a univalve shell. all taken are pres ^d The single flask shaped one has the animal. it appeared when alive not unlike a <i>Septia</i> .
8		Fish	One	April 17	
9		<i>Chelodon</i>	Several	20	Seldom taken but at night & then rarely perfect
10	95	Fish	Several	May 13	Young taken from <i>Squalus carcharias</i>
11	757	<i>Squalus</i>	Three	April 18	This bottles [<i>sic</i>] contains <i>Crustacea</i> taken from the fin of a white shark, & sev ^l animals found in the stomach of Albicore & Bonettos (<i>Scomber</i>)
12	1352 Z.2	Various	Several	22	It is suspected this squalus is different from any species we know. we took a smaller specimen May 3—the <i>Echeneis</i> is (<i>E. remora</i>) from the White Shark.
13		<i>Squalus</i> <i>Echeneis</i>	2 of each	17	This bottle contains <i>Balistes</i> taken 20.23 May. Sev ^l of a very thin fish. taken from Ap. 18 to June 1—One Fish see May 22.
14		Various	Several		

15	295	<i>Aphrodite</i>	Sev ^l	May 22	Taken a small piece of floating wood. 28 June added a species of <i>Lumbricalis</i> taken in the dredge it inhabits a weed into which it had perforated & made a compact cell.
16	5340 N. 2	Fish	Sev ^l	May 21	
17	191	Fish var.	Several	May 3	17. One Pilot Fish May 3—Sev ^l Cottus sev ^l 23rd May—2 Fish May 22. One do 22.
18	227	Fish var.	Several	20	Sev ^l flying fish small. One with beard taken May 16. this perhaps is distinct the others probably young. One fish blue allied to <i>Sparus</i> May 14.
19	968	<i>Exocoetus</i>	One	14	This species has two long appendages to the under lip—In this bottle is also contained a few other small fishes taken from the stomachs of <i>Scomber</i> .
20		<i>Exocoetus</i>	One	14	It supposed to be distinct from <i>E. volitans</i> , the flight is seldom far we saw them very numerous in Gulf of Guinea.
21	394	<i>Tetradon</i> Ord Apode	Three One	18	The frgt of <i>Tetradon</i> was taken from <i>Scomber</i> —the 2 others & the head of one of the same species in the nett.
22	970 a. a.	Fish	Sev ^l	18. 20	the same species as before n° 10-95 but of larger size.
23	1909	<i>Halix. Lepus</i>	Sev ^l	Ap ^l 10. May 20	Taken at various times April 10 to May 20, beyond which time to this June 11 we have not had a single specimen.
24	1942	<i>Mollusca</i>	Sev ^l	May 19	Nearly pellucid when living
25	2007	<i>Crustacea</i>	Sev ^l	Ap ^l 8 June 1	The greater part of these were taken from the stomach of fish—The <i>Oniscus</i> of the largest size is from the pectoral fin of <i>Ex. Volitans</i> to which it firmly adhered.
26		<i>Crustacea</i>	Sev ^l	April June	The largest of these is very common in the Lat. We were in May 1. 10. 20. the others we took in April 12. 18 & to the latter end of that month both of these have some parts of them luminous.
27	196 K. 2	Fish	Sev ^l	[2] April May June	this fish is singular for its large & formidable arm'd jaws. it is undoubtedly predatory on perhaps some smaller species some shrimps & Crustacea were taken from the stomach of one or two opened. It appears not far removed from gen. <i>Anarhichas</i> .
28		Crust.	Numbers	April 10 to June 8	this is a common species of animal on this part of the E side of the Atlantic. parts of them appear very luminous. perhaps there are at least 2 species in Bottles 28-29.
29		Crust.	Many	Do	Same as 28
30		Fish	Three	April 22	
31		<i>Sepia</i>	Several	May 19	this species appears allied if not the same as <i>S. octopoda</i>

Numb.	Genera	Number preserved	When taken	Remarks
32	Fish	Sev ^l	April 1 to June 1	Very abundant at Night & luminous, sometimes as many as 20 taken at one time in the net—there is also another species which differs in the body being round & much less [—] both are preserv ^d . A common species in these parts of the sea but most plentiful by night.
33	Crust.	Many	April May June	
34	Moll.	One	May 30	
35	<i>Lepas</i>	Sev ^l	May 28	
36	Argonaute	Two	June 13	Taken after night in the nett, one being taken in the hand the inhabitant immediately withdrew within its shell & it is so capable of retracting itself that scarcely any of the tentacles are visible. On being placed in a cup of sea water one of them very shortly after wholly quitted its shell not leaving even the slight test membrane, its animal is very similar if not a true <i>Sepia</i> . This is certainly a very singular species we can find no Genera to which it is at all referable. <i>Argonaute Argo</i> . Animals.
37	Fish	Five	June 10	
38		Two	June 14	
39	<i>Sepia</i> <i>Balistes</i>	Two	May 28	
40	Fish	Four	June 14 May 14 28 June 15 [3]	At least 3 distinct species
41	<i>Crustacea</i> Fish	Sev ^l	May 16 to June 4	The <i>mollusca</i> is this bottle are luminous
42	<i>Salpa</i> <i>Crustacea</i>	Sev ^l	June 8 June 5	The <i>Echenis</i> was taken by the dredge in about 40 fathoms. The <i>A. hians</i> 2 in the evening. this contains two species
43	<i>Echenis</i> <i>Argonauta</i>	One Two	June 5 June 5	
44	Fish	Four	June [?]	
45	Various	Sev ^l	May 30	
46	<i>Mollusca</i>	Two	June 13	This singular species bears strong resemblance in part to the [?] of an Elephant, the snout is retractile.
47	<i>Mollusca</i>	Sev ^l	May 8	
48	<i>Mollusca</i>	one	May 1 [4] rien [5]	

Subjects preserved in the small Bottles in one of the drawers of the Cabinet.

- 2 bones of Hippopotamos—Tuckey
- 1 case of plants—Smith
- 1 box stuffed birds—Tudor
- 1 case of preserved animals—Cranch

Cette dernière caisse aurait-elle contenu les collections de la " List of specimens preserved in spirit " ?

En tout les cas, un certain nombre des spécimens récoltés par Cranch sont arrivés à Londres, ceux au moins dont Leach allait dans l'Appendix IV de la " *Narrative . . .* " fournir une sommaire et incomplète énumération.

Mr. P. J. P. Whitehead, du British Museum (N.H.) a découvert d'intéressants renseignements sur certains objets récoltés par Cranch et déposés au Hunterian Museum. Il a bien voulu me permettre, ce dont je lui suis très reconnaissant, de reproduire ci-dessous ces intéressantes précisions :

" Another institution which showed great interest in the Congo Expedition was the Hunterian Museum of the Royal College of Surgeons in London. The Curator, William Clift, records that the College supplied two chests (presumably filled with collecting jars) to William Tudor for this expedition. Unfortunately, the chests were never returned. Clift also records that Leach donated specimens to the College, and that some of these were duplicates from the Congo Expedition. This information, which is contained in the third volume of the Donation registers of the College (i.e. 1817-22) is of sufficient interest to be quoted in full. Donation 842. for 1817.

" Sept. 19th. Received from Dr Leach, for Sir Everard Home, Eighteen small specimens of Fishes ; Three of Amphibia ; Two dried Skulls of Fishes ; and four ditto of Toucans ? or Hornbills,* from the Congo Expedition.

(* See note opposite)

No list of names

Dr Leach was to have named them
but became incapable from ill
health.

Put up Marked from 1-20 In a row behind Nat. History, Fishes "

On the opposite page is a note on this collection.

" Mem. to 842. Two boxes were fitted out by the College, and sent in Charge of Mr William Tudor, Surgeon and naturalist to the Congo Expedition. He unfortunately died ; and his effects were as usual sold ; but who purchased or purloined the Boxes, which were deeply cut as " *Belonging to the Royal College of Surgeons in London, to the care of Mr Tudor* " I never could learn ;—although I applied to Mr Barrow, at the Admiralty ; and to Dr Leach, and Mr Konig, at the British Museum ; who received the Boxes sent out by *them* in charge of Mr Cranch ; who also died.—

" Saturday Morning Dec^r : 6. 1817

Dear Sir When I sent the Congo Duplicates, did I not send several specimens of a head somewhat resembling the above ? [sketch given] If you will oblige me by returning one by the Bearer—faithfully yours W. E. Leach

(*Buceros fasciatus*) "

It would appear that these specimens were lost during the bombing in 1941. "

Il est probable que l'éditeur de la "*Narrative . . .*", Sir John Barrow, soucieux de voir sortir au plus tôt le volume consacré à la malheureuse expédition aura pressé Leach de fournir son chapitre sans attendre l'étude détaillée du matériel. Il faut reconnaître d'ailleurs que parvenir à publier dès 1818, moins de deux ans après le retour des navires, le gros volume de la "*Narrative . . .*", représente une réussite d'autant plus remarquable qu'il s'agissait d'un ouvrage collectif.

Il n'a pas paru sans intérêt d'essayer d'établir une liste des espèces récoltées par Cranch, parvenues en Europe et identifiées ou décrites par divers zoologistes.

Il est d'ailleurs certain que beaucoup des spécimens récoltés par Cranch ou ne sont pas parvenus en Europe ou se sont révélés inutilisables : Leach spécifie (1818, p. 419) qu'au moins une caisse d'animaux en alcool et " a very large proportion of the birds " ont été perdus ; il ajoute même que sur les Oiseaux arrivés à Londres la plus grande partie était " totally destroyed by insects " et que la plupart des Insectes " were entirely destroyed by insects and damp ".

I. Cnidaires

1. Siphonophore—C, p. 40, descr. et fig. ; *supra*, p. 11

2. *Porpita granulata* [n.sp.]—Leach, 1818, p. 418, 8°12'0"N—18°13'7"W (cf. A, p. 5-6) ; cette espèce est mise avec doute en synonymie avec *Porpita lütkeana* Brandt par Lesson (Hist. Nat. Zooph. Acalèphes, 1843, p. 588 [*P. granulosa* (sic)]—589), en attribuant par erreur l'espèce à Cranch alors qu'elle est, bien entendu, de Leach.

3. *Verella scaphidea* Pér. et Les.—Leach, 1818, p. 419, 26°34'0"N—18°28'0"W (cf. A, p. 1-2 ; *supra*, pp. 11, 18 et pl. 3, fig. 3) ; l'identification serait douteuse *vide* Lesson, *loc. cit.*, p. 573 ; Leach ne cite ni date, ni localité.

4. *Verella pyramidalis* [n.sp.]—Leach, 1818, p. 419, pourrait être *V. caurina* Eschsch. d'après Lesson, *loc. cit.*, p. 578.

II.—Trématodes

1. *Hirundinella*—C, p. 26, plusieurs croquis, [non reproduits] cf. Leach, 1818, p. 418 : " Found in the stomach of an Albicore. The bulb at the extremity oval but tapers rather to the extremity, the connecting part is very like the wind pipe of an animal consisting of numerous concentric. (?) & retractile rings at *a* it is a small oval opening perhaps the anus, from there [?] projects a slender tube at the end of which the mouth has this form ". Length of the an.[imal] 1/3 Inch. "

III.—Polychètes

1. *Nereis* sp.—Leach, 1818, p. 418 [*Aphrodite* (A, p. 16 ; E. p. 1)], 22 mai, sur " a small piece of floating wood " (lead 15, glass 295).

2. *Lumbricalis*—E, p. 1, 28 juin, " taken in the dredge, it inhabits mud into which it had perforated & made a compact cell " : est-ce l'Annélide appartenant à " a genus not known to me " (Leach, 1818, p. 418) ? L'auteur la dit prise *avec* celle du bois flotté : il semble plutôt que les 2 spécimens aient été simplement dans le *même* contenant.

IV.—Crustacés

1.—Copépodes

1. *Pandarus Cranchii* [n.sp.]—Leach, Dict.Sc.Nat., XIV, 1819, p. 535, 1°S—4°E (position qui ne correspond d'ailleurs pas à celles que nous connaissons) ; certainement récolté par Cranch dans le Golfe de Guinée et probablement sur le "*Squalus glaucus*" pris le 22 avril et sur les pectorales duquel Cranch recueillait une série de "Crustacea perhaps *Onisci*" (A, p. 7)—B.M. (N.H.), White, 1847, p. 119 : 2 spec. J. Cranch.

Il est inexact comme l'affirme Lewis (Proc. U.S. Nat. Mus., 118, 1966, p. 90) que "*Pandarus cranchii* and *P. satyrus* were synonymised by Shiino (1954)" ; en réalité, Shiino (Rept. Fac. Fish. Pref. Univ. Mie, 1, No. 3, 1954, p. 312 et 323-325) place dans la synonymie de *Pandarus satyrus* Dana 1852 les *P. cranchii* de Steenstrup & Lütken (1861) et de Rathbun (1886) mais nullement le *P. cranchii* de Leach (1819) : d'ailleurs, dans ce cas, l'espèce de Leach étant très antérieure à celle de Dana, Shiino n'eût évidemment pas utilisé pour l'espèce le nom de cette dernière.

2. *Caligus*, 2 nov. spp.—Leach, 1818, p. 418 l'une au moins de ces 2 espèces est sans doute le *Nogaus latreillii* Leach, Dict.Sc.Nat., XIV, 1819, p. 536—(B.M. (N.H.) White, 1847, p. 118, 2 spéc. J. Cranch) qui est le mâle de *Pandarus cranchii*.

2 bis. *Lerneæ cyclophora* Blainville 1822, p. 438, pl.n.num. fig. 7 et 1823, p. 122 : "Je ne connais cette espèce, qui me paraît bien distincte, que d'après une figure manuscrite du Voyage des Anglais au Congo". D'après Brian, Copedodi parasiti dei Pesci d'Italia, 1906, p. 89 et Wilson, Proc.U.S.Nat.Mus., 53, No. 2194, June 13, 1917, p. 39, *L. cyclophora* serait synonyme de *Lernaenicus sprattæ* (Sowerby 1806) Olsson 1868.

2 ter.—Copépode parasite (fam. Lernaecidae)—Blainville, 1822, pl.n.num., fig. 17 : "Espèce de Lerneïde articulé, copiée des manuscrits du Voyage des Anglais au Congo, mais sur laquelle je n'ai aucun détail" : d'après Baird, Nat.Hist.Brit. Entom., 1850 (p. 341) il s'agirait encore du *Lernaenicus sprattæ*.

Ces deux dernières références soulèvent un problème curieux. Il faut remarquer, d'abord, qu'aucune des deux figures que Blainville signale avoir empruntées aux manuscrits du Voyage au Congo, donc à ceux de Cranch, ne se retrouve dans ces derniers. D'autre part, Baird écrit en 1850 (*loc. cit.*, p. 340), jugeant que les figures en cause sont empruntées non à Cranch mais à J. Sowerby : "How he [Blainville] saw the original figures of Sowerby it is difficult to say ; perhaps in the possession of Dr Leach⁶⁸. He has, however, in his paper in the "Journal de Physique" . . . reproduced the two figures, the one *in situ* of the natural size, the other the magnified sketch of the upper portion only, and described them as two distinct species! The only information, he adds, that he has concerning the two species is, "that they are copied from MS. drawings of the English voyage to the Congo!" Baird ajoute que dans la figure de *L. cyclophora* le petit cercle tenu pour la tête du Copépode est, dans Sowerby . . . l'oeil du Poisson parasité.

Grâce à l'amabilité du Dr A. L. Rice, j'ai pu prendre connaissance de l'article de J. Sowerby, "LERNEA Sprattæ", The British Miscellany, II, 1806, p. 17-18, tab

⁶⁸ Cette supposition est d'autant plus intéressante qu'elle doit se voir formulée également pour les papiers de Cranch.

LXVIII, datée June 1, 1806. Ce que rapporte Baird est parfaitement exact : les fig. 7 et 17 de Blainville (1822) sont bien empruntées à Sowerby (1806) et la " tête " du *Lerna cyclophora* Bl. est tout simplement l'oeil du poisson-hôte.

Est-il par conséquent possible que si Blainville a vraiment vu la planche de Sowerby (avec le poisson parasité, ce qui ne pouvait provoquer aucune confusion quelconque) il ait pris l'oeil, sur lequel sont fixés d'ailleurs deux Copépodes, pour la tête de son *L. cyclophora*? De plus, Blainville décrit deux espèces, *L. cyclophora* et le " Lernéide articulé " : un seul coup d'oeil à la planche de Sowerby eut permis de voir qu'il s'agissait d'une même espèce, une fois fixée sur l'hôte, une fois avec la partie antérieure dégagée. Enfin, Blainville ne parle pas de l'hôte, qui est pourtant cité dans Sowerby.

Pour ces diverses raisons, on devra conclure que Blainville n'a pas emprunté ses figures directement à la publication de Sowerby. Et ceci expliquerait peut-être ce que dit Baird d'un emprunt, non à l'article de 1806 mais à des " original figures " (communiquées par Leach ?). On songerait plutôt à quelques maladroitesses copies des figures de Sowerby, sans le poisson, parvenues sans le texte correspondant entre les mains de Blainville et, de plus, sans provenance bien précisée puisque ce dernier les attribue au dossier Cranch.

Blainville aura peut-être mélangé dans ses notes un document Sowerby (copie manuscrite, et incomplète, de la planche de 1806) et les papiers Cranch, prêtés par Leach⁶⁹. D'où la confusion du texte imprimé, attribuant à celui-ci ce qui appartenait à celui-là.

On doit ajouter : 1° que les deux figures ne se trouvent pas dans le dossier Cranch et 2° que ce dernier n'aurait guère pu recueillir des sprats ou des sardines parasitées par le *Lernaenicus* que tout au début de l'expédition, à une période où aucune récolte n'est cependant signalée (la première semble avoir été du 28 mars, par env. 36°15'N) ; il est vrai que les civils de l'expédition avaient quelque peu souffert du mal de mer . . . La confusion de Blainville entre des dessins de Sowerby et ceux de Cranch semble donc tout à fait vraisemblable.

2. Cirripèdes⁷⁰

1. *Cineras Chelonophilus* [n.sp.]—Leach, 1818, p. 412 (= *Conchoderma virgatum* (Spengler 1790) Olfers 1814), " on some turtles ", 36°15'0 N—16°32'0 W, donc 28 mars 1816 (cf. *supra*, p. 17).

2. *Cineras Cranchii* [n.sp.]—Leach, 1818, p. 412 (= *Conchoderma virgatum*), sans provenance (devenu *Cineras Cranchianus*, Leach, 1825, p. 212).

3. *Cineras Olfersii* [n. sp.]—Leach, 1818, p. 412 (= *Conchoderma virgatum*), sur "*Fucus natans*" (devenu *Cineras Olfersianus*, Leach, 1825, p. 213).

4. *Pentalasmis Cheloniae* [n.sp.]—Leach, 1818, p. 413 (= *Lepas Hillii* (Leach 1818) Darwin 1851), " on turtles " (avec *Cineras Chelonophilus*) 36°15'0 N—16°32'0 W.

5. *Pentalasmis Hillii* [n.sp.]—Leach, 1818, p. 413 (= *Lepas hillii* (Leach) Darwin 1851), pas de provenance.

⁶⁹ A cette époque, on pratiquait encore largement, et apparemment sans remords, le découpage des planches imprimées pour en constituer des dossiers.

⁷⁰ Les types de 8 (sur 9) des espèces créées par Leach se trouvent au British Museum où ne manque que ceux de *Cineras Olfersii*.

6. *Pentalasmis Spirulae* [n.sp.]—Leach, 1818, p. 413 (= *Lepas pectinata* Spengler 1793), sur *Spirula*, 22°0'0 N–19°17'0 W, donc 5 avril 1816, au large de la côte saharienne.

7. *Pentalasmis dilatata* [n.sp.]—Leach, 1818, p. 413 (= *Lepas anserifera* L. 1767), sur *Janthina fragilis*, 0°14'0 N–6°18'52 E, donc fin mai, mais cette position ne coïncide pas avec celles que nous connaissons.

8. *Pentalasmis Donovanii* [nov. sp.]—Leach, 1818, p. 413 (= *Lepas fascicularis* Ellis & Solander 1786), 0°38'0 S–7°50'0 E, donc 28 mai 1816.

9. *Pentalasmis Spirulicola* [n.sp.]—Leach, 1818, p. 413 (= *Lepas fascicularis* Ellis & Solander 1786), 22°0'0 N–19°17'0 W, donc 5 avril 1816, au large de la côte saharienne.

3.—Amphipodes

1–4. Quatre nov. gen. et n. spp.—Leach, 1818, p. 417 ; un de ces Amphipodes est “*Primno Guerinii*”, White, 1847, p. 91, B.M. (N.H.), 1 spéc. Congo Expedition, “8°S–46°E”, position nécessairement fautive, et qui pourrait être 1°36'S–8°46'E, donc le 30 mai, jour où Cranch signale avoir pris de nombreux Crustacés.

4.—Isopodes

1. *Oniscus volitans* Cranch MS.—A, p. 10 ; cf. supra p. 30 et Pl. III, fig. 2 : recueilli le 7 mai sur la pectorale d'un Exocet (que Cranch appelle *Exocoetus volitans*), cet Isopode est, malgré l'imperfection manifeste du croquis, identifiable car le spécimen existe dans les collections du British Museum où j'ai pu l'examiner ; il s'agit de *Nerocila trichiura* (Miers 1877 ex White 1847) [*Anilocra trichiura* White 1847 est un *nomen nudum*] ; j'ai cité et figuré l'exemplaire de Cranch, une ♀ ovigère de 22 mm (Monod, 1931 : 6, fig. 1).

2. *Sphaeroma* [n.sp.]—Leach, 1818, p. 417.

3. *Cymothoa* [n.sp.]—Leach, 1818, p. 417.

4. Nov. gen. et n.sp.—Leach, 1818, p. 417, “intermediate betwixt the genera *Aega* and *Eurydice*”.

5. Palinoures

1. *Phyllosoma brevicorne* [n.sp.]—Leach, 1818, p. 417, pl.n.num., 1 fig. non num. B.M. (N.H.) : White cat. n° 168 *a-b* (à sec) et 168 *e-n* (alcool)—White, 1847, p. 82, 14 spec. (*a-d*, à sec et *e-n*, en alcool).

2. *Phyllosoma clavicornis* [n.sp.]—Leach, 1818, p. 417, pl.n.num., 1 fig. non num., cf. croquis de Cranch, C. p. 30, supra, fig. B.M. (N.H.) : White cat. n° 171 *a* (à sec)—White, 1847, p. 82, 6 spéc.

3. *Phyllosoma commune* [n.sp.]—Leach, 1818, p. 417, pl.n.num., 1 fig. non num., cf. croquis de Cranch, C. p. 51, pl. III, fig. 4—B.M. (N.H.) : White cat. n° 170 *a-e* (à sec) et 170 *f-h* (alcool)—White 1847, p. 82, 8 spéc. (*a-e*, à sec et *f-h*, en alcool).

4. *Phyllosoma laticorne* [n.sp.]—Leach, 1818, p. 417, pl.n.num., 1 fig. non num. B.M. (N.H.) : White cat. n° 169–169 *a* (à sec)—White, 1847, p. 82, 1 spéc. [= *Phyllosoma cassidum* (Forster 1782)].

5. *Phyllosoma Smithii* [n.sp.]—Leach MS., B.M. (N.H.) : White cat. n° 693 *a*

(alcool), "Congo Exped. J. Cranch"—White, 1847, p. 82 [nom. nud. : "*Phyllosoma Smythii*, Leach].

6. *Phyllosoma Cranchii* [n.sp.]—Leach MS., B.M. (N.H.) : White cat. n°692 a, (alcool), "Congo Exped. J. Cranch", 36°S [sic]—9°E ; il faut lire bien entendu 3°S, ce qui place la capture dans la 1ère quinzaine de juin 1816—White, 1847, p. 82, 2 spéc. ; "*Phyllosoma Cranchii*, Leach" [nomen nudum].

6. Anomoures

1. Une zoé de Porcellanidé est décrite (cf. p. 18 et 56) et figurée (cf. G, fig. 18).

7. Brachyoures

1. *Zoëa clavata* [n.sp.]—Leach, 1818, p. 414, pl.n.num., 1 fig.non num. B.M. (N.H.) : White cat. n°690 a (alcool), reg. n° 1949 ; 10 : 25 : 4—White, 1847, p. 80 : "1°S—8°W" est impossible, mais 1°S—8°E correspond aux 29—30 mai 1816.

2. *Megalopa maculata* [n.sp.]—Leach, 1818, p. 414. B.M. (N.H.) : White cat. n° 695 a-b [n'a pas été retrouvé]—White, 1847, p. 64, 2 spéc.

3. *Megalopa Cranchii* [n.sp.]—Leach, 1818, p. 414. B.M. (N.H.) : White cat. n° 694 a [n'a pas été retrouvé]

4. *Megalopa sculpta* [n.sp.]—Leach, 1818, p. 414. B.M. [N.H.] : White cat. n° 690 a (alcool), reg. n° 1949 : 10 : 25 : 2—White 1847, p. 64, 1 spéc.

5. *Portunus* sp. [n.sp.]—Leach, 1818, p. 413. B.M. (N.H.) : 1 spéc. (à sec), non enreg., "Gulf of Guinea. Congo Exped.", étiqueté "*Portunus rugosus*", = *Macropipus rugosus* (Doflein, 1904).

6. *Lupa Smythiana* [n.sp.]—Leach MS.—B.M. (N.H.) : White cat, n° 22 et White, 1847, p. 27 (nomen nudum), 2 spéc. (à sec)⁷¹, étiquetés "*Callinectes smythianus*" (White, 1847, p. 27 : "*Neptunus sanguinolentus*"), = *Callinectes gladiator* Benedict 1893.

7. *Lupa Smythiana* [n.sp.]—Leach MS.—B.M. (N.H.) : White cat. n°22, 1 spéc. (alcool), étiqueté "*Callinectes Smythianus*" (White, 1847, p. 27 : "*Neptunus sanguinolentus*"), = *Callinectes gladiator* Benedict 1893.

8. *Lupa Cranchiana* [n.sp.]—Leach MS.—B.M. (N.H.) : White cat. n°26, 1 spéc. (alcool) (White, 1847, p. 27) : "*Neptunus sanguinolentus*", White, 1847, p. 27, 3 spéc., = *Portunus validus* Herklots 1851.

9. *Grapsus minutus*—Leach, 1818, p. 414—B.M. (N.H.) : 2 spéc. (alcool), non enreg., "Gulf of Guinea. Congo Expd.", = *Nautilograpsus minutus* (L. 1758). *Grapsus* [n.sp.]—Leach, 1818, p. 414.

10 *Dorippe armata* Miers 1881 ex White, 1847—B.M. (N.H.), 1 spéc. (à sec), "Congo Expd. Coll. J. Cranch" = *Dorippe* sp. Cranch 1818 (H, p. 414) = *Dorippe armata* White, 1847, p. 54 (nomen nudum)—B.M. (N.H.), 1 spéc. ; la description et la figure de Miers (1881, p. 269—270, pl. XV, fig. 4—4 a) sont d'après le spécimen de Cranch.

8. Stomatopodes

1. *Alima hyalina* Leach, 1818, p. 416, pl.non num., 1 fig. non num. (Porto Prava et

⁷¹ ♀ juv. *vide* Rathbun, Proc. Biol. Soc. Washington, 1897, p. 50.

7°37'0 N—17°34'15 W, donc 18 avril). B.M. (N.H.) : White cat. n° 164 *a-b* (à sec) et 164 *c-n* (alcool)—White 1847, p. 83, 17 spéc.

Cette larve a été identifiée par Manning (1962) à celle de *Squilla alba* Bigelow, 1893 ; plus récemment le même auteur (1968, p. 136–137) adopte "*Alima* Leach, 1817" comme nom d'un genre, malgré la fréquente utilisation faite de ce nom pour désigner un type de larve de Stomatopode, et utilise le binom "*Alima hyalina* Leach, 1817" (= *Squilla alba* Bigelow, 1893). On aura remarqué la date "1817" : Manning spécifie (p. 142) que le texte de Leach de la "*Narrative . . .*" est de 1818, tandis que la planche non numérotée sur laquelle figure *Alima hyalina* serait de 1817. Il est exact que l'exemplaire de la Royal Geographical Society, comme ceux cités par Holthuis et Manning (1964, p. 140) portent, au bas de la planche en question : "Published Novr. 1 st, 1817, by John Murray, London" ; on peut donc penser que si l'exemplaire du Muséum (n° 22795) ne porte pas cette indication, c'est qu'elle aura disparu au cours du rognage. Est-il certain qu'une espèce décrite dans un texte paru dans un volume bien daté (1818) figuré sur une planche appartenant à ce volume mais imprimée à l'avance (1817) doit porter cette dernière date plutôt que celle du volume ?

2. *Smerdis armata* Leach, 1818, p. 415–416, pl. non num., fig. non num. B.M. (N.H.) : White cat. n° 165 *a-b* (à sec) et 165 *c-n* (alcool)—White, 1847, p. 82, 1 spéc. [*Erichtus armatus*].

3. *Smerdis vulgaris* Leach, 1818, p. 415, pl. non num., fig. non num. B.M. (N.H.) : White cat. n° 166 *b* (à sec) et 166 *c-e* (alcool)—White, 1847, p. 82, 5 spéc. [*Erichthus vitreus*] : la position "5°N–12°W" correspond au 30 avril 1816.

9. Divers

Il ne semble guère possible d'identifier, en l'absence des spécimens ou même de figures, les 5 genres et 6 espèces décrits par Leach en 1830 dans les *Transactions of the Plymouth Institution*, bien que 4 des genres soient attribuée à la famille de "*Squilladae*".

1. *Odontorynchus* Leach, 1830, p. 169.

1 *a. Odontocerus* [*sic*] *lutescens* Leach 1830, p. 170 : "Habitat ad *Guineae littora*".

2. *Prionorhynchus* Leach, 1830⁷², p. 170.

2 *a. Prionorhynchus Cranchianus* Leach, 1830, p. 171, 24° 13'N—18°51'15 W, donc le 4 avril, au large de la côte saharienne.

3. *Opithiocheirus* Leach, 1830 *a*, p. 172.

3 *a. Opithiocheirus Chrysophthalmus* Leach, 1830 *a*, p. 172–173, "inhabits the Atlantic Ocean near the river Congo".

4. *Usterocheirus* Leach, 1830 *a*, p. 173.

4 *a. Usterocheirus Macropocillium* Leach, 1830 *a*, p. 173–174, "inhabits the Atlantic, adhering to *Fucus natans*".

4 *b. Usterocheirus Brachycoilion* Leach, 1830 *a*, p. 174, avec le précédent.

5. *Zuphanusa* Leach, 1830 *a*, p. 174–175.

5 *a. Zuphanusa Smithiana* Leach, 1818, p. 175, même habitat.

⁷² Nec Jacquinot & Lucas, 1853 [Braychyoure].

V. Myriapodes

- 1-2. *Iulus*, 2 spp. (1 n.sp.), Leach, 1818, p. 418.
3. *Scolopendra* n.sp., *ibidem*.

VI. Insectes

1-36. 36 espèces parvenues à Londres "in a tolerable state" (un n.gen. de *Scarabaeidea*, 5-6 n.spp.), tout le reste détruit par l'humidité et les Insectes (Leach, 1818, p. 418). Les seules descriptions que je connaisse à ce sujet sont celles de : (1) *Platygenia Zairica* MacLeay, *Horae Entom.* . . . , I, 1, 1819 : 152 [*Platygenia* n.gen. : 151], type B.M. = *Platygenia barbata* (Afzelius 1817) (2) *Euporus strangulatus* Audinet-Serville 1834 : 171 *ex* Dejean, 1821, Cat.Coleo. : 105 (*Callichroma strangulata* nom. nudum), type B.M. (3) *Bombyx Mariana* A. White 1843 : 264, holotype B.M. = *Janomima mariana* (White).

VII. Mollusques

1. *Gastropodes*

1. *Janthina fragilis*, seule espèce parvenue à Leach ; tous les autres Gastropodes perdus (Leach, 1818, p. 412).

2. *Firola arcuata* n.sp. Leach, 1818, p. 411, note† 3°15'0 S—9°38'0 E donc au large des côtes du Gabon.

3. *Firola* sp., Leach, 1818, *ibidem* (croquis par Hawkey, pas de spécimen).

4. *Firola* sp., Leach, 1818, *ibidem*, *idem*.

2. *Ptéro-podes*

1. *Cleodora* sp. 2°14'0 S—9°55'15 E, donc Leach, 1818, p. 411.

2. *Cleodora* sp. 2°41'0 S—9°16'0 E, donc Leach, *ibidem*, p. 411-412.

3. *Céphalopodes*

1. *Ocythoë Cranchii* Leach, 1817, p. 295-296, pl. XII, fig. 1-6 ; 1817 *a*, p. 139 ; 1818, p. 410 ; 1818 *c*, p. 394 ; Blainville, 1818, p. 49-51, fig. 2 A-B—B.M. (N.H.) : 1 ex. (alcool) "J. Cranch, Congo Expedition". [probablement *Argonauta hians* Solander 1786, *vide* Malcolm R. Clarke, in litt., 9-I-1969]

1 a. *Cranchia* n.gen. Leach, 1817 *a*, p. 140 ; 1818 *c*, p. 394 ("Cranchie, *Cranchia*", note : "Ce genre est dédié à M. Cranch, l'une des victimes de l'expédition anglaise au Congo, et homme vraiment remarquable par le zèle qu'il a montré pour la Zoologie").

2. *Cranchia scabra* Leach, 1817 *a*, p. 140 ; 1818, p. 410, pl.n.num., 1 fig. n. num. ; 1818 *c*, p. 395, pl.n.num. fig. 6—B.M. (N.H.) : 1 ex (alcool)+1 coq., "J. Cranch" : [*Cranchia scabra* Leach, 1817]

3. *Cranchia maculata* Leach, 1817 *a*, p. 140 ; 1818, p. 410 ; 1818 *c*, p. 395 — B.M. (N.H.) : 1 ex. (alcool), "the sac only", "J. Cranch". [Hoyle (Rep. Scient. Res. H.M.S. Challenger, Zool., XVI, 1886, p. 186-187) signale avoir examiné le type, qui est en mauvais état et pourrait être un *Megalocranchia* (*Taonius* juv. ?)]

4. *Loligo Banksii* Leach, 1817 *a*, p. 141 ; 1818, p. 411, pl.n.num., 1 fig. n. num. ; 1818 *c*, C. [almar] (*laps. cal.* pour *L. [oligo]*) *Banksii*, p. 396, pl.n. num., fig. 4—B.M. (N.H.) : 1 ex. (alcool), = *Onychoteuthis banksi* (Leach, 1817).

5. *Loligo Cranchii* Blainville, Journ.Phys.Chim.Hist.Nat., XVCI, 1823, p. 123 ;

Dict.Sc.Nat., XXVII, 1823, p. 135 et XXXII, 1824, p. 174 ; c'est comme l'a note déjà A. d'Orbigny, Moll.viv. et foss., 1855, p. 240, le *Cranchia scabra* : on le voit par l'Atlas du Dict.Sc.Nat. où Blainville appelle " Poulpe de Cranch " (pl.n.num., fig. 2-2 a) l'*Ocythoë Cranchii* et " Calmar de Cranch " (autre pl.n.num., fig. 4) le *Cranchia scabra* ; "*Cranchia*" est pour lui une " subdivision " de *Loligo*, mais pourquoi aurait-il créé le binom *Loligo Cranchii* ? Les règles de la nomenclature, alors, n'existaient pas encore. Quand Blainville publie en 1823 (p. 123) un " C.[almar] de Cranch *L.[oligo] Cranchii* Leach, Voy. au Congo, pl. I et J. Phys. LXXXVI, pl. de juin, fig. 6 " il fait en effet erreur car il n'y a pas de *Loligo Cranchii* Leach dans la Narrative . . . , ni autre part d'ailleurs.

6. *Loligo leptura* Leach, 1817 a, p. 141 (*L. lepturo* [sic]) ; 1818, p. 411, pl.n.num., 1 fig. n.num. ; 1818 c, p. 395, pl.n.num., fig. 5—B.M. (N.H.) : 2 ex. (alcool), " West Africa, J. Cranch ", 1°8'0"N—7°26'30" E⁷³, donc le 19 mai, non loin de São Tomé, = *Enoplateuthis leptura* (Leach, 1817).

7. *Loligo Smythii* Leach, 1817 a, p. 141 ; 1818, p. 411, pl.n.num., 1 fig.n.num.—B.M. (N.H.) = 1 ex. (alcool), même localité que *L. leptura*, = *Enoplotcuthis leptura* (Leach, 1817).

VIII. Tuniciers

1. *Salpa fusiformis* Cuv. f. *gregata*—Figurée par Cranch, C, p. 40, cf. p. 11
2. *Salpa maxima* Forsskal f. *gregata*—Figurée par Cranch, C, p. 23, cf. p. 11.

IX. Poissons

Il n'est pas possible d'énumérer avec certitude les spécimens de Poissons récoltés par Cranch et conservés au British Museum, aucun enregistrement systématique ne les concernant. Trois holotypes, en tous les cas, existent :

1. *Oxyrhynchus deliciosus* [n.sp.]—Leach, 1818, p. 410, cf. descr. et croquis de Cranch, D, p. 3, supra p. 53, (= *Mormyrops deliciosus*, cf. Boulenger, Freshwater Fishes of Africa, I, 1909, p. 33-34)—B.M. (N.H.) : 1 ex. naturalisé, SL = 695 mm, LT = 745 mm ; cet holotype est aussi celui du *Mormyrus Tuckeyi* Valenciennes in Cuvier et Valenciennes, Histoire naturelle des Poissons, XIX, 1847, p. 263-264.

2. *Silurus congensis* Leach, 1818, p. 409 (= *Eutropius congensis* ; on se demande pourquoi Boulenger écrit, Poissons du Bassin du Congo, 1901, p. 268 : *congolensis*, comme dans ses Freshwater Fishes of Africa, II, 1911, p. 281-282 ; il ne peut s'agir que d'un lapsus qu'il n'y a aucune raison d'accepter)—B.M. (N.H.) : 1 ex. en alcool, SL = 265 mm, LT = 315 mm.

3. *Pimelodus Cranchii* Leach, 1818, p. 409-410 (= *Chrysichthys cranchii*, cf. Boulenger, loc. cit., II, 1911, p. 332-334—B.M. (N.H.) : 1 ex. en alcool, SL = 179 mm, LT = 215 mm, " River Congo—Congo Expedition ").

4. *Squalus serrata* [sic] n.nudum, Tuckey, 1818, p. 40.

X. Reptiles

Les types de *Coluber Palmarum* Leach, 1818, p. 408-409 (= *DasyPELLIS scaber* (L.) var. *palmarum*) et de *Coluber Smythii* Leach, 1818 (p. 409 (= *Grayia smythii*) se

⁷³ Gray (1849, p. 47) donne 1° 8'N—26° 30'E, ce qui est évidemment faux.

trouvent dans les collections du British Museum ; par contre la tête de *Trionyx Egyptiacus* est perdue.

XI. Oiseaux

Il ne semble exister à Londres qu'un seul spécimen de Cranch : le type de *Perdix Cranchii* Leach 1818 (p. 408)⁷⁴ est en effet conservé au British Museum (No. 1965.2.1), sans étiquette d'origine mais avec une étiquette du musée : " No. 7. Type. *Pternistes cranchii*, Leach. Loc. Congo. Pres. by Congo Expedition " ; spécimen mentionné par R.L.M. Warren, Type-specimens of Birds in the British Museum (N.H.), vol. 1, 1966, p. 70.

Les types d'*Hirundo Smithii* Leach, 1818 (p. 407) et de *Plotus Congensis* Leach, 1818 (p. 408) ne se trouvent pas à Londres : ont-ils été déposés au British Museum en même temps que *Perdix Cranchii* ? Il est impossible de le découvrir. Je ne sais rien non plus du type de *Sterna senex* Leach, 1818 (p. 408).

La liste donnée par Leach (1818, p. 407-408) des autres Oiseaux (32 spp.) est la suivante, reproduite avec addition de la nomenclature actuelle⁷⁵.

[—P. 407—]

1. "*Aquila melanaetos*, (*Savignys Oiseaux d'Egypt. pl. ii. f. 2.*)" = *Aquila pomarina* Brehm.
2. "*Ierax musicus*, Singing hawk, (*Le Vail. Ois. d'Afr. i. pl. 27.*)" = *Melierax canorus* (Risl.)
3. "Circus —, (L'Acoli, *Le Vail.*)" = ?
4. "*Elanus melanopterus*, (*Sav. Ois. d'Ég. pl. ii. f. 2.*) In great plenty" = *Elanus caeruleus* (Desf.)
5. "*Milvus aetotius*, (*Sav. Ois. d'Ég. pl. iv. f. 1*)" = *Milvus migrans aegyptius* (Gmel.)
6. "*Polophilus* —, (*Sav. Ois. d'Ég. pl. iv. f. 1*)" = *Centropus senegalensis* (L.)
7. "*Corvus scapularis*, (*Le Vail. Ois. d'Af. ii. pl. 53.*)" = *Corvus albus* P.L.S. Müller.
8. "*Coracias afra*, African roller" = *Eurystomus afer* (Latham)
9. "*Passer*, (*Savig. Ois. d'Ég. pl. v. f. 7.*)" = ?
10. "*Hirundo Savignii*, (*Sav. Ois. d'Ég. pl. iv. f. 4.*)" = *Hirundo lucida* Verreaux
11. "*Hirundo Smithii* (New species) . . . A single specimen was killed off Chisalla island" = *Hirundo smithi* Leach.
12. "*Alauda*, (*Le Vail. Ois. d'Afr. pl. 196*)" = *Macronyx capensis* (L.)
13. "*Sylvia*, (*Savig. Ois. d'Ég. pl. v. f. 3.*)" = *Sylvia curruca* (L.)
14. "*Sylvia*, (*Le Vail. Ois. d'Afr. 121*) = ? *Acrocephalus* sp.
15. "*Certhia cincta*, (*Ois Dor. ii. pl. 10*)" = *Nectarinia afra* (L.)
16. "*Certhia chalybea*, (*Ois Dor. ii. pl. 13 et 14*)" = *Cinnyris chalybea* (L.)
17. "*Merope crythropterus*, (Pl. énl. 318)" = *Melittophagus pusillus* (P. L. S. Müller)

⁷⁴ Devenu *Francolinus Cranchii* J. F. Stephens in G. Shaw, Gen. Zool., XI, Aves, 2, 1819, p. 336, *Pternistes Cranchii* (Leach 1818), J. G. Wagler, Isis (Oken), 1832, col. 1229 et *Pternistes afer cranchi* ou *Francolinus afer cranchi*.

⁷⁵ Je dois remercier ici le Professeur Jean Dorst qui a bien voulu m'aider dans la mise à jour de la nomenclature utilisée par Leach.

18. "*Upupa Epops*, Common Hoopoe, not varying in the slightest degree from that of Europe" = *Upupa epops* L.
19. *Alcedo maxima* var. ? With the breast ferruginous, the belly varied with black and white, the throat white. In other respects it agrees exactly with the common varieties from Senegal. " = *Megaceryle maxima* (Pallas)
20. "*Alcedo* —, (*Pl. énl.* 556) probably a variety of *Senegalensis*, or the other sex." = *Halcyon senegalensis* (L.)
21. "*Alcedo rudis*, (*Pl. énl.* 62.)" = *Ceryle rudis* (L.)
22. "*Buceros* —, (Le Vail. Ois. d'Afr. pl. 233.)" = *Tockus fasciatus* (Shaw)
23. "*Perdix Cranchii*, (new species) . . ." = *Pternistis cranchi* (Leach)
24. "*Columba* —, (*Savig. Ois. d'Ég. pl.* 5 f. 9) common." = *Stigmatopelia senegalensis* (L.)
25. "*Vanellus* —, (*Savig. Ois. d'Ég. pl.* 6. f. 3.) = *Hoplopterus spinosus* (L.)
26. "*Scopus umbretta*, Tufted Umber ; not uncommon" = *Scopus umbretta* Gmel.
27. "*Ardea* —, (*Savig. Ois. d'Ég. pl.* 8 f. 1.)" = *Bubulcus ibis* (L.)
28. "*Ardea Senegalensis*, (*Pl. énl.* 315.)" = *Ardeola ralloides* (Scopoli)
29. "*Parra Africana*, (*Lath. Syn. tab.* 87.)" = *Actophilornis africana* (Gmel.)
30. "*Recurvirostra* — Very much destroyed, but from the parts remaining, not to be distinguished from our European species, *R. Avosetta*, the common Avoset." = *Recurvirostra avosetta* L.
31. "*Phalacrocorax* —, (*Savig. Ois. d'Ég. pl.* 8. f. 2.)" = *Phalacrocorax africanus* (Gmel.)
32. "*Plotus Congensis*, (new species) . . . One was killed." = *Anhinga rufa* (Lacep. et Daud.)
33. "*Anas* —, (*Savig. Ois. d'Ég. pl.* 10. f. 1)" = *Tadorna ferruginea* (Pallas).
34. "*Sterna senex*, (new species) . . ." = *Anous stolidus* (L.)
35. "*Rhynchops niger*, (*Pl. énl.* 357.) = *Rhynchops flavirostris* Vieillot
- Il va sans dire que cette liste, pour l'établissement de laquelle j'ai bénéficié de l'aide du Prof. Jean Dorst et de Mme Voisin, représente les identifications proposées par Leach sans qu'il soit possible pour certaines, en l'absence des spécimens correspondants, d'en vérifier l'exactitude.

Les genres ou espèces dédiées à John Cranch me paraissent être les suivants :

I. Crustacés

1. *Achaeus Cranchii* Leach, Malac. Podophth. Brit., Dec. 1817, pl. XX/C et lég.—[Brachy.].
2. *Campecopea Cranchii* Leach, Dict. Sc. Nat., XII, 1818, p. 341.—[Isop., = *C. hirsuta* (Montagu 1804)].
3. *Cineras Cranchii* Leach, 1818 (supra, p. 64).—[Cirr., = *Conchoderma virgatum* (Spengler 1790)].
4. *Cineras Cranchianus* Leach, 1825 (supra p. 64).—[Cirr., = *Conchoderma virgatum* (Spengler 1790)].
5. *Cirolana Cranchii* Leach, Dict.Sc.Nat., XII, 1818, p. 347.—[Isop.].

6. *Ebalia Cranchii* Leach, Malac. Podophth. Brit., Apr. 1817, pl. XXV/7—11 et lég.—[Brachy.].

7. *Hippolyte Cranchii* Leach, Malac. Podophth. Brit., Dec. 1817, pl. XXXVIII/17-21 et lég.—[Décap. Nat., = *Thoralus cranchii* (Leach, 1817)]

8. *Lupa Cranchiana* Leach MS. in White, 1847, p. 27.—[Brachy., = *Portunus validus* Herklots 1851].

9. *Megalopa Cranchii* Leach, 1818 (supra, p. 66).—[Brachy.].

10. *Nelocira Cranchii* Sherborn, Index Anim. 1801-1850, C, p. 1589, sans doute pour *Nelocira Swainsonii* Leach, Dict. Sc. Nat., XII, 1818, p. 347.

11. *Pandarus Cranchii* Leach, Dict. Sc. Nat., XIV, 1819, p. 535.—[Cop.]

12. *Phyllosoma Cranchii* Leach MS. in White, 1847, p. 82.—[Astac.]

13. *Pinnotheres Cranchii* Leach, Malac. Podophth. Brit., Jan. 1815, pl. XIV/4-5 et lég.—[Brachy., = *Pinnoterer pisum* (Pennant 1777)].

14. *Prionorhynchus Cranchianus* Leach, 1830 (supra, p. 67).—[?]

15. *Vertumnus Cranchii* Leach MS. in White, 1847, p. 89, *nomen nudum*.—[Amphi., = *Epimeria cornigera* (Fabricius 1779)].

II—Mollusques

1. Placophores

1. *Chiton Cranchii* Leach, 1847, p. 271 [*nom. nud.*]

2. Gastropodes

2. *Alvania Cranchii* Leach, 1847, p. 270 [*nom. nud.*]

3. *Bela Cranchii* Leach, 1847, p. 270 [*nom. nud.*]

4. *Bulla Cranchii* J. Fleming, Hist. of Brit. Anim., 1828, p. 292-293.—En réalité plutôt "*Bulla Cranchii* Fleming ex Leach" car ce dernier signale (p. 293) avoir reçu le spécimen de Leach avec un nom *in schedulis*.

5. *Bulla Cranchii* Fleming ex Leach 1828 ; cf. E. Forbes and S. Hanley, Hist. Brit. Moll., III, 1851, p. 533-534, pl. CXIV/D, fig. 8-9 et V.V., fig. 2.

6. *Bulla Cranchii* A. Adams ex Leach MS in G.B. Sowerby, Thes. Conch., II, (1856), Part II, p. 586, pl. CXXV/115—Encore la même espèce.

7. *Fusus Cranchii* T. Brown, Ill. Rec. Conchol. Gr. Brit. Ireland, 2nd ed. [1844], p. VII et 6, pl. V, fig. 5 (bien que la légende p. 140 ne mentionne pas *F. Cranchii* et donne la fig. 5 pour *F. discors* (1st ed., 1827, pl. 48, fig. 5)).

8. *Murex Cranchii* Leach MS., in T. Brown ("*Fusus Cranchii*"), *ibidem*, p. 6.

9. *Roxania Cranchii* Leach, 1847, p. 268 [*nom. nud.*] ; cf. Leach, Moll. Brit. Synopsis, 1852, p. 43 ; le binom ms serait de 1819 ou 1820.

10. *Scaphander Cranchii* (Leach) Lovén, Index. Moll. Scand. occid.hab., Kongl. Vet.-Akad. Förh., 3, 1846, p. 142.

11. *Trochus Cranchii* Leach, 1847, p. 270 [*nom. nud.*]

3. Céphalopodes

12. *Cranchia* Leach, 1817 (supra, p. 68) [type : *Cranchia scabra* Leach]

13. *Cranchca* Schweigger, Handb. Nat. Skelett-losen ungeglied. Thiere, 1820, p. 758.

14. *Liocranchia* Pfeffer, Abhandl. aus dem Geb. der Naturwiss. Hamburg, VIII, 2, N° 4, 1884, p. 85.

15. *Megalocranchia* Pfeffer, *ibidem*, p. 84.
 16. *Cranchidae* [fam.], cf. J. E. Gray, Cat. Moll. Coll. Brit. Mus., Part I, 1849, p. 36 et 37.
 17. *Cranchina* [sub-fam.] J. E. Gray, Proc. Zool. Soc. London, 1847, p. 205.
 18. *Ocythoë Cranchii* Leach, 1817 (supra, p. 68)

III. Poissons

1. *Pimelodus Cranchii* Leach, 1818.

IV. Oiseaux

1. *Perdix Cranchii* Leach, 1818 (supra, p. 70).

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- 1818a. Appendix, No. II. Observations on the Genus *Ocythoë* of Rafinesque, with a Description of a new species, *in* Tuckey, J. K. *Narrative . . . to explore the River Zaïre* Appendix II pp. 400-401. 1 pl. " XII " [celle des *Philos. Trans.*], placée d'ailleurs dans l'article Home *in* : " *Narrative . . .* ".
- 1818b. Sur plusieurs genres nouveaux de Crustacés. *J. Phys. Chim. Hist. nat.*, **86** : 304-307, fig. 4-11 [pl. n. num.]⁷⁶ Cet article aura-t-il vraiment été publié en avril ? On peut en douter puisque sa planche reproduit une planche parue dans la " *Narrative . . .* ", publiée en mars. Mais il n'est pas impossible non plus, évidemment, que Leach ait envoyé plus ou moins simultanément deux articles, illustrés chacun de la même planche, d'une part à Sir John Barrow, pour la " *Narrative . . .* ", d'autre part à Blainville, pour le *Journal de Physique*. *Zoë clavata*, p. 304, fig. 4 ; *Smerdis*, p. 305 ; *Smerdis vulgaris*, p. 305, fig. 5 ; *Smerdis armata*, p. 305, fig. 6 ; *Alima*, p. 305 ; *Alima hyalina*, p. 305, fig. 7 ; *Phyllosoma brevicorne*, p. 307, fig. 8 ; *Phyllosoma laticorne*, p. 307, fig. 9 ; *Phyllosoma commune*, p. 307, fig. 10 ; *Phyllosoma clavicorne*, p. 307, fig. 11.
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⁷⁶ Tous ces dessins sont empruntés à la pl. de Leach, 1818 (*Narrative . . .*), mais reproduits inversés.

⁷⁷ Ces dessins sont empruntés à la pl. de Leach, 1818 (*Narrative . . .*) mais reproduits inversés. Les figs. 1 (*Ocythoë antiquorum*) et 2 (*Ocythoë Cranchii*) semblent bien appartenir à un article de Blainville, Sur le Poulpe habitant de l'Argonante (suite), livr. juin. p. 434-455.

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PLANCHE I

- FIG. 1, doc. G, No. 1, cf. p. 55
FIG. 2, doc. G, No. 2, cf. p. 55
FIG. 3, doc. G, No. 4, cf. p. 55
FIG. 4, doc. G, No. 5, cf. p. 55
FIG. 5, doc. G, No. 20, cf. p. 56
FIG. 6, doc. G, No. 19, cf. p. 56
FIG. 7, doc. G, No. 11, cf. p. 56
FIG. 8, doc. G, No. 7, cf. p. 55
FIG. 9, doc. G, No. 33, cf. p. 57



April 1852



April 1852



3



May 1852

4

May 30th
full size



5



May 30

6

July 20
No teeth
No scales } present

7



8

May 1852



Preserved in 1851 1852
2 specimens

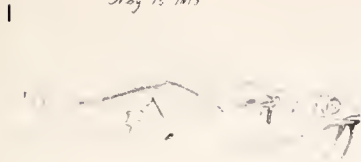


9

PLANCHE 2

- FIG. 1, doc. G, No. 9, cf. p. 56
FIG. 2, doc. A, p. 21, cf. p. 10
FIG. 3, doc. G, No. 10, cf. p. 56
FIG. 4, doc. G, No. 23, cf. p. 56
FIG. 5, doc. G, No. 19, cf. p. 56
FIG. 6, doc. G, No. 12, cf. p. 56
FIG. 7, doc. G, No. 29, cf. p. 56
FIG. 8, doc. G, No. 27, cf. p. 57
FIG. 9, doc. G, No. 13, cf. p. 56
FIG. 10, doc. G, No. 28, cf. p. 57

May 12 1915



2

(21)

rather more than a inches above dark brown with
 the back & sides being lighter in
 the above on the back has a
 on the p
 less is about 1/10 of an
 common over the
 small length 4.5 mm
 The body has numerous very
 to in the form of the belly
 in the belly and lateral
 13.
 coming back of longer than with the dorsal skeleton
 it's dorsal being short & rather broad & rounded p
 all above a general rounded dorsal animal - the base
 of the body they are 3 forked & slender from

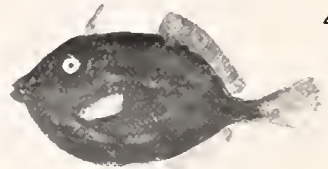


May 14 1916

3

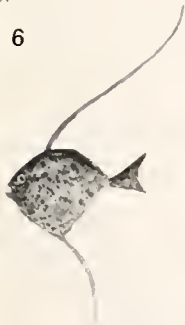


4



1895

6



5



11th June

8



7



May 25 1916
Length 4 inches

9



on June

10



PLANCHE 3

FIG. 1, doc. C, p. 30, larve *Alima* et Phyllosome (le *Phyllosoma clavicornis* de la planche de Leach 1818).

FIG. 2, doc. A, p. 10, *Nerocila trichiura*, cf. p. 65

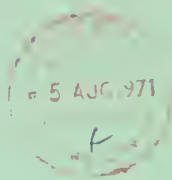
FIG. 3, doc. C, p. 28, Siphonophore, cf. p. 11

FIG. 4, doc. C, p. 51, Phyllosome (le *Phyllosoma commune* de la planche de Leach 1818).

FIG. 5, doc. C, p. 28, cf. p. 11.

FIG. 6, doc. C, p. 32, cf. p. 11.

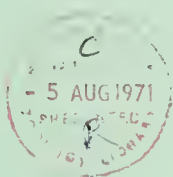
FIG. 7, doc. A, p. 25, spécimen de sténographie.



Printed in Great Britain by
Alden & Mowbray Ltd
at the Alden Press, Oxford

10

A SHORT HISTORY OF THE
LIBRARIES AND LIST OF MSS.
AND ORIGINAL DRAWINGS IN
THE BRITISH MUSEUM
(NATURAL HISTORY)



F. C. SAWYER

BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
HISTORICAL

Vol. 4 No. 2

LONDON : 1971



Bernard Barham Woodward
Librarian, 1881-1920



Basil Harrington Soulsby
Librarian, 1920-1930



Charles Davies Sherborn
Bibliographer, 1888-1942



Alexander Cockburn Townsend, O.B.E.
Librarian, 1930-1964

A SHORT HISTORY OF THE LIBRARIES AND
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Pp. 77-204



BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
HISTORICAL SERIES

Vol. 4 No. 2

LONDON: 1971

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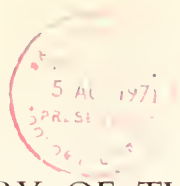
World List abbreviation:
Bull. Br. Mus. nat. Hist. (hist. Ser.).

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TRUSTEES OF
THE BRITISH MUSEUM (NATURAL HISTORY)

Issued 31 May, 1971

Price £3.40



A SHORT HISTORY OF THE LIBRARIES AND LIST OF MANUSCRIPTS AND ORIGINAL DRAWINGS IN THE BRITISH MUSEUM (NATURAL HISTORY)

By FREDERICK C. SAWYER

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THE 220 years of the life of the British Museum may, for convenience, be divided into three periods : that from its foundation in 1753 to 1830 at Montagu House, once standing on the forecourt of the present Museum ; the half century from 1830 to 1880 ending with the transfer of the Natural History Collections to South Kensington ; the third period covering the ninety years to the present.

The history of the Library of the British Museum (Natural History), or more colloquially, the Natural History Museum, belongs almost exclusively to the last period. The transfer from Bloomsbury in 1880 was preceded by two most surprising anomalies. The first was the failure to give space to a Library in the new building to replace that at Bloomsbury. The architect's plan, approved by the Trustees and by the Keepers a dozen years before, provided Departmental Libraries, but as the detailed plans developed these disappeared and authority was too divided to restore them. The second anomaly was the principle accepted by the Trustees that no scientific literature could leave Bloomsbury that could be claimed to have fallen under the terms of the original Trust unless explicitly by Act of Parliament such as that of 1878 which permitted the removal of the Natural History Collections.

The ban included one of the most famous of all natural history libraries, that bequeathed by Sir Joseph Banks on his death in 1820. When this came into the

Museum in 1827, as a part of the Botanical Branch, it was understood that the Keeper of the Banksian Botanical Collections should have exclusive care of the library, manuscripts and drawings, but the Law Officers of the Crown, to whom the case for transferring the Banksian Library to South Kensington was referred in 1882, were of the opinion that the Trustees of the British Museum were prohibited by their Act of Incorporation from removing the Banksian Library from that building to South Kensington.

That the ban should include the library of the Hans Sloane Collection of 1753, which brought the British Museum into being, was perhaps natural. But certain volumes which had found a permanent home in the Natural History Departments were seen as having become a part of the Collections and were allowed to go.¹

The other books which accompanied the Collections to South Kensington were a small number which a succession of Keepers in the course of 130 years had caused to be purchased for their own use. The records for the first hundred years or so of this period are obscure, but the Trustees' Minutes sanction the purchase from time to time of some work or another.

From 1840, under the Keepership of John Edward Gray (1800-1875), the virtual founder of the Zoological Collections, the collection had doubled and re-doubled. There was an increase in staff and in catalogue making, but the reorganization of the main library at Bloomsbury at that time did not ease the borrowing of books by the Branches. Therefore in 1845-1847 the Natural History Branches (as they were called) of Botany, Mineralogy and Zoology, were each granted an annual sum of £25 for their special needs, especially for works of reference.

Thus up to 1880, the Departments of Natural History at Bloomsbury had, with the exceptions stated, been entirely dependent on the main library for the loan and for the purchase of books. The collection of books which arrived in the new museum at South Kensington as a foundation for the Libraries there, was therefore, in all conscience, small enough. *A Catalogue of Books in the Department of Zoology*, published in 1880, shows 1,872 titles of books and 140 separate periodicals. There were only 70 works of a date older than 1801. The Mineral Department catalogue listed 1,129 titles of books and 48 periodicals. The Libraries of the Natural History Museum had, therefore, virtually to start from nothing.

This lack of provision whether for proper accommodation for a library or for books was not due to want of protest on the part of the Keepers. From 1873 onwards, Albert Günther, who was shortly to succeed J. E. Gray, continually pressed the claims of both. Eventually a year before the move, the Treasury sanctioned grants for book purchase : £5,700 for the year 1879, 80, and £5,000 a year for each of the next five years.²

¹ Some of these are of great interest. Sir Hans Sloane's copy of John Ray's *Historia Plantarum* was kept by the Department of Botany. The Trustees were making grants for special works as early as 1814, but it is not known what these were. Seventeen volumes of John Abbot's water colour drawings of insects of Georgia, purchased in 1818 remained with the Zoological Branch. Following the Select Committee Report of 1836 there may well have been an increase in the printed books specially purchased for retention by the Zoological Branch, and in 1842, one of the first of these was Henri Milne Edwards' *Histoire Naturelle des Crustacés*.

² Because no space had been allocated to the General Library, it had to be housed in what was in effect a communicating corridor on the eastern side of the Main Hall, and there it remained for the next seventy-

Before the move from Bloomsbury the Trustees had passed a special resolution that the new museum should have a General Library which should hold works common to more than one Department's interests. This was placed under the supervision of a Committee of the four Keepers, and to it was appointed an Assistant in Charge. Administratively the General Library was to be independent of the Departments, as the Departmental Libraries were to be independent of the central library. Until 1884, when the Director, Sir William Flower, took personal responsibility for the General Library, the Keepers were concerned both with it and their own libraries. Their influence was important, and their names merit record: W. Carruthers (Botany), L. Fletcher (Mineralogy), A. Günther (Zoology), and H. Woodward (Geology).

The Assistant in Charge appointed to the General Library was Bernard Barham Woodward (1853-1930), the first qualified librarian to join the Museum. He had served in the Department of Printed Books at Bloomsbury since 1876 and was transferred to the Natural History Museum in 1881. If a record is needed of his bustling energy and efficiency, a story will illustrate it. B. B. Woodward had a cousin H. B. Woodward, who was employed in the Geological Survey, and to their friends they were known as "Bumble Bee" and "Humble Bee" respectively, names which very truly reflected their personalities.

For the General Library, Woodward co-ordinated the expertise of the Keepers and of their staff with that available outside. For this he co-opted the assistance of Frederick Justen, a member of Dulau & Co., an old established firm of antiquarian booksellers. Justen's wide knowledge of the second-hand book trade in natural history enabled him to comb the markets of Europe for copies of the basic works.

If Woodward was a pioneer in this line of bibliographical work, there is another name that must be coupled with his, that of Charles Davies Sherborn (1861-1942). Born in Chelsea, his formal schooling ended at the age of fourteen when he started work at a bookseller's shop in New Bond Street for a weekly wage of seven shillings. He joined the Geological Department in 1888. His leisure was devoted to extensive reading and study at the Museum of Practical Geology, then located in Jermyn Street, and by determined self-education he became the foremost bibliographer of his time in the field of natural history.

It was about the time when he first began work in the Museum that the germ of the idea of an *Index Animalium*—an alphabetical list of the scientific names applied to all animals since the year 1758—was simmering in Sherborn's mind and after some encouragement from leading naturalists he commenced this stupendous task in July

seven years. The departmental libraries were little better off, the botanical books housed in the East Tower, adjacent to the general herbarium, bore the greatest semblance of a designed library; the palaeontological books had reasonable accommodation in one of the smaller galleries, while mineralogical and zoological books were housed in ground floor rooms in the front east and west wings respectively. In 1909 the Zoology Library was moved from the south-west corridor, to allow for expansion of the Insect Collection, and was installed in what was called the Fish Reserve Gallery on the western side of the Main Hall where it still remains, spreading spasmodically in diverse directions as necessity demands. It was not until 1967, when the former Insect Gallery was added to the accommodation, that reasonable facilities for readers' tables could be provided. In 1959 the General Library had, at last, been able to move into the new North Block to space specifically constructed for library purposes, the botanical books had moved to the West Tower, mineralogical to the East Tower, and palaeontological books to the old General Library accommodation.

1890. Before starting the work it was necessary to compile a list of all the books and periodicals in every European language likely to contain descriptions of new genera or species of living or extinct animals. The value of this list to B. B. Woodward in his search for essential works can be imagined. Sherborn himself would go through booksellers' lists at his breakfast table and if he spotted a rarity the Museum Library needed, would immediately telegraph for it on his own account. In this way something like one thousand items were obtained which might otherwise have been missed. Sherborn's achievement, reflected in the *Index Animalium*, was justly recognised in 1931 when the University of Oxford conferred on him the degree of Doctor of Science, *honoris causa*.

The following figures will give an idea of the number of books which passed into the Libraries during their first twenty years, the critically formative period of their growth.

For 1884 :—General Library, 2,114 volumes added during the year, bringing the total number to 12,034 volumes ; Geology, 629 volumes and 302 pamphlets added ; Mineralogy, 305 volumes added ; Zoology, 2,450 volumes added making just over 10,000 in the department. By the year 1900 the census reveals the holdings as :—General Library, 19,395 volumes and 5,569 sheets of maps ; Botany, 14,980 volumes ; Geology, 9,395 volumes ; Mineralogy, 6,339 volumes, and Zoology, 17,167 volumes.³

It is also interesting to recall the prices paid for some of the early acquisitions compared with current values. Audubon's elephant folio edition of the *Birds of America* was purchased in 1885 from Bernard Quaritch Ltd. for £285 ; a copy auctioned in London in November 1969 was sold for £90,000. It was also in June 1885 that Bernard Quaritch was explaining to the Keeper of Zoology that £200, which the Keeper considered excessive, was a fair price for eight volumes, in beautiful full leather bindings, of Gould's *Birds of Australia* ; in 1968 a copy auctioned in London fetched £5,200. Many other examples would show that during the three decades in which these valuable works were bought, prices were at their lowest point.

Throughout this period the work of cataloguing had of necessity been centralised in the General Library, the author, title, collation and date being typed on a flimsy which was then mounted and filed in the central card catalogue. This became a complete record of all works in the museum. In the year 1903 the first volume of the *Catalogue of the Books, Manuscripts, Maps and Drawings*, comprising the letters A–D, appeared in print. The fifth and final volume of the main catalogue was published in 1915 and the three volumes of the supplement were issued between 1922 and 1940. Throughout, an extremely high standard of accuracy was maintained and it is generally acknowledged to be one of the finest works of its kind. This quality was achieved primarily by the erudition and care devoted to his task by B. B. Woodward, but the proof sheets besides being checked by the compiler, were sent to another member of the staff for examination. Whether by accident or thoughtful design the man selected by the Keepers was Professor F. Jeffery Bell, a zoologist known to be on unfriendly terms with the librarian and one who delighted in picking up any errors or omissions in the catalogue. By such means something akin to perfection was attained.

³ By 1969, the Museum Libraries' holdings had grown to a total of approx. 400,000 volumes.

At the end of 1920 B. B. Woodward retired from his post with the satisfactory knowledge that during his forty years service at South Kensington, the libraries, from such small beginnings, had become one of the foremost collections of books on natural science in the world. He was succeeded by Basil H. Soulsby (1864-1933), who had served in the Department of Printed Books from 1892 until 1909, when he was transferred to the Natural History Museum and employed in the Director's Office until the library vacancy arose. During his nine years as librarian the steady growth continued, his tenure being marked by the compilation of the *Catalogue of the Works of Linnaeus in the British Museum* . . . published in 1929. His work on this catalogue resulted in the acquisition of a great number of obscure editions of the famous author and on his retirement in January 1930 the Linnæan collection in the museum was, next to that of the University of Uppsala, the most extensive in the world. His successor, Alexander C. Townsend (1905-1964), served from 1930 until his tragic accidental death on the last day of 1964, during which period the regular inflow of books and periodicals continued, interrupted only by the 1939-1945 war and its aftermath. His last few years were heartened by the sight of his beloved books installed in the new library with its spacious reading room, a distinct contrast to the old corridor where anyone consulting the card catalogue or opening a bookcase would block the passage. He in turn has been succeeded by Maldwyn J. Rowlands who brings to his new post wide experience obtained in three national scientific libraries. The end of 1968 saw the publication of a much needed *List of Serial Publications in the British Museum (N.H.) Library*, comprising 1,164 pages of letterpress with some 12,500 titles of journals available in the museum.

Mention should be made of the system by which the books in the museum are divided among General, Departmental and Sectional libraries. Books and periodicals relating to more than one branch of natural history are held in the General Library, whereas those dealing with a specific branch such as Zoology, Botany etc. are placed in the appropriate departmental library. Since 1948 there has been centralisation of the book purchase grant by which the Museum Librarian is responsible for all purchases although naturally he is guided by the recommendations of the Keepers for works needed by the departments. The departmental libraries are for Botany, Mineralogy, Palaeontology, Zoology and, since 1935, Entomology, when the insect books were removed from the responsibility of the Zoological Department. To greater or lesser extent these departmental libraries are subdivided; in Botany there are sectional libraries devoted to European flora and Cryptogamic plants; in Entomology the books on Coleoptera are kept adjacent to the beetle collections, books on Rhopalocera are on the same floor as the butterfly cabinets, and so on. Palaeontology has responsibility for a sub-departmental library of works relating to anthropology, and Mineralogy for books on chemistry and oceanography. Large collections of topographical, specialist geophysical and oceanographical maps are found in the General and departmental libraries. The zoological books are divided into no less than twenty sectional libraries of varying sizes, the smallest contained in three or four bookcases, the largest comprising several thousand volumes. There are points for and against the centralisation of all books but bearing in mind that the libraries are mainly used by the staff, on balance it seems that this method of subdivision is

more convenient, especially as most of the scientific staff and visiting research workers specialise in one particular field and find it invaluable to have the books they wish to consult adjacent to the specimens they are studying.

The method of classifying and shelving books varies in the different departments. The General, Entomological, Palaeontological and Zoological Libraries use, with slight modifications, a system devised by B. B. Woodward about sixty-five years ago and this is sufficiently flexible in most divisions for all the expansion required, and so is found adequate. On the other hand Woodward's original Scheme lacked the finer sub-divisions, but as new knowledge of the phylogeny of living things becomes available, new sub-divisions are introduced in the various classes. The Botanical and Mineralogical Libraries have in recent years changed over to the Universal Decimal Classification. Periodical publications are arranged according to the country of origin, blocks of consecutive numbers having been allotted to the various national divisions of the world.

Another of the Museum's services relates to making available an extensive range of serial publications used in the compilation of the *Zoological Record*. This was founded by the then Keeper of Zoology in 1864, and was compiled by himself and six others in their spare time. In 1886 the Zoological Society of London assumed responsibility for the issue of future volumes, until 1906, when it was merged with the *International Catalogue of Scientific Literature*. This arrangement broke down with the outbreak of the first World War; the Zoological Society again resumed responsibility for publication and today employs a number of full time staff searching journals and compiling the entries. It is found convenient to perform this work in the museum libraries because of the extensive range of serial publications received, despite the fact that the museum does not enjoy any privileges under the Copyright Acts. These accessions are obtained by presentation, purchase and exchange. Current periodicals number over 6,500 and the total number of different journals available for consultation is around 13,200. Parts of journals containing articles on any branch of zoology, including fossil forms, are searched immediately after receipt; a slip is written, quoting author, title, reference, and the class of animal with which the paper deals, e.g. Aves, Insecta, Vermes, etc. These slips are passed to the specialist Recorders who in due course examine the papers and insert the entries into the appropriate sections of the "Record". New books are dealt with similarly. In addition, a considerable number of other abstracting and indexing services make use of the Library holdings.

The libraries contain a considerable number of unique works in the form of original drawings and manuscripts. Until recently no separate catalogue of these had been compiled. Those preserved in the museum when the *History of the Collections* was published in 1904 were listed in the section on Libraries. It is now out of print and it seems worth while to republish this list and incorporate details of the numerous collections of drawings and manuscripts acquired during the past sixty-five years. This is now issued as an Appendix to this paper.

It is perhaps appropriate in conclusion to mention some of the major and more notable collections by which the libraries were enriched. Arthur Hay, ninth Marquis of Tweeddale (1824-1878), after a distinguished army career in which he served in

India and the Crimea retired from active service in 1866 and devoted himself to natural history, mainly ornithology. Twenty years earlier he had been publishing descriptions of new birds from the Indian sub-continent and scientific papers appeared from his pen in unbroken succession until the year of his death in 1878. To facilitate his studies he had amassed over the years a magnificent ornithological library containing 2,560 volumes, many of them rare and costly works, and nine years after his death this collection was presented to the Bird Section of the Zoological Department by his nephew, Captain R. G. Wardlaw Ramsay. The next major acquisition was in 1901 when, by Deed of Gift, Lord Walsingham presented his collection of 200,000 specimens of micro-lepidoptera and his library of books relating thereto. Thomas de Grey, sixth Baron Walsingham (1843-1919), had made a life-long study of the micro-lepidoptera and built up a magnificently bound library of more than 1,000 volumes of entomological periodicals and books. The collections were transferred to the museum in the spring of 1911. The year 1905 saw the addition of another sizeable collection of insect books, namely the Fry bequest. Alexander Fry (1821-1905) was an enthusiastic collector of coleoptera which he augmented by large purchases of important collections. His library of 611 volumes came to the museum as part of the bequest. Three years later C. D. Sherborn (1861-1942) presented to the General Library a valuable collection of specimens of handwriting of naturalists consisting of some 8,000 letters and other documents. This collection has proved invaluable as an aid to the identification of the holograph on collectors' labels. In 1910 Dr. Albert Günther (1830-1914), a former Keeper of Zoology, presented 146 folios of drawings of Chinese fishes made by native artists, under the direction of John Reeves, in the early part of the nineteenth century. The Botanical Library was enriched in 1913 by the acquisition of 11,325 plates and original drawings of plants collected by Isaac Swainson (1746-1812) during his lifetime, and in the same year four volumes of original drawings made for Pieter Cramer's *Papillons Exotiques* were purchased for the Entomological Department. The personal copies of the works and memoirs of Sir Richard Owen (1804-1892), containing his autograph notes, drawings and other memoranda were presented to the General Library by his daughter-in-law, Mrs. Emily Owen, in 1915. Two most important collections were received in the Zoological Department in 1921; firstly, the library of works on oceanography formed by Sir John Murray (1841-1914) and presented by his son, Mr. J. L. Murray; the research on the Murray collection of ocean-bottom deposits was carried out in the Mineralogical Department of the museum and in 1941 it was decided to transfer the Murray Library to this department; secondly, a fine collection of books on ornithology made by Captain G. E. Shelley (1840-1910) and presented by his widow. Three major acquisitions came to the museum in 1925; 719 volumes of separate works and bound reprints relating to Foraminifera were presented by Edward Heron-Allen (1861-1943), also 100 bound volumes and 1,200 pamphlets on Porifera were presented by Mrs. Ada Dendy, widow of Professor Arthur Dendy (1865-1925). These unique collections on specialised subjects were invaluable for their usefulness to the Sections concerned. The third acquisition in this year comprised a set of 154 original zoological and botanical drawings, many of which constitute the types of the species they represent, painted in Ceylon and the Malay Archipelago by Pieter Cornelis de Bevere during the

years 1754-1757 for Joan Gideon Loten, then Dutch Governor of Ceylon. These are preserved in the General Library.

It was in 1937 that the most extensive and valuable single library to be acquired was donated to the museum. Lionel Walter, second Baron Rothschild (1868-1937), had founded and maintained a museum of zoology at Tring, Hertfordshire, containing the largest collection of animals ever assembled by one man. The working library of nearly 30,000 volumes, superbly bound, relating primarily to ornithology and entomology, is also especially rich in accounts of early voyages and expeditions. The land, buildings and contents having been willed to the nation, the library has been kept up to date by continuation of the periodical publications and augmented by essential books required by the museum staff working on the collections preserved there. The next large bequest was in 1948 when the zoological books and reprints of Sir Sidney Harmer (1862-1950), a former Director of the museum, were received. His major studies had been on the Polyzoa and Cetacea and his very extensive collections of literature on these subjects were a welcome addition to the study libraries of these two Sections.

Scarcely a year passes without some rare or unique works being acquired, also useful small collections of books. Examples of these are the Leston collection of more than one hundred volumes of the works of the Rev. J. G. Wood, many being editions not previously represented in the library; this collection was presented by Mr. Denis Leston in 1958. A few years later, in 1964, the C. T. Trechmann bequest of 242 volumes and a large collection of reprints of papers mainly concerned with the palaeontology of the West Indies was received. In 1965 a collection of books relating to Mineralogy and containing some comparatively rare works not represented in the Museum library was bequeathed by Sir Arthur Russell (1878-1964). Colonel Richard Meinertzhagen (1878-1967), the well known ornithologist, bequeathed, in 1967, his library comprising 367 volumes of works on birds, together with a most useful collection of 44 boxes of reprints.

One of the most important recent additions to the Museum's collections of manuscripts comes from the library of Dr. Albert C. L. G. Günther, F.R.S. (1830-1914), one time Keeper of Zoology. These were acquired from his grandson in 1969, and comprise several thousand letters addressed to Dr. Günther from the year of his arrival in England in 1857 to his death, and includes several hundred manuscripts relating to the period of his Keepership. Finally, in November 1969, an extensive collection of c. 2,500 autograph letters of various eminent naturalists and antiquarians was acquired, mostly written before 1850 to James Sowerby and his son J. de C. Sowerby, together with autograph notes, drafts and drawings relating to zoological and botanical subjects.

The strength of the libraries of the Museum is without question their comprehensiveness. As has been noted, the Museum has been fortunate enough to be presented with large quantities of valuable material, but this should not detract from the considerable efforts made by the various librarians to obtain rare material as well as current publications. With the ever increasing book production throughout the world and the widening interests of the Museum it is no easy feat to acquire even

the most essential material, let alone aim for the degree of completeness for which the libraries have become world famous. The fact that they still manage to occupy this position is shown by the considerable use librarians throughout the world make of the bimonthly *List of Accessions to the Museum Libraries*. The accommodation of the books and the staff to look after them was considerably eased by the move of the Botanical and Mineralogical libraries to the west and east towers and by the provision of a purpose built General Library, but the 1970s should witness the greatest development in library building the Museum has ever experienced. Two floors of the new north-east block have been allocated for expansion of the General Library and enlarged accommodation for the Zoological Library. The new east block being erected for the Department of Palaeontology will include a completely new library with reading room and map room as well as the usual offices.

Thus the coming decade should see the books housed in conditions worthy of them, and it would be as well to remember that it has not been the buildings which have made the libraries what they are today but the numerous members of the public who have presented to the Museum their collections great and small and the Museum and Library staff who over a number of decades have diligently sought and found so much unique material.

It remains only to gratefully acknowledge the co-operation and assistance I have received from my former colleagues in the Departmental Libraries, particularly Miss P. I. Edwards for additions and amendments relating to the Botanical Library and Mr. A. P. Harvey similarly for Palaeontology. I especially record my thanks to the Chief Librarian, Mr. M. J. Rowlands, for his encouragement and advice in the compilation of the Appendix to this work.

LIST OF MANUSCRIPTS AND DRAWINGS ARRANGED UNDER
THE NAMES OF AUTHORS, AND OR PREVIOUS OWNERS

The initial of the Departmental Library in which the various works are kept is placed after each entry. Items preserved in the General Library are marked (L), those in the Tring Museum (T) and those in the Directorate (D).

ABBOT (John) [1751-1840]

A collection of original water-colour drawings of the Insects and Plants of Georgia, by J. Abbot, with manuscript descriptions, in 17 volumes, formerly the property of J. Francillon, was purchased in 1818 (Z). Some of these figures have served as types of new species.

Two volumes of original drawings of Insects of Georgia and a volume containing 116 water-colour drawings of Birds of Georgia were bequeathed by the second Baron Rothschild in 1937 (E and Z).

148 water-colour drawings of Lepidoptera of Georgia were acquired with the Lord Walsingham collection in 1911 (E).

ABBOT (William James Lewis) [1853-1933]

"The Geology of the new Wealden Colossal Gastropods and the life history of the 'Bluestones'" 1929. Unpublished manuscript (P).

ABRAHAM (P. S.)

MS. list of Anthobranchiate Nudibranchiate Mollusca in the British Museum also a list of these molluscs not in the British Museum (Z).

ABREU (E. A. D'.)

MS. note-book of Indian birds and reptiles of the Nagpur District. c. 1913 (Z).

ACHARIUS (Erik) [1757-1819]

13 original water-colour drawings of plants and the original manuscript of his *Monographie der Lichen-Gattung Pyrenula* published in 1812 (B).

ADAMS (Arthur) [1820-1878]

Adams served as Assistant Surgeon and Naturalist on board the *Samarang*, in 1843-46. 109 water-colour and pen-and-ink sketches of animals made by him during that voyage were presented in 1875 (Z).

ADAMS (Lionel Ernest) [1854-1945]

MS. catalogue of the Adams collection of Mollusca, presented to the Conchological Society in 1940 and subsequently donated to the Museum. 1 vol. (Z).

ADKIN (Robert) [1849-1935]

One volume of letters relating to entomology, by various correspondents, addressed to R. Adkin, 1896-1917 (E).

AGASSIZ (Cécile) [Mrs J. L. R. Agassiz]

See BRAUN (Cécile)

AGASSIZ (Elizabeth Cabot) [Mrs J. L. R. Agassiz]

Autograph letters of Elizabeth (née Cary) second wife of J. L. R. Agassiz, written while accompanying her husband to Brazil and elsewhere, 1864-1873 (Z).

AGASSIZ (Jean Louis Rodolphe) [1807-1873]

The Museum possesses a copy of this celebrated ichthyologist's *Modèle de mes Cadres de Fossiles*, annotated in his own writing. This was a privately issued scheme, or table, circulated apparently with the view to obtain co-operation and assistance. The present copy came from the library of John Phillips (P).

Two volumes of manuscript notes made by Agassiz when a student at Zurich, 1824-25, were presented in 1951 (L).

A pencil portrait, dated 20 January 1835, drawn by his wife is preserved in the Museum (L).

A manuscript list of fossil Echinodermata headed "Modèle de mes Cadres de Fossiles" (P).

AGNEW (J.)

Three original water-colour drawings of Mollusca (Z).

AGNEW (J.) & LEWIN (J. W.)

See LEWIN (John William) & AGNEW (J.)

AGNEW (Thomas)

Nine water-colour drawings of leeches, planarians and earthworms, 1781-1784 (Z).

AITON (William) [1731-1793]

Aiton had charge of the Botanic Gardens at Kew, and in conjunction with Sir J. Banks was instrumental in sending out Francis Masson, the collector (*q.v.*), some of whose drawings are in the Museum (B).

The original drawings for twelve out of the thirteen plates, drawn by various artists, for Aiton's *Hortus Kewensis* form No. 17 of the Banksian MSS. (B).

ALBIN (Eleazar) [fl. 1713-1740]

Seven water-colour drawings of fishes (Z). Two volumes of drawings of insects and flowers (E.) A series of proof plates of *A natural history of English insects* published in 1720. These run from I-L of the published series, and are continued by 15 unnumbered plates of the published LI-C. Many of the dedications of the plates were apparently altered before publication (E).

ALCOCK (Alfred William) [1859-1933]

122 manuscript sheets, "Notes of a Naturalist in Kashmir and the Pamirs", c.1905, an autobiographical account dated 1926 and 53 original drawings of marine animals published in *A naturalist in Indian seas* 1902 (Z).

ALDER (Joshua) [1792-1867]

MS. note-book on the synonyms and localities of the British Nudibranchiate Mollusca. c. 1835-1864 (Z).

ALDER (Joshua) [1792-1867] and **NORMAN (Alfred Merle)** [1831-1918]

Seven volumes containing 1549 autograph letters to and from J. Alder and A. M. Norman, covering the period 1826-1911 were presented in 1937 (L).

ALEXANDER (Boyd)

Five MS. diaries relating to bird collecting in Africa, 1898-1909 (Z).

ALLAN (Robert)

MS. Diary kept by R. Allan during a visit to Sicily, Lipari and the Cyclopean Isles from November to December 1830 (M).

ALLAN (Thomas) [1777-1833]

Manuscript catalogue of his collection of Minerals, 3 vol. After Allan's death his collection was purchased by R. H. Greg and thence passed to his son R. P. Greg (*q.v.*) who added a supplementary volume. This catalogue contains some of the original line drawings published in Greg & Lettsom *Manual of Mineralogy* 1858 (M).

ALLEN (William Berish) [1875-1922]

Collection of correspondence with contemporary Mycologists (B).

ALLMAN (William) [1776-1846]

Allman held the post of Professor of Botany at Dublin from 1809 to 1844. An autograph MS. entitled "An attempt to illustrate a mathematical connection between the parts of Vegetables," &c. (B) formed part of R. Brown's collection, presented in 1876. It is apparently the original MS. of a paper read before the Royal Society in 1811 but not printed by that body: an abstract was privately issued by Allman in 1844.

AMEGHINO (Carlos)

MS. "Catalogue des ossements d'oiseaux fossiles recueillis dans les terrains tertiaires de la Patagonie australe pendant les années de 1889 à 1894" (P).

ANDERSON (James) [1797-1842]

Anderson accompanied Captain P. P. King in his circumnavigation in the *Adventure* (1826-30) as botanical collector. A manuscript list of plants collected is preserved in the Museum (B).

ANDERSON (William) [1750-1778]

Anderson served as surgeon's mate on the second voyage of Captain J. Cook to the Pacific (1772-75), and as naturalist on the third voyage (1776-78). His manuscript notes on the Birds observed on the second voyage, and his descriptions in MS. of the Plants and Animals of the third voyage formed the Banksian MS. No. 81 (B and Z).

ANDREWS (Charles William) [1866-1924]

Four holograph note-books relating to C. W. Andrews visit to Christmas Island in 1897-98 were presented in 1940. Much of the information was included in his *Monograph of Christmas Island* 1900, but many details taken on the spot were not incorporated.

A collection of 23 letters from Andrews to C. D. Sherborn from Christmas Island and Egypt is also preserved in the Museum (L).

ANDREWS (Henry C.) [fl. 1794-1830]

One water-colour painting of *Azalea pontica* dated 1796 (B).

ANIMALS

Descriptions of animals observed on a Voyage to Canton, with original water-colour drawings. 2 vol. This is the MS. cited by Broussonet in his *Ichthyologia* (1782) under *Clupea thrissa* (Z).

ANIMALS

A volume containing a collection of water-colour drawings of Animals copied from old works on Natural History (Z).

For a corresponding collection See PLANTS

ANNING (Mary) *Miss* [1799-1847]

Autograph transcripts of three memoirs in the *Transactions of the Geological Society*, with pencil copies of the accompanying plates, by Miss Mary Anning, the well-known fossil-collector at Lyme Regis and discoverer of *Ichthyosaurus*, were presented in 1885. Her portrait in oils was presented by Miss Annette Anning in 1935 (P).

ANONYMOUS

One original charcoal drawing of *Cynocephalus mormon* (Z).

See also entries under ANIMALS, BASKING SHARK, BIRDS, CEYLON, CHINA, FISHES, HONGKONG, INDIA, INSECTS, JAPAN, LEPIDOPTERA, NEW SOUTH WALES, PLANTS, SWEDEN.

ANSLIJN (Nicolaas) [1777-1838]

Afbeeldingen van Nederlandsche Dieren. 2 vol, 1830. 133 litho pls. coloured by hand, with descriptions in manuscript. With these there is a third volume containing 73 original water-colour drawings, apparently designed in continuation of the series (Z).

ARBER (Mrs. Agnes) [1879-1960]

One volume of miscellaneous drawings and notes (B).

ARBER (Edward Alexander Newell) [1870-1918]

Proof of text and illustrations of E. A. N. Arber's "Fossil Plants" intended for the Report of the National Antarctic Expedition but not published, also letters thereupon (P).

ARCHER (Sir Geoffrey Francis) [1882-1964]

Manuscript lists of birds and eggs collected in Somaliland for Lord Rothschild, c. 1921 (Z).

ARENDT (J. J. F.)

Arendt was a botanical writer, apparently resident at Osnabrück. His autograph "Floriferti Osnaburgensis anomali . . . specimen primum," 1848, is preserved in the Museum (B).

ARNOLD (Frederick Henry) [-1906]

Nine MS. notebooks containing Arnold's *Flora of Sussex*, 2nd edition, 1907 (B).

ARNOTT (George Arnold Walker) [1799-1868]

Twenty-one volumes of correspondence from contemporary botanists, addressed to Professor Arnott (B).

ASHFORD (Charles) [1829-1894]

Autograph notebooks, letters, pencil sketches and newspaper cuttings relating to Mollusca (Z).

ASHTON of HYDE, Lord [1901-]

Seventy drawings of oriental birds, probably painted in India, c. 1840, by native artists were presented by Lord Ashton in 1957 (Z).

ATKINSON (Edward Leicester) [1882-1929]

One MS. note-book containing data relating to parasitic Protozoa, and two notebooks relating to parasitic Worms, collected during the British Antarctic ('Terra Nova') Expedition, 1910-13 (Z).

AUBLET (Jean Baptiste Christophe Fusée) [1720-1778]

The French botanist Aublet was successively charged with the task of founding botanic gardens in the Ile de France, Guiana, and San Domingo: he wrote a *Histoire des Plantes de la Guiane Française*, and his original drawings for the plates of this work with many unpublished ones, and his manuscript descriptions form the Banksian MSS. Nos. 29, 58, 59 and 60.

610 original drawings of Guiana plants with MS. descriptions form Banksian MS.

No. 61, also manuscript descriptions and drawings of *Bankia borbonensis* and of *Bernantonia suaveolens*, c. 1776 (B).

AUBRIET (Claude) [1665-1743]

Six original drawings of plants, 3 in water-colour painted on vellum (B).

AUDOUIN (Jean Victor) [1797-1841]

MS. and original drawings for part of the author's article on *Arachnida* in Todds Cyclopaedia, Vol. 1. 1836 (L).

AUDUBON (John James) [1785-1851]

Framed portrait in oils by Lance Calkin, presented by Mr. R. W. Oates in 1939 (L).

AUSTEN (Henry Haversham Godwin-) [1834-1923]

A large collection of manuscript notes, drawings and proof plates relating to Mollusca. The author's own copy of his *Land and Freshwater Mollusca of India* including annotations, correspondence and extra original drawings are also preserved in the Museum (Z).

AUTOGRAPHS

Eleven autograph letters and 86 autograph signatures of eminent Naturalists, from the collection of F. W. Harmer (L).

AYLESFORD, *Countess of*
See FINCH (L).

BACSTROM (Sigismund)

Floras of the Countries visited during Captain James Cook's first Voyage, compiled by Bacstrom from Solander MSS.

Autograph index to the species of the larger genera in Willdenows edition of Linnaeus *Systema Plantarum*.

MS. copy of botanical excursions through Wales by S. Brewer and J. Lightfoot (B).

Water-colour drawings of the Greenland Whales, s.sh. 1786 (Z).

BADGLEY (W. F.)

Three volumes of manuscript and original drawings of the lepidoptera of Assam are preserved in the Museum (E).

BAILEY (F. M.)

Four volume manuscript catalogue of his collection of birds, also field notes relating to birds of Nepal and adjacent regions, c. 1938 (Z).

BAILEY (R. H.)

Manuscript notes of Orchids of the Blandford area, 5 ff. 1953 (B).

BAIN (Andrew Geddes) [1797-1864]

A collection of lists of fossils and localities, and copies of letters relating to the Geological Survey of South Africa, 1851-52 (P).

BAINES (Thomas) [1820-1875]

155 original water-colour and pencil sketches, being a portion of those made by

this celebrated African explorer and artist during an expedition to explore the goldfields of Mashonaland, were purchased in 1886 (L).

They in part illustrate his book on *The Gold Regions of South-eastern Africa*, in which he supports the theory that the land of Ophir lay in Mashonaland, and his sketches include one of the old workings near Maghoondas Village, in which district also he notes and depicts natives whose method of wearing their hair strikingly resembles that shown in drawings on Egyptian monuments.

Three water-colour drawings and one pencil sketch of mammals were acquired in 1937 as part of the Rothschild bequest (L).

BAKER (John Gilbert) [1834-1920]

MS. notes on the life and character of Dr. John Fothergill, 1 vol.

MS. note-book of plant records for the Lake District and Yorkshire floras, 1865-82 (B).

BALSTON (Mrs. W. E.)

Two collections of water-colour drawings of plants, by Mrs. Balston, from Switzerland, Western Australia, South America, Jamaica, South Africa &c., 1880-1913, were presented in 1950 and 1951 (B).

BANKS (E.)

See ROBINSON (H. C.) & CHASEN (F. N.)

BANKS (Sir Joseph), Bart. [1743-1820]

The celebrated Library formed by Sir J. Banks was handed over to the care of the Trustees in 1827. The collection of books was placed in the Printed Book Department, with the exception of 26 works, numbering 149 volumes, chiefly systematic works used in the Herbarium, which were either duplicates or contained manuscript notes, by Solander, Dryander, and Robert Brown, and which, with the MSS., Prints and Drawings, remained in the custody of the Keeper of the Banksian Botanical Collections.⁴

The manuscripts and drawings included the following important items, many of which are cited in Dryander's Catalogue of the Banksian Library :—

Title	Banksian number	Depart- ment where now kept
AITON (W.) [12 out of the 13 original water-colour drawings for Aiton's "Hortus Kewensis," by J. Sowerby, J. F. Miller, F. P. Nodder, G. D. Ehret, and Franz Bauer]	17	B
ANDERSON (W.) Genera nova Plantarum . . . in itinere nostro [<i>i.e.</i> Capt. Cook's third voyage, 1776-78] visa, <i>etc.</i>	81	} B
— Descriptiones Plantarum, <i>etc.</i>		
— Zoologia nova, <i>etc.</i>		
— Characteres breves Avium . . . 1772-75 . . .		} Z
ANIMALS. [Descriptions of Animals observed on a Voyage to Canton, with original water-colour drawings.] 2 vol.	84 & 85	Z

⁴ Some of these were afterwards transferred to the Department of Manuscripts.

AUBLET (F.) [Manuscript descriptions of Plants collected in French Guiana]	29	B
— [Original pencil drawings for the plates in his <i>Histoire des Plantes de la Guiane Française</i>]	58 to 60	B
— [60 foll. of original unpublished drawings of Guiana Plants with manuscript descriptions	61	B
BANKS (Sir J.) [Autograph Notes on useful plants]		B
— [Various manuscript notes interspersed with Solander's <i>q.v. infra</i>]		B
Copy [by Sarah Sophia Banks] of Journal of a Voyage to Newfoundland and Labrador ; commencing April seventh, and ending November the 17th 1766		B
BARTRAM (J.) [7 autograph letters to Dr. Fothergill (1769-71)]	23	B
BARTRAM (W.) [Original MS. of his <i>Travels through . . . Carolina, Georgia, etc.</i>]	78 & 79	B
— [102 foll. of descriptions with 53 drawings of the Plants and Animals of Carolina, Georgia, <i>etc.</i>]	23	B
BAUER (FRANZ L.) [Original water-colour drawings illustrating the Germination of Wheat and the Diseases of Corn, with a large miscellaneous series chiefly of the more remarkable Plants that had flowered at the Royal Gardens, Kew, of which a further series was presented in 1841] . . . . .	...	B
BLAIR (P.) [Copies of Dr. P. Blair's Correspondence, 1725-27]	35	B
— [Manuscript] Catalogue of the . . . Botanical discoveries . . . made by Dr. P. Blair, <i>etc.</i>		
BOBART (J.) <i>The Younger</i> . [Copy by Sir J. Banks of a "Catalogue of Plants sent from Mr. Bobart . . . 1689"]	94	B
BOLTON (J.) [Original drawings for the plates of his <i>Filices Britannicæ</i>]	36	B
BREWER (S.) [Manuscript copy by D. Solander of his Botanical Journey through Wales in . . . 1726 and 1727]	95	B
BROWNE (P.) [Autograph MS.] Catalogue of the Plants of the English Sugar Colonies	70	B
BUCHANAN, afterwards HAMILTON (F.) <i>Enumeratio Plantarum quas in adeundo civitatem Barmanorum regiam . . . anno 1795 observavit F. Buchanan.</i> [MS. with 53 drawings.] 2 vol.	18 & 19	B
CALEY (G.) [Autograph Journals of Journeys to New South Wales] . . . . .	...	B
— [Autograph] Descriptions of Plants of New South Wales		

CASTELVETRI (G.) [Autograph MS.] Brieve racconto di tutte le Radici . . . in Italia, <i>etc.</i> 1614	91	B
CIRILLO (D.) [MS.] Institutiones Botanicae, <i>etc.</i>	66	B
— [Autograph letter to Brownlow, Earl of Exeter]	76	B
CHINA. [24 water-colour drawings of Fish by a Chinese artist at Canton]	11	Z
— [62 water-colour drawings of Chinese Plants, drawn under the superintendence of J. B. Blake, by a native artist]	12	B
— [220 water-colour drawings of Chinese Plants and Animals, by a native artist.] 2 vol.	27 & 28	B
COLDEN, afterwards FARQUHAR (Jane) [Autograph MS.] Flora Nov-Eboracensis, <i>etc.</i>	[99]	B
DILLENIIUS (J. J.) [Original drawings by himself for pls. i-lxxix of his <i>Historia Muscorum</i>]	56	B
DRYANDER (J.) [Manuscript Catalogue of the drawings of Animals in the Library of Sir J. Banks] . . . . .	...	Z
— [Index to the Species of Plants described and figured by N. J. von Jacquin in his MSS.] . . . . .	...	} B
— Massonii Flora Maderensis. [Autograph MS.] . . . . .	...
DURAND (P.) De quibusdam Zoophitis quæ in sinu Gibraltarico reperiuntur, <i>etc.</i>	[102]	B
EHRET (G. D.) [65 original water-colour drawings of Plants from the collection of Sir R. More]	16	B
— [Original drawings of Rare Plants, Fruits and Seeds.] 4 vol.	{ [106 to 109] }	B
— [17 original drawings of Plants collected by Banks in Newfoundland] . . . . .	...	B
ELLIS (W. W.) [115 original water-colour drawings of Animals made during Capt. J. Cook's third voyage, 1776-78] also two plants	33	Z and B
FORSTER (J. G. A.) [261 foll. of original water-colour and pencil drawings of Animals made during Capt. Cook's second voyage, 1772-75.] 2 vol.	6 & 7	Z
— [Original water-colour and pencil drawings of Plants made during Capt. J. Cook's second voyage.] 2 vol.	8 & 9	B
GERARD (J.) [MS. copy of his] Catalogus Arborum . . . ac Plantarum . . . in horto J. Gerardi . . . nascentium . . . 1596	89	B
HOUSTOUN (W.) [Autograph] Catalogus Plantarum in America observatarum	67	B
— [Autograph MS.] Plantæ observatæ circa Kingston in . . . Jamaica, et Havanam in . . . Cuba	} 68	B
— [Autograph MS.] Nova Plantarum Americanarum genera, <i>etc.</i>		

— [Autograph MS.] Plantæ circa Veram Crucem observatæ	} 69	B
— [Autograph MS.] Nova Plantarum genera		
INDIA. [MS.] Declaração das Aruores. . . . Plantas . . . e Eruas virtuozas . . . seruem para se aplicar a varias doenças declaradas pellos fizicos deste Anjenga . . . 1750 [228 water-colour drawings with manuscript descriptions]	22	B
INDIA [559 water-colour drawings of Bengal Plants, painted by native artists, with their native and occasionally also the Linnean names. 3 vol.	13 to 15	B
JACQUIN (N. J. VON) Autograph notes and letters addressed to J. Dryander, with sketches and water-colour drawings . . . . .	...	B
JOHNSON (T.) Iter Plantarum investigationis ergo susceptam . . . in agrum Cantianum . . . 1629	} 96	B
— — 1632. [Both in S. Dale's handwriting]		
KÖNIG (J. G.) [Autograph journals of his voyages, with lists and descriptions of East Indian (including Siam and Malacca) Plants, Animals and a few Minerals.] 21 vol.	37 to 55	B
L'HÉRITIER DE BRUTELLE (C. L.) [51 autograph letters to J. Dryander. 1785 to 1790]	[101]	B
LIGHTFOOT (J.) [Transcript by Bacstrom of his] <i>Journal of a botanical excursion in Wales</i> . [1775]	86	B
LIND (J.) A Catalogue of such Chinese and Japanese plants whose Chinese characters are known and are botanically described, &c. . . . .	...	B
LINNÆUS (C.) Föreläsningar ofver Djur-riket . . . 1748 ; upptecknade of L. Montin	71	Z
— — Fundamenta botanica . . . 1748	72	B
— — Växt-riket . . . 1746-48	73	B
— — Sten-riket . . . 1747	74	M
— — Diæten . . . 1748-49	75	B
LOUREIRO (J. DE) [Autograph MS.] Nova genera Plantarum in Cochin China sponte nascentium, etc.	93	B
M., R. [MS.] List of the different sorts of Grain, &c., cultivated in the Tanjore country [with 15 water-colour drawings by a native artist]	97	B
MARTYN (J.) and (T.) [Correspondence]	[103]	B
MASSON (F.) [54 water-colour drawings of Plants, 9 of Animals, and 2 views of Niagara] . . . . .	...	{ B
MONTE BOLCA. [8 foll. of rough water-colour sketches of fossil Plants, and 12 of fossil Fish from Monte Bolca]	[114]	P
MONTIN (L.) [Autograph.] Beskrifning öfver en resa . . . til Lapska fjällarne äfvan Luleå stad	83	B

NEW SOUTH WALES [70 water-colour drawings of Animals and Plants made near Port Jackson, some of which were used in drawing the plates for J. White's "Journal of a Voyage to New South Wales"]. These have been erroneously attributed to Thomas Watling who did not arrive in the Colony until 1792; J. White's Journal was published in London in 1790	34	B
PARK (MUNGO) [20 water-colour drawings of Fish from the coast of Sumatra with manuscript descriptions of six species. 1792] . . . . .	...	Z
PARKINSON (S.) [40 water-colour drawings of Animals taken from specimens or drawings executed in India by order of J. G. Loten, and forming the originals of some of the figures in Pennant's <i>Indian Zoology</i> , and <i>Quadrupeds</i>]	20	Z
— [Original water-colour drawings of Plants and Animals made during Capt. J. Cook's first voyage, 1768-71; with finished drawings by T. Burgis, J. Clevelley, Jas. Miller, J. F. Miller and F. P. Nodder, made from the incomplete sketches.] 21 vol. . . . .	...	{ B 18 vol. Z 3 vol.
PETIVER (J.) [73 rough water-colour drawings of Cape Plants, copied from Sloane MS. 5286	88		B
PLANTS. [124 rough coloured drawings of Plants, seemingly from old woodcuts]	62	B
— [418 foll. rough water-colour drawings of Plants and some Animals, with their names in Greek and Latin]	63	B
PLUMIER (C.) [312 copies of water-colour and pen-and-ink drawings of Plants, many of which were published in his various works.] 5 vol.	1 to 5	B
PULTENEY (R.) [MS.] <i>Flora Malabarica, etc.</i>	26	B
— [Autograph MS.] <i>A Catalogue of Plants spontaneously growing about Loughborough, etc.</i>	90	B
ROBINSON (Sir T.) [MS. copy by Banks of] <i>A catalogue of Plants observed in several parts of Wales in 1689</i>	94	B
ROME. [MS.] <i>Flora rudrata Romana, etc.</i>	[100]	B
SEYFFERT (H. C.) <i>Icones Fungorum, etc.</i> [133 original water-colour drawings]	65	B
SHERARD (W.) [Autograph Notes and Observations on the first two volumes of Ray's <i>Historia Plantarum</i>]	80	B
SOLANDER (D. C.) [An extensive series of MSS. including notes and descriptions of Animals and Plants observed during the voyage with Banks to the South Pacific, and to Iceland, as well as indexes and lists compiled in connection with his curatorship of Banks' Collections and Library, and many of them containing notes in Sir J. Banks' handwriting . . . . .	...	B and Z

SOWERBY (J.) [103 foll. of original drawings for No. 2-4 of Dickson's <i>Fasciculus Plantarum Cryptogamarum Britannicæ</i>	21	B
STEPHENS (W.) Catalogus Plantarum in Horto Dublinensi. [MS. which, after p. 41, is in Stephens's own handwriting]	92	B
SWEDEN. [192 original water-colour drawings on 24 pls. of Swedish Moths, Caterpillars and Spiders]	87	E
TILLI (M. A.) [Autograph MS.] Specimen Plantarum quæ in Horto Medico Sapientiæ Pisanæ locisque finitimis extant. 1713-30	[111]	B
TOURNEFORT (J. P. DE) Catalogue des Plantes que M. P. de Tournefort trouva dans ses Voyages d'Espagne et de Portugal copié de l'original, etc.	82	B
YOUNG (W.) A Natural History of Plants, containing the production of North and South Carolina, etc. [302 water-colour drawings with manuscript, index and dedication]	24 and 25	B

MS. list in an unknown hand of bird skins in Banks' Collection, from the second and third voyages of James Cook, and from Labrador &c. 4 Pt. ? 1780

Z

In 1876, a transcript, by the daughters of Mr. Dawson Turner, of the original Journal kept by Sir J. Banks during his voyage with Capt. J. Cook, 1768-71, was transferred to the Botanical Department. The original, which had been deposited with the MSS. Department to become the property of the Trustees on the death of Lady Knatchbull, was subsequently claimed and removed by Lord Brabourne, by whom it was sold in 1886 for £7 2s. 6d. The journal was afterwards printed from a transcript of the Dawson Turner copy, edited by Sir J. D. Hooker and published in 1896.

Transcripts by the same hands of Banks' correspondence were transferred with the Journal and are now bound in 21 volumes.

In 1895 a copy by Miss S. S. Banks of the journal, kept by Sir Joseph Banks during his voyage to Newfoundland and Labrador in 1766, was acquired (B).

A manuscript book of weights of Bank's friends and acquaintances, alphabetically arranged with entries dating from 1778-1814 is preserved (B).

BANNERMAN (David Armitage) [1886-]

One MS. note-book on the birds and ornithological literature of the Eastern Polynesian Islands, and, in conjunction with Willoughby P. Lowe, a manuscript list of birds, with ecological notes, collected in Tunisia, 1925 (Z).

BARBIERS (M. J.) née SNABILIÉ [1776-1838]

Two sheets of water-colour drawings of insects and flowers (E).

BARBUT (Jacques)

12 coloured plates, 8 coloured original drawings and 23 original pencil drawings, mostly of molluscous animals. 1782-1788 (Z).

BARCLAY (Arthur) [1852-1891]

A collection of original drawings, outline and coloured, of Indian plants, also notebooks and manuscript material relating mainly to Indian Uredineae (B).

BARCLAY (George) [fl. 1835-1841]

Barclay accompanied Capt. Belcher as botanical collector on board the *Sulphur* (1836-41). His autograph journal of the voyage is preserved in the Museum (B).

BARLA (Josef Hieronymus Jean Baptiste) [1817-1896]

Manuscript "Catalogue des Champignons observés aux environs de Nice, suivant le Systema de Fries" (B).

BARNARD (J.) [fl. 1800]

Two original drawings of *Cercopithecus cynomolgus*, one coloured (Z).

BARNES (H. E.) [1848-1896]

MS. catalogue of his collection of Indian birds' eggs and skins. 1 vol., and manuscript notes on these. 1 vol. (Z).

BARRELIERUS (Jacobus)

A manuscript entitled "Barrelieri iconum Consensio cum Linnaei Sistemate" &c. c. 1810 (B).

BARTHOLOMEW (Valentine) [1799-1879]

Flower Painter in Ordinary to Queen Victoria. The Museum possesses one water-colour drawing of a flower by this artist (B). Other examples of his work are in the Victoria & Albert Museum.

BARTRAM (John Tavenier) [1811-1889]

A transcription of a manuscript in the library of the Bermuda Biological Station on the birds of Mullet Bay, Bermuda. c. 1864 (Z).

BARTRAM (William) [1739-1828]

William Bartram, son of the botanist, John Bartram [1701-1777] (seven of whose letters to Dr. Fothergill form the Banksian MS. no. 23), travelled in 1773 at the request of Dr. Fothergill through the southern portions of the United States, and the original manuscript of his *Travels through . . . Carolina, Georgia, etc.*, and a volume of 102 fols, containing 53 original drawings, with manuscript descriptions of the Plants and Animals of those districts, form the Banksian MSS. no. 23, 78, and 79 (B).

BASKING SHARK

34 sheets of miscellaneous drawings of the Basking Shark captured at Brighton in 1812, and of other animals, with MS. notes, a handbill and a printed description of the Basking Shark. Presented by J. Whitehead Esq., in 1915 (Z).

BASSEPORTE (Madeleine Françoise) [1701-1780]

Miniature painter to the King of France and teacher of drawing to the daughters of Louis XV. The Museum possesses one water-colour drawing of a botanical subject by this artist (B).

BATE (Charles Spence) [1818-1889]

Notes on Boring Mollusca, dated April 1849. An original manuscript with

water-colour drawings, of a paper read at the British Association meeting 1849, of which an abstract only was printed in the Report, also a number of original drawings of Crustacea (Z).

BATE (Dorothea Minola Alice) [1879-1951]

Correspondence and note-books relating to the Bethlehem excavations in 1935, also an original coloured portrait, by her sister, Mrs. Cuddington (P).

BATES (George Latimer) [1863-1940]

Portfolio of original drawings (78 pieces) for *Handbook of the Birds of West Africa*, 1930 also drawings (8 pieces), apparently not published, by H. Grönvold. Two volumes of manuscript notes on the birds of West Africa. A considerable quantity of manuscript notes and the typescript of Bates' book on the *Birds of Arabia*. A duplicate typescript of this was presented to the Museum in 1957 with the Meinertzhagen bequest (also some manuscript lists of birds' eggs, 1904-1915) (Z).

A collection of 12 autograph letters from G. L. Bates to W. E. De Winton, 1896-1900 (L).

BATES (Henry Walter) [1825-1892]

Two MS. note-books of H. W. Bates relating to the insect fauna of the Amazon Valley with original drawings, pencilled and coloured, 1851-1859 (E).

BATHER (Francis Arthur) [1863-1934]

Keeper of the Geological Department 1924-1928. Numerous manuscript note-books, drawings and photographs, also original sketches illustrating papers on Cephalopod and Crinoid morphology, 1892 (P).

BATTERS (Edward Arthur Lionel)

MS. Bibliography of British Algology. 1 vol. (B).

BAUER (Ferdinand Lucas) [1760-1826]

F. L. Bauer, who accompanied Robert Brown on Flinders' voyage to Australia, brought back a series of water-colour drawings of the Plants and Animals observed. 49 of his drawings of Animals (Z) and 203 of Plants (B) were presented by the Lords Commissioners of the Admiralty in 1843, and two portfolios of his drawings were bequeathed in 1858 by Robert Brown (B).

His original drawings for some of his plates to A. B. Lambert's *Genus Pinus* and *Genus Cinchona* are preserved in the Museum. A manuscript list of sketches of Plants and Animals made during the voyage of H.M.S. Investigator and subsequently at Port Jackson and Norfolk Island. 1 vol. c. 1814 (B).

BAUER (Franz Andreas) [1758-1840]

F. A. Bauer was employed by Sir Joseph Banks in making drawings of Plants in the Royal Botanic Gardens at Kew, the work being continued after Sir Joseph's death under the special provisions contained in his will, until the decease of Bauer. His drawings illustrating the *Germination of Wheat* and the *Diseases of Corn*, with many others, were included in the Banksian Collection, and came to the Museum in 1827; but the extensive series of the drawings made at Kew after Banks' death and bequeathed to H.M. George IV, was presented to the Museum in 1841 by H.M. Queen Victoria (B).

His original drawings for the plates to Sir W. J. Hooker's *Genera Filicum*, and other works with 127 drawings of British Orchids, and some illustrating the form and structure of various parts of Plants, are preserved in the Museum (B).

Other drawings of his were purchased in 1879 (B), while some illustrative of microscopic anatomy, done for Sir E. Home, were given in 1893 by the executors of Sir R. Owen, in whose collection of drawings they are (L).

One of the 25 copies of vol. 1 of A. B. Lambert's *Genus Pinus*, coloured by him, is in the Museum (B).

BEAVAN (R. C.)

MS. catalogue of birds collected in the Maunbhoom district (Chota Nagpore) in 1864, presented in 1938 (Z).

BECK (Richard)

Forty-one original water-colour drawings of Acari, ca. 1862 and 1918 (Z).

BEDDOME (Richard Henry) [1830-1911]

A collection of original pencil drawings including the originals for his *Icones plantarum*, 1874. (B)

BEDFORD (Edward John)

371 water-colour drawings from nature of British orchids, 1920-1921, were bequeathed by the Hon. N. C. Rothschild in 1923 (B). Some of these were issued in the Postcard Series.

BELL (Alfred) [1835-1925]

Manuscript lists of Fossils (animals and plants) recorded from the Pliocene to the Holocene deposits of the British Isles, with illustrations, 7 vols. (P).

BELL (E.) Miss

273 original drawings of caterpillars and pupae of moths (E).

BELL (Thomas) [1792-1880]

A number of unpublished plates intended for T. Bell's *Monograph of the Testudinata* are preserved with the Museum copy of this work (Z).

See also DARWIN (C. R.)

BELL (Thomas Reid Davys) [1863-1948]

Manuscript and typescript journal, from 1884 to 1948, of T. R. D. Bell, with a MS. index from 1884-1910. 66 volumes (E).

BELLERBY (William) [1852-1936]

18 sheets of original drawings of Mosses, made by W. Bellerby (B).

BELT (Thomas) [1832-1878]

180 letters addressed by various correspondents to Thomas Belt, author of *The Naturalist in Nicaragua*. 1864-1878. (L), also MS. notes with diagrams on the Thames Valley gravels (P).

BENBOW (John) [1821-1908]

One manuscript volume on the Flora of Uxbridge and district, 1884-1887 (B).

BENNETT (Arthur) [1843-1929]

5 MS. note-books on the genus *Potamogeton* Manuscript notes and lists of Norfolk Plants, post 1872, 3 vol. (B).

BENNETT (John Joseph) [1801-1876]

Appointed assistant to Robert Brown when the Banksian Herbarium was transferred to the British Museum in 1827, Bennett succeeded Brown as Keeper of the Botanical Department in 1858. Brown had bequeathed to him a number of books and MSS., which remained in the Department and were presented to the Trustees in 1876 by Mrs. Bennett (B).

The original pencil drawings by J. and C. Curtis for Bennett and Brown's *Planta Javanica variores*, with proof engravings and hand-coloured proofs after letters of the plates are preserved (B).

BENNETT (John Whitchurch)

Original drawings for the plates of Bennett's *Fishes found on the Coast of Ceylon*, 1830. 30 sh. col. (Z).

BENTINCK (Lady W.)

57 water-colour drawings of birds from the Himalaya Mountains in the collection of Lady W. Bentinck. 1833 (Z).

BERJEAU (C.)

One mounted original water-colour drawing of the sandy tube dwellings of the marine worm *Sabellaria spinulosa* c. 1908 (Z).

BERKELEY (Miles Joseph) [1803-1889]

Berkeley, the distinguished mycologist, presented in 1876 530 original water-colour drawings. A considerable number were done for various Publications on English Fungi. (B).

A series of his letters to C. E. Broome was bequeathed with the latter's correspondence in 1886 (B). Berkeley's own correspondence was presented in 1890 also some manuscripts and notes on fungi (B).

BERNARDI (A. C.) [-1863]

34 holograph letters (1851-61) of A. C. Bernardi, with a list of shells supplied, to G. van Koch. The volume also contains letters &c from H. Cuming, W. Dunker, M. T. Landauer, and E. Rosmer (Z).

BEROLDINGEN (Franz Colestin, Baron von) [1740-1798]

MS. catalogue of his collection of Minerals purchased by the Museum in 1816. 2 vol. (M).

BERRY (Andrew) [c. 1766-]

An original water-colour drawing of an Indian palm with autograph description, sent to Sir Joseph Banks in 1808 (B).

BEVERE (P. C. de)

See LOTEN (J. G.)

BEWSHER (Mrs. C. W. W.)

22 paintings of Mauritius plants, c. 1880 (B).

BICKNELL (Clarence) [1842-1918]

A collection of autograph letters written by Bicknell to the Baroness Helene von Taube during the period 1909-1914 (B).

BINGHAM (L. F.)

MS. catalogue of the Bingham Collection of Minerals and Fossils made between 1839 and 1884, purchased by the Trustees in 1914 (P).

BIRCH (Roger) *Commander* R. N. [-1940]

18 water-colour drawings of fishes from the Maldives and Siam, c. 1934 (Z).

BIRDS

One volume containing 45 water-colour drawings of Indian birds, c. 1790 (T).

BIRDS

Raccolta di Uccelli, fatta da Giovanni da Udine. 82 leaves with 135 water-colour drawings of birds c. 1580. MS. title page, probably of 17th century, ascribes the drawings to Giovanni da Udine, but this ascription may be incorrect, vide Stresemann, 1914, *Novit. Zool.* 21 : 20 (Z).

BIRDS

14 water-colour drawings of Birds from G. R. Gray's collection. 1 vol. (Z).

BIRDS

75 drawings of Birds, probably painted in India by native artists. 1 vol. c. 1840 (Z).

BIRDS

Typescript of projected book on the migration of birds, c. 1930 (Z).

BLACKMORE (William) [1826-1878]

A collection of statistics, newspaper cuttings, reprints and MS. notes on the American bison gathered by W. Blackmore for a monograph on the subject (Z).

BLAIR (Kenneth Gloyne) [1882-1952]

See HOPKINS (Barbara)

BLAIR (Patrick) [fl. 1706-1728]

Copies of the correspondence and a " Catalogue of the discoveries . . . made by Dr. P. Blair, " botanist and surgeon, form the Banksian MS., No. 35 (B).

BLAKE (Lady Edith)

195 coloured drawings of Jamaican Lepidoptera, in their different life stages with their food plants, were presented in 1926 (E).

BLAKE (John Bradby) [1745-1773]

Sent out in 1766 to Canton as one of the Hon. East India Company's super-cargoes, Blake devoted himself to Natural Science. A volume of drawings of Chinese Plants made under his superintendence by a native artist form the Banksian MS., No. 12. (B).

BLAKE, U.S.S.

Manuscript descriptions of the bottom deposits obtained by the " Blake " off

the eastern coast of the United States during 1875-1880 are preserved in the Murray Library (M).

BLOMFIELD (James Edward) [1856-]

Manuscript, photographs and drawings of tree galls. 14 albums c. 1910-1914 (B).

BLOOM (J. Harvey)

Note-book containing a record of cryptogams collected in the Mickleham, Surrey area, 1922-1933 (B), and one note-book containing records of Arachnids &c. taken at Whitchurch and elsewhere, 1902-1909 (Z).

BLOSSOM H.M.S.

See SMYTH (W.) Mate of H.M.S. Blossom.

BLOXAM (Andrew) [1801-1878]

Bloxam went as naturalist on the *Blonde* in 1824-25, and on his return entered the church, becoming Rector of Twycross, in Leicestershire, and afterwards of Harborough Magna, in Warwickshire. His manuscript notes on the Cellular Cryptograms of Leicestershire, and his Correspondence (forming 1 vol.), were presented by his son in 1878 (B). At a later date his natural history notes made during the voyage of the *Blonde* and correspondence concerning them, from A. Newton, were acquired (L).

BOBART (Jacob) the Younger [1641-1719]

MS. copy, by Sir J. Banks, of a "Catalogue of Plants sent from Mr. Bobart" 1689. An interleaved and much annotated copy of Caspar Baulin's *Pinax*, 1623 (B).

BOISDUVAL (Jean Baptiste Alphonse Déchauffour de) [1801-1879]

Original water-colour drawings for *Faune entomologique de Madagascar, Bourbon et Maurice. Lépidoptères, &c.* Paris, 1833 (E).

BOLTON 4th Baron

See ORDE-POWLETT (W. T.)

BOLTON (James) [fl. 1775-1795]

The self-taught naturalist of Halifax, Yorks., J. Bolton etched the illustrations for his own works.

His original drawings for the plates of his *Filices Britannicae* form the Banksian MS., No. 36 (B).

25 original water-colour drawings of fungi, executed 1788-1794, were purchased in 1892 (B).

50 original water-colour drawings of flowers from nature, made 1785-87, were purchased in 1894 and a further seven were acquired at a later date (B).

BOLTON (Thomas)

Portfolio of drawings and descriptions of living organisms 1879-1884 (L).

BOND (Elizabeth)

45 sheets of water-colour drawings of English wild flowers, 1914-1929, 36 sheets of drawings of North American wild flowers, 1886-1912 (B).

BONHOTE (John James Lewis) [1875-1922]

MS. list of wild ducks kept and bred at the Fen Ditton Aviaries, 1900-1912.
2 vol. (Z).

BORN (Ignaz von) Baron [1742-1794]

Manuscript catalogue of the Born collection of Minerals. This collection was acquired by the Rt. Hon. Charles Greville [1749-1809] and with other collections was purchased for the Museum in 1810 (M).

BOTANICAL CABINET

About 1,800 original water-colour drawings made for Vol. 1-18 of Loddiges Botanical Cabinet, by W. Miller, T. Boys, E. W. Cooke, J. P. Heath, G. Loddiges and others, 14 vol. 1817-1834. A further collection of 101 original drawings used in this work was purchased in 1940 (B).

BOTANICAL SOCIETY [of London]

The manuscript of the "Proceedings", 1724-26, of this Society, which was a distinct Society from the later one bearing the same name (1836-57), is preserved in the Museum (B).

BOURGUIGNAT (Jules René) [1829-1892]

MS. catalogue of Bourguignat's works, probably compiled by J. Saunders, 1899 (Z).

BOWDICH afterwards Lee (Sarah) [1791-1856]

Author's proof copy of *The Freshwater fishes of Great Britain*, 1828-37, with some MS. corrections. The plates consist of original water-colour drawings, many signed by the author (Z).

BOWELL (Ernest W. W.)

One MS. note-book on radulae, 1916-1920 (Z).

BOWER (T. H. Bowyer)

2 MS. note-books on birds collected in north and north-west Australia circa 1886. The notes were used by G. M. Mathews in his papers on the birds of this region of Australia, published in the *South Australian Ornithologist*, Vol. 2, 1915-16 (Z).

BOWIE (James) [c. 1789-1869] *see* CUNNINGHAM (James)**BOWLES (Edward Augustus)** [1865-1954]

A collection of water-colour drawings of plants, mainly of *Crocus* species, 1895-1908 (B).

BOYCOTT (Arthur Edwin) [1877-1938]

Correspondence, note-books and files concerning Professor Boycott's lifelong interest in the Mollusca are preserved in the Museum (Z).

BRADY (Sir Antonio) [1811-1881]

A collection of letters addressed to Sir A. Brady relating chiefly to his collection of Pleistocene Vertebrata. 1 vol. 1858-1874 (P).

BRADY (George Stewardson) [1832-1921]

Fourteen original drawings of Porcupine Crustacea (Z).

BRADY (Henry Bowman) [1835-1891]

Brady made a special study of the Foraminifera. A copy of Soldani's rare work, *Testaceographiæ ac Zoophytophagiæ parvæ et microscopiciæ tomus primus* (—*secundus*) was at Brady's request presented to the Museum by the Royal Society in 1891, his own copy remaining in their possession (L).

BRANDER (Gustavus) [1720-1787]

Trustee of the British Museum from 1761-1787. A portrait in oils by Nathaniel Dance was presented by the Rev. Gustavus Brander in 1877 (D).

A manuscript index to the type specimens of the Brander collection of fossils preserved in the Museum, compiled by C. D. Sherborn, 1889 (P).

BRANDT (Albertus Jonas) [1788-1821]

Two water-colours of flowers and one oil colour of fruit (E).

BRAUN (Cécile) Mrs. J. L. R. Agassiz

One portfolio of pencil drawings of varied subjects by the first wife of J. L. R. Agassiz (B).

BRAVARD (Auguste)

MSS. "Catalogue des ossemens fossiles recueillis dans l'Amerique du Sud" ff. 27. 1 vol.

"Catalogue des ossemens fossiles des collections de M. Auguste Bravard" ff. 96. 1 vol.

These collections were purchased by the Museum in 1854 and 1952 respectively (P).

BREIDWISER (Theodor) [1847-]

A water-colour copy of the Vienna drawing of the Dodo by R. Savery (Z).

BREWER (Samuel) [fl. 1700-1742]

As botanical collector for Dillenius and others, Brewer made a collecting tour through Wales. A copy in S. Bacstrom's handwriting of his unpublished "Botanical Journey through Wales . . . in 1726 and 1727," forms No. 95 of the Banksian MSS. (B).

BRITANNIA, S.S.

MS. list and descriptions of soundings made in 1897 are preserved in the Murray Library (M).

BRITISH MINERALOGICAL SOCIETY

MS. Minute Book of the Proceedings of the Society, from its foundation, 2nd April 1799 to 18th December 1806, when it became incorporated with the Askesian Society (M).

BRITISH MUSEUM

Entomological Memoranda 1821-1840, 3 vol. MSS. Contains *inter alia* George Samouelle's reports to the Trustees (1830-41) with lists of accessions and several autograph letters (E).

BRITISH MUSEUM

A manuscript account of the contents of the six rooms devoted to Natural History as on May 1st 1824 (L).

BRITISH PLANTS

See SMITH () *Major*

BROCKMAN (R. E. Drake-)

Three note-books relating to his collection of African birds' eggs, c. 1913 (Z).

BRODIE (Peter Bellinger) [1815-1897]

Proof plates 1-10 of Brodie's *Fossil Insects*, 1845, with autograph notes by the author, and a collection of MS. material relating to his collections (P).

BRONKHURST (Johannes) [1648-1726]

Water-colour drawings of four birds on a single sheet (Z).

One water-colour of a moth and caterpillar on the food plant (E).

BROOKS (A. C.)

Four water-colour drawings of birds of prey 1895-1896 (Z).

BROOKS (William Edwin) [1828-1899]

80 original water-colour drawings of smaller Indian birds.

MS. ornithological note-book. Many of these notes relate to the Brian H. Hodgson collection of drawings (Z).

BROOME (Christopher Edmund) [1812-1886]

C. E. Broome, the mycologist, bequeathed his books and pamphlets to the number of 212 and the whole of his mycological correspondence with his Herbarium in 1886 (B).

A further series of his letters addressed to M. J. Berkeley was presented with the latter's correspondence in 1890 and 77 water-colour drawings of British plants, made between 1834 and 1840 (B).

BROWN (John), of Stanway [1780-1859]

J. Brown was one of the pioneers in Pleistocene palaeontology. His autograph notes, chiefly relating to English Post-Pliocene deposits with lists of the contained fossils, were presented in 1898, and some autograph letters in 1924 (P).

BROWN (Peter) [fl. 1766-1791]

17 original drawings painted on vellum for Da Costa's *British Conchology* 1778 (Z).

5 water-colour drawings of plants (B).

BROWN (Robert) [1773-1858]

Brown accompanied the Captain Mathew Flinders' expedition to Australia as naturalist; the voyage in H.M.S. "Investigator" extended from 1801 to 1805.

Manuscript notes on his zoological collections (Z) and his descriptions of the plants collected, the latter preserved in the most important of his manuscripts, the slip catalogue of descriptions of the plants in his own herbarium and the Banksian herbarium (B). These slips are arranged by family and filed in 34 Solander boxes. There are also a "Flora of Nova Hollandiae" compiled in Australia from brief descriptions made when the plants were collected, florulae of specific areas, a diary 1801-1805, etc. (B).

In 1810 Brown succeeded Dryander as Librarian to Sir Joseph Banks and from 1827 to 1857 was Keeper of the Botanical Department. He bequeathed to the

Trustees a collection of drawings by Ferdinand L. Bauer, and to his successor some books and pamphlets and numerous MSS. which were presented by Mrs. Bennett in 1876. The MSS. included a diary 1800-1801, a "Flora of Madeira", a pre-1801 volume of descriptions of plants, etc.

Brown copied the MS. descriptions of Australian plants made by Daniel C. Solander, who went on Captain Cook's first voyage; these two volumes were presented by J. Britten in 1888 (B).

The original pencil drawings by J. and C. Curtis for Bennett and Brownes' *Plantæ Javanicæ rariores* (B).

Three volumes of Brown's correspondence (B). An additional three volumes are in the Department of Manuscripts, British Museum.

Manuscript index to (A) genera in the Solander slip catalogue, (B) to genera in Vol. 1-4 of Willdenov's ed. of Linnaeus' *Species plantarum*, 1797-1806, and (C) his own genera published between 1797 and 1810; the descriptions relating to the latter are filed in his MS. catalogue. 1 vol. (B).

A portrait in oils is preserved in the Botanical Department.

BROWNE (Edward Thomas)

Five MS. note-books containing observations on British birds made during the years 1910-1923, and 68 sh. of original zoological drawings in pencil and colour. c. 1892 (Z).

BROWNE (Patrick) [1720?-1790]

While practising medicine in the West Indies, Browne studied their natural history, especially that of Jamaica.

An autograph "Catalogue of the Plants of the English Sugar Colonies" forms No. 70 of the Banksian MSS. (B).

BRUCH (Philipp) [1781-1847]

Bruch, who was an apothecary and botanist at Zweibrücken, devoted much time to the study of Mosses.

219 of his original pencil drawings of Mosses used in illustrating the *Bryologia Europæa* were purchased in 1883 (B).

BRUEGGEMANN (Friedrich) [1850-1878]

Dr. Brueggemann was employed by the Trustees in 1876 to prepare a complete catalogue of the Collection of Stony Corals in the British Museum. His premature death in 1878 interrupted the work; the manuscript, so far as it went, is preserved in the Museum (Z).

BRUGUIÈRE (Jean Guillaume) [1750-1799]

Two water-colour drawings of plants, the originals of plates 13 and 17 of C. L. L'Heritier de Brutelle's *Sertum Anglicum*, 1788 (B).

BRUNNER (Alec Frederick Fraser-)

Framed water-colour painting of a shoal of mullet also an original painting of birds of paradise, c. 1948 (Z).

BRÜNNICH (Morten Thrane) [1737-1827]

Spicilegia Zoologia e Museis Naturae Curiosorum in itineribus apud exteros

reportata. A series of pencil and pen-and-ink sketches, accompanied by manuscript notes in various handwritings, among which are autographs of Pallas (Z).

BRYANT (Gilbert Ernest) [1878-1965]

MS. Index to G. Masters' *Catalogue of the described Coleoptera of Australia, 1871-72* (E).

BUCCANEER, S.S.

MS. descriptions of soundings and tow-nettings made in 1886 are preserved in the Murray Library (M).

BUCHAN (Alexander)

Eleven original water-colour drawings of Fish and Mollusca collected during Captain Cook's first Voyage.

See PARKINSON (S.)

BUCHANAN, afterwards HAMILTON (Francis) [1762-1929]

Buchanan went out in 1794 as surgeon in the East India Company's Service. In the following year he accompanied the mission to Ava; his autograph descriptions with 53 drawings of the plants he observed form the Banksian MSS., No. 18 and 19 (B).

BUCKELL (Francis) [1818-1897]

Drawings of the pollen of 1,216 plants. With indices and MS. notes. 1890-1895 (B).

BUCKLER (William) [1814-1884]

62 original water-colour drawings of the British species of *Eupithecia* made for the Rev. H. Harper-Crewe, 1860-1879. Inferior replicas of these drawings were utilized in the production of the plates for the Ray Society monograph on the *Larvae of British Butterflies and Moths* (E).

BUCKLEY (Henry)

MS. catalogue of the Buckley egg collection, 2 vol. 1858-1877, also a list of his collection of American birds' eggs, c. 1860 (Z).

BUCKLEY (W. D.)

A collection of original coloured drawings and manuscript descriptions and notes relating to British Basidiomycetes and Discomycetes (B).

BUCKMAN (Sydney Savory) [1860-1929]

A collection of manuscript notes and correspondence relating to fossils (P).

BUCKTON (George Bowdler) [1818-1905]

Original drawings for his *Monograph of the British Aphides*, together with some unclassified drawings, c. 1876, also 354 water-colour drawings of Tettigidae with manuscript notes (E).

BUFFHAM (Thomas Hughes) [1840-1896]

Two volumes of manuscript Algological notes (B).

BUONAMICI (Giovanni Francesco)

A transcript of Dr. Buonamici's original MS. "De Plantis quæ in Melitæ et Gaulo observantur" (written about 1670), marked "Ex Biblioth. Boisy, MS. No.

21" is preserved (B). This work was printed as *Pugillus Meliteus*, by F. P. Cavallini in 1689 under his own name, and reprinted by Brückmann in 1737; in both cases the Maltese names which appear in the MS. were omitted.

BURBIDGE (Frederick William) [1847-1905]

Burbidge travelled in the Eastern Archipelago, paying especial attention to the botany of those regions.

115 original sketches, some coloured, made in Borneo, of Orchids, Pitcher-plants, etc., were purchased in 1886 (B).

BURBIDGE (J. W.)

A piece of Whalebone of the Greenland Right Whale upon which is incised a sketch of a Sperm Whale hunt in the Adriatic. Presented by Mr. J. W. Burbidge in 1903 (Z).

BURGESS (Boughey)

One volume of MS. Journal and rough notes on the Birds of Dukhun and one volume of descriptions of birds, compiled 1849-1851 (Z).

BURGIS (Thomas) [fl. 1766]

Burgis was employed by Banks to make finished drawings of Plants from sketches by S. Parkinson, J. F. Miller and others. These are preserved with the Parkinson drawings to which they refer (B).

BURN (Rev. J. H.)

A collection of manuscript notes on Suffolk fungi (B).

BURTON (E. St. John)

Manuscript note-book relating to the author's collection of fossil invertebrates (P).

BURY (G. W.)

G. W. Bury was the Political Agent on the Aden Hinterland frontier in the early years of this century and one volume of his correspondence with W. R. Ogilvie-Grant concerning bird collecting in this region is preserved in the Museum (Z).

BUSK (George) [1807-1886]

38 unpublished lithographic plates, representing types of Human Crania, drawn by G. Busk (P).

A large collection of manuscript note-books and original drawings, published and unpublished, relating to his *Catalogue of Marine Polyzoa in the British Museum and Report on Polyzoa collected by H.M.S. Challenger*. 1852-1886 (Z).

BUTE 3rd Earl of

See MILLER (John)

BUTLER (Arthur Lennox) [1873-1939]

A tentative list of the birds of the Sudan in autograph, also a manuscript catalogue of Egyptian birds, c. 1914 (Z).

BUTLER (Edward Arthur) [1843-1916]

MS. list of eggs in the Butler collection 1 vol. Notes relating to this collection, 1 vol. c. 1880 (Z).

BUTTERFLIES

Nature printed butterflies and moths of Europe. 24 vol. c. 1800 (E).

C. (J. H.)

Large water-colour drawing of a fish, *Otolithus atelodus* Gunth., 1885 (Z).

CAESALPINUS (Andreas) [1516-1603]

A manuscript of this celebrated Italian physician and natural philosopher Caesalpinus, entitled "A. Caesalpini epistola de methodo Rei Herbarie praefixa horto suo siccato qui nunc Florentiae in Bibliotheca D. comitis R. Pandulphini adservatur," Pisis, 1563, is in the Museum (B).

CALLCOTT (Lady Maria)

See GRAHAM (Mrs Maria)

CALDWELL (J.)

See MOON (Maley de C.) Mrs

CALEY (George) [1770? -1829]

Caley was sent out by Sir Joseph Banks to collect plants in New South Wales. His autograph manuscript: Journals of tours in New South Wales with descriptions of plants collected, letters to Robert Brown 1817-23 and Memorial to the Lords Commissioners, 2 vol. formed an item in the Banksian Collection (B).

CALMAN (William Thomas) [1871-1952]

Keeper of Zoology 1927 to 1936. A portrait by W. T. Mornington is preserved in the Department (Z).

CAMBRIDGE (Frederick Octavius Pickard) [1860-1905]

Seven water-colour drawings of lepidoptera and larvae, 1894 (E).

CAMPBELL-TAYLOR (J. E.)

See TAYLOR (J. E. Campbell-)

CAMELLUS, or KAMEL (Georgius Josephus) [1661-1706]

Kamel went as Jesuit missionary to the Philippines.

A volume of pen-and-ink drawings with autograph descriptions entitled, "Descriptiones Fruticum et Arborum Luzonis," formerly in Sir Hans Sloane's library, was transferred from the MSS. Department in 1884 (B).

CAPE OF GOOD HOPE

A collection of early drawings of Cape plants c. 1685. Some are the originals or copies of such for a number of published plates in works of the period (Boerhaave; Burmann; Weinmann) (B).

CARADJA (Aristide) Prince

89 water-colour drawings of Pyralidae (E).

CARMICHAEL (Dugald) [1772-1840]

Manuscript Catalogue of Plants collected in Mauritius and Bourbon in 1812-1814 (B).

Manuscript Gramina Capensia [and descriptions of Cape Plants] (B).

CARPENTER (Philip Herbert) [1852-1891]

A collection of autograph letters, 1884-85, relating to his *Catalogue of the Blastoidea in the British Museum* (P).

CARPENTER (William Benjamin) [1813-1885]

For some years before his death Dr. W. B. Carpenter had been collecting materials for a monograph on "Eozoon." These included 129 water-colour drawings, by A. T. Hollick and C. Berjeau, with 116 photographs and prints, now mounted and bound in three volumes. They were presented by his son, the Rev. J. Estlin Carpenter, in 1892 (P).

54 original drawings illustrating the Report on the microscopic structure of Shells by W. B. Carpenter, published in the *Rept. Brit. Assoc.* 1844 & 1847 and a manuscript list of the 671 preparations described and figured in this work are also preserved (Z).

CARROLL (Isaac) [1828-1880]

262 original pencil drawings, roughly coloured, of Lichens, the work of I. Carroll, and his autograph Catalogue of the Plants of Iceland were purchased, with his Herbarium, in 1874 (B).

CARRUTHERS (Alexander Douglas Mitchell)

MS. note-book relating to birds collected in Mongolia and Central Asia, 1910-1911 (Z).

CARRUTHERS (William) [1830-1922]

Keeper of the Botanical Department from 1871-1895. 118 coloured drawings copied from Bulliard *Les Champignons de France* were presented in 1921. A large collection of his autograph correspondence is also preserved in the Museum (B).

CARSA (J. H.)

A water-colour of *Otolithus atelodus* Gunth. painted in 1885 (Z).

CARTER (Howard)

One framed water-colour drawing of a bird (T).

CARTER (Tom) [1863-1931]

Two field note-books on the birds of N.W. and S.W. Australia compiled between 1887-1922, also a note-book and diary of a trip to Iceland in 1885 (Z).

CASSOWARIES

53 original drawings of Cassowaries by J. G. Keulemans, H. Grönvold and others. 1900-30 (Z).

CASTELVETRI (Giacomo)

A manuscript entitled "Brieve racconto di tutte la Radici, di tutte l'Herbe et di tutti Frutti, che crudi o cotti in Italia si mangiano," &c., 4to. Londra, 1614, by G. Castelvetri, forms the Banksian MS. No. 91 (B).

CATE (H. G. ten) [1803-1856]

One water-colour depicting seven insects (E).

CAVE (Francis O.)

Typescript field notes of the Sudan Ornithological Expedition 1948–1949 and a note on birds not previously recorded from the Southern Sudan (Z).

See also MASON (Kenneth) & CAVE (F. O.)

CAYLEY (Neville)

One original water-colour drawing of the Superb Blue Wren was acquired with the Rothschild bequest (Z).

CERNOSVITOV (Leon) [1902–1945]

A collection of L. Cernosvitov manuscript notes on *Oligochaeta* is preserved in the Museum (Z).

CEYLON

Catalogus van Ceijlonse Planten &c. ff. 37. 18th century (B).

CHALLENGER, H.M.S.

The famous scientific expedition of the “Challenger” covered the years 1873–1876. Manuscript comprising the diaries of Sir John Murray, J. J. Wild, R. von Willemoes-Suhm; the ship’s log, soundings book, records relating to the publication of the Challenger Reports and numerous notes by various authors on the plants, animals and deep-sea deposits collected during the voyage are preserved in the Murray Library (M).

CHAMPERNOWNE (Arthur) [1839–1887]

One MS. notebook with details of the Champernowne collections of fossils (P).

CEPHALOPODS

278 original water-colour drawings of Oriental Fishes and Cephalopoda. 2 vol. Many of the drawings are named in C. Tate Regan’s holograph but the origin of the collection is unknown (Z).

CHANCE (Edgar P.) [1881–1955]

Nine diaries and note-books containing observations on birds over the period 1921–1926 and a quantity of manuscript material relating to eggs of birds, also a typescript list of the eggs as arranged in his cabinets. 1 vol. (Z).

CHANNON (P. J.)

MS. details of the Channon collection of fossils with localities and disposals, 3 vol. and one notebook of localities arranged in alphabetical order (P).

CHAPIN (James P.)

Typescript list of the birds of the Belgian Congo, 1950 (Z).

CHAPMAN (Frederick) [1864–1943]

MS. lists of Foraminifera from Funafuti, together with typescript lists of Foraminifera and Ostracoda deposited in the Museum. c. 1902–1910 (Z).

CHASEN (Frederick Nutter) [1896–1942]

See ROBINSON, H. C. & CHASEN, F. N.

CHILDREN (John George) [1777–1852]

Manuscript catalogue of the collection of Mollusca in the British Museum up to 1822 (Z).

CHINA

220 water-colour drawings of Chinese plants and animals, by a native artist, with their names in Chinese. 2 volumes (in 1). The fly-leaf of each volume bears the inscription "Le Ch. de Robien Canton en Chine Année 1776." Forms the Banksian MSS. No. 27 & 28 (B).

CHINA

62 water-colour drawings of Chinese plants, by a native artist, with their Chinese names, and 16 other drawings subsequently intercalated (B).
See BLAKE (J. B.)

CHINA

39 water-colour drawings by native artists of Chinese Plants, Reptiles, Fish and Birds (L).

CHINA

13 original drawings on linen of insects, spiders and frogs were presented by H. E. Miller in 1945 (E).

CHRISTY (William Miller)

8 manuscript note-books, 1879-1938 (E).

CHUN (Carl) [1852-1914]

A number of autograph letters from Professor Chun to Sir John Murray, dated 1898-1899, relating to the Deutsche Tiefsee Expedition are preserved in the Murray Library (M).

CHURCH (Arthur Henry) [1865-1937]

His manuscripts and original water-colour and ink drawings include those for his *Types of Floral Mechanism* 1908, also some autograph letters are preserved in the Museum (B).

CIRILLO (Domenico) [1739-1799]

The Italian doctor and naturalist, Cirillo, wrote largely on botany. He corresponded with Brownlow, Earl of Exeter, and an autograph letter to that nobleman on Sicily, giving a list of the flora, with the unpublished MS. of his "Institutiones Botanicae juxta methodum Tournefortianum" form the Banksian MSS. No. 66 and 76 (B).

CLEVELEY (John) [1747-1786]

Cleveley, the marine painter, was employed by Banks as draughtsman on the voyage to Iceland, and he also prepared finished drawings from the sketches made by Sydney Parkinson during Captain Cook's first voyage round the World in 1768-71. These are preserved with the Parkinson drawings to which they refer (B).

CLIFT (William) [1775-1849]

Manuscript memoranda relating to the sale of old and duplicate specimens of natural history and anatomical articles by the British Museum to the Royal College of Surgeons in London. 1809 (L).

COATES (C. A. M.) *Miss*

Two volumes of water-colour drawings of Malayan plants from the Kinta Valley Region, and 22 loose drawings, 1922-1924, also 45 drawings of Malayan plants in 3 volumes (B).

COCKS (William Pennington) [1791-1878]

Contributions to the Flora of Falmouth. 1 vol. MS. 1856 (B).

CODRINGTON (Thomas)

Original manuscript section of Whitecliff Bay, Isle of Wight, 1882 (P).

COKE (Thomas William) *Earl of Leicester* [1752-1842]

Correspondence with W. Roscoe on the subject of the Holkham Catalogue, 1820-30 (B).

COLDEN, afterwards Farquhar (Jane) [1724-1766]

Jane Colden was daughter of Cadwallader Colden, the botanist, and Governor of New York. Her autograph "Flora Nov-Eboracensis" forms the Banksian MS. No. 99 (B).

COLE (William Willoughby) *3rd Earl of Enniskillen* [1807-1886]

Besides MSS. relating to his collection of fossil fish, Lord Enniskillen presented in 1885 three transcripts by Mary Anning, the famous fossil collector of Lyme Regis, of papers in the *Transaction of the Geological Society* with copies in pencil of the plates.

Manuscript catalogues of fossil vertebrates in the collections of Lord Enniskillen and Sir Philip Egerton, 1872-1874, 5 vol. were also presented (P).

A series of his autograph letters addressed to A. Günther, 1861-1885, is preserved in the Günther Collection (L).

COLEY (Hilda Maud)

Three sketch books containing water-colour and pencil drawings of British plants, 1924-38, 77 drawings of wild and cultivated plants and 9 drawings of cacti are preserved in the Museum (B).

COLLINSON (Peter) [1694-1768]

Peter Collinson, the naturalist and antiquary, traded with the American Colonies, and some of his collections were in Sir Hans Sloane's Museum. His autograph "Account of the Introduction of American Seeds into Great Britain," 1766, is preserved also an autograph letter dated June 2nd 1742, addressed to S. Brewer (B).

COMANS (Michiel) [-1687]

One original water-colour drawing of *Cyprinus brama*, signed and dated 1673 (Z).

COMBER (Thomas) [1837-1902]

49 boxes of an illustrated manuscript catalogue of the T. Comber Diatom Collection. Presented in 1902 (B).

CONCHOLOGICAL SOCIETY OF LONDON

One box file and two loose leaf binders containing records of distribution of Mollusca in the British Isles.

The collection of manuscripts acquired by the Conchological Society was housed

in the Museum for a number of years and subsequently presented to the Trustees. These MSS. are listed under the relevant authors, namely—ADAMS, L. E. ; ROEBUCK, W. D. ; TAYLOR, J. W. and MANCHESTER CONCHOLOGICAL SOCIETY.

CONISBEE (Lewis Ralph)

An unpublished typescript of " Index generum avium, 1901-1950 " is preserved in the Museum (Z).

CONNOLLY (Matthew William Kemble) [1872-1947]

MS. lists of African Mollusca in the Museum, c. 1928 and the typescript of his *Monographic Survey of South African Non-marine Mollusca*, published in *Ann. S. Afr. Mus* **33**, 1939 (Z).

COOK (James) [1728-1779]

Of MSS. and drawings relating to Capt. Cook's three celebrated voyages the Museum possesses:—

First Voyage, 1768-71.

A transcript of Sir J. Banks' journal (B).

Copious manuscript lists and descriptions of the Animals and Plants collected.

By D. C. Solander (B, Z).

A large collection, filling twenty-one volumes, of the original drawings by S. Parkinson (with finished drawings prepared from his incomplete sketches, by T. Burgiss, J. Cleveley, J. Miller, J. F. Miller and F. P. Nodder) of the Animals and plants obtained (B, Z).

Second Voyage, 1772-75.

Short manuscript descriptions of the Birds observed. By W. Anderson (Z).

The original pencil and water-colour sketches of Animals and Plants made during the voyage. By J. G. A. Forster (B, Z).

Third Voyage, 1776-80.

Manuscript descriptions of the Animals and Plants by W. Anderson (B, Z).

115 original water-colour drawings of the animals observed and two of plants by W. W. Ellis (Z) and (B). One water-colour drawing by J. Webber (B).

COOK (W. H.) of Snodland

The " Halling Man " research, and other anthropological papers, with newspaper cuttings, photographs and letters, 1912-25 (P).

COOKE (Alfred Hands) [1854-1934]

List of Japanese Mollusca, with localities, purchased from the Rev. A. H. Cooke in 1911 (Z).

COOKE (Mordecai Cubitt) [1825-1914]

Three note-books containing manuscript on " Pestiferous fungi on cultivated plants " and one containing determinations of fungi sent to M. C. Cooke, also a collection of original coloured drawings of Cryptogams (B).

13 volumes of mounted plates, original water-colour and pencil drawings of higher British fungi ; some of the original drawings are by Cooke (B).

COPE (Edward Drinker) [1840-1897]

10 autograph letters from E. D. Cope to A. Günther, 1863-1888, are preserved in the Günther Collection (L).

CORBET (Alexander Steven) [-1948]

Typescript catalogue of Bombyces and Splinges recorded from the Malay Peninsula (E).

CORFE (B. O.)

1,021 water-colour drawings of plants and pencil drawings of flower sections, are preserved in the Museum (B). Some were issued in the Postcard Series on British Plants.

CORNWALLIS (Lindon)

A manuscript provisional check-list of the reptiles of Iran. Compiled from literature and card indices in the Museum, 1966 (Z).

COSTA (Emanuel Mendes da)

Six original water-colour plates on vellum, 2 of plates in *Conchology*, London, 1770-72 and 4 others probably intended to illustrate the same work, 1771 (Z).

COTTA (Heinrich) [1763-1844]

Manuscript "Catalog der verkäuflichen Cottaischen Dendrolithen Sammlung" 1 vol. 1839 (P).

COTTAM (A. P.)

MS. faunistic lists of Rhopalocera of the Dutch East and West Indies, 1940 (E).

COTTON (Arthur Disbrowe) [1879-]

A collection of original drawings in pencil and colour of the gill structure of British Basidiomycetes (B).

COTTON (John) [-1849]

An original water-colour painting of the garden warbler, with a manuscript note on the artist by Lady Casey, was presented in 1961 (Z).

COUCH (Benjamin)

Manuscript account of experiments and observations on Timber, 36 ff., c. 1840 (B).

COUCH (Jonathan) [1789-1870] and others

A portfolio of 47 drawings, variously signed and coloured, some unmounted, of primitive marine life &c. also an autograph summary of Baron Cuvier's *Histoire Naturelle des Poissons* (Z).

Couch's annotated copy of W. Yarrell's *History of British Fishes*, with many notes and additions, is also preserved in the Museum (Z).

A series of autograph letters from J. Couch to A. Günther, 1860-1867, is preserved in the Günther Collection (L).

COVELLI (N.)

See MONTICELLI (Teodoro)

COWAN (William Deans)

52 original drawings of Madagascar Orchids, by the Rev. W. D. Cowan, were

purchased in 1883 (B). One volume of water-colour drawings of insects, shells and eggs of Madagascar, c. 1880 (E).

CRACHERODE (Clayton Mordaunt) [1730-1799]

Manuscript catalogues of the Cracherode collection of shells; one volume in octavo dated 1791 is in his own autograph and shows the price paid for each specimen, the other in quarto, circa 1801, is attributed to Edward Whitaker Gray, Keeper of the Natural History Department at the time (Z).

There is also a catalogue of the Cracherode Mineral and Fossil collections bequeathed in 1799, and a copy of this compiled by E. W. Gray details the prices paid by Cracherode (M).

CRAMER (Pieter) [-1779]

370 sheets of 2,709 original water-colour drawings for the illustrations of the author's *De uitlandsche Kapellen* (E).

CRAWFORD (C. W. A.)

Eight water-colour drawings of British wild and cultivated plants, painted on vellum, artist unknown, probably 18th century, were presented by Captain C. W. A. Crawford in 1922 (B).

CRAWSHAY (Richard)

183 original coloured drawings of *Russula* were presented in 1954 (B).

CRICK (George Charles) [1856-1917]

"On the muscular attachment of the animal to its shell in some Fossil Cephalopoda (Nautiloidea)". Unpublished manuscript, c. 1915 (P).

CRINOIDS

10 original water-colour drawings of Crinoids, unsigned (Z).

CROMBIE (James Morrison) [1833-1906]

MSS. connected with his work on Lichens. 11 vol. 1894.

Contains: unpublished introduction to the "Monograph on Lichens" 1 vol.

MS. of Vol. 1 of the "Monograph" (incl. pls.) 5 vol.

MS. draft of Vol. 2. 2 vol.

MS. enumeration of Lichens. 3 vol. (B).

CROSSLAND (Cyril) [1878-]

Unpublished typescript with accompanying photographs and plans on the cultivation of mother-of-pearl shell in the Red Sea 1922-1929, also manuscript notes on Polychaeta (Z).

CROW (Francis)

"A Catalogue of rare fossil Fruits (—of minute fossil Shells, etc.) from Sheppy Island", etc., in the collection of F. Crow of Faversham, 1810, etc., with 831 pencil drawings is preserved in the Museum (P).

CRUICKSHANK (A. H. P.) [1883-1915]

112 pencil sketches and water-colour drawings mainly of birds of India, also manuscript notes on birds, nests and eggs (Z).

CUMING (Hugh) [1791-1865]

Sir Richard Owen's copy of an indenture relating to the trusteeship of the Cuming collection of shells, 1837 (Z).

See also BERNARDI (A. C.)

CUNNINGHAM (Allan) [1791-1839]

Allan Cunningham and James Bowie were sent out from the Royal Gardens at Kew to collect plants in Australia, via Rio de Janeiro.

MS. Journal 1814-15 ; 1817-1819.

MS. Catalogues of plants collected ; lists of seeds, etc. ; letters to Sir J. Banks, W. T. Aiton and R. Brown.

MS. of the *Few general remarks on the vegetation of certain coasts of Terra Australia*, which was appended to P. P. King's *Narrative*. . . (B).

CUNNINGHAM (Richard) [1793-1835]

Manuscript index to *Novae Hollandiae plantarum specimen*, by J. J. Labillardiere and *Prodromus florae Novae Hollandiae* by R. Brown, c. 1830 (L.)

CURTIS (J.) and (C.)

The original pencil drawings by J. and C. Curtis for the illustrations to Bennett and Brown's *Plantae Javanicae rariores* are preserved in the Museum (B).

CURTIS (John) [1791-1862]

The author's own copy of *British Entomology* 1824-1939, together with 770 original water-colour drawings which illustrated this work, was acquired as part of the Rothschild bequest in 1937 (E).

CURTIS'S BOTANICAL MAGAZINE

Copies of the original drawings for the plates to Vol. 1-18 of the Magazine. 9 vol., 1777-1804 (B).

The originals are in the library of the Royal Botanic Gardens, Kew.

CUST (Mary Anne) Lady [1800-1882]

205 original water-colour drawings of fruit, flowers, and fishes made by Lady Cust during a voyage to the West Indies in 1839 and to Madeira in 1866 (L.).

CYPRUS SHELLS

Pen-and-ink drawings with manuscript descriptions of Cyprus shells, formerly in the possession of Col. F. S. Brown. 2 vol. (Z).

DACIA S.S.

MS. descriptions of soundings and list of Pteropoda obtained in 1883 are preserved in the Murray Library (M).

DALE (Samuel) [1659?-1739]

S. Dale, a physician and apothecary of Braintree, Essex, assisted John Ray with his botanical work ; he also corresponded with Sir Hans Sloane. His annotated copies of T. Johnson's *Iter plantarum investigationis . . . in agrum cantianum*, 1629 and 1632, form Banksian MS. No. 96 (B).

MS. catalogue of John Ray's " Hortus siccus " (B).

DALZELL (N. A.) [1817-1878]

A collection of water-colour and outline drawings of plants (B).

DARWIN (Charles Robert) [1809-1882]

Manuscript lists and notes by C. R. Darwin, J. E. Gray and T. Bell relating to the Reptilia and Amphibia obtained by Darwin during the voyage of the *Beagle*, also one mounted manuscript sheet, being a list of Cirripeds, in his holograph (Z).

A number of autograph letters are contained in the collection of Richard Owen Correspondence, and the Handwriting Collection ; this includes five sheets of his holograph text of the *Origin of Species* (L).

Two letters in Darwin's holograph dated 11th May, 1872 addressed to Albert Günther are preserved in the Günther Collection (L).

DAVIDSON (James) [1849-1925]

J. Davidson entered the Indian Civil Service in 1872 and served in the Bombay Presidency until he retired in 1897. His collections of bird skins, eggs and insects were bequeathed to the Museum and with them came 9 volumes of MS. notes on Indian birds, two diaries of journeys made in India and a manuscript catalogue of his birds' egg collection in 6 volumes (Z).

DAVIDSON (Thomas) [1817-1885]

Davidson devoted his life to the study of the Brachiopoda.

The whole of his MSS. and drawings in 22 volumes with his library of 897 books and pamphlets relating to the Brachiopoda were presented in 1886 (P).

DAVIES (Claude G. Finch-) [1874-1920]

Twenty-one original plates of African Birds, with explanations, 1918-20 (Z).

DAVIES (Hugh) [1739-1821]

One volume of manuscript notes and original coloured drawings of British fungi (B).

DAVIES (Thomas) [c. 1739-1812]

Pencil notes made by H. W. England, with identifications by Sir Norman Kinnear, of a volume of water-colour drawings of animals known as the "General Davies Drawings", preserved in the library of the Earl of Derby and loaned by the 17th Earl to the Museum for a short period circa 1928.

Five signed water-colour drawings of birds by Davies are included in the Latham collection of drawings (Z).

DAVIS (Arthur George)

A collection of miscellaneous material relating to William Smith (1769-1839) ; comprising *inter alia* copies of correspondence, Smith's autobiographical notes, MS. notes on Smith's early geological maps &c. (P).

DAVY (Elizabeth) [-1836]

One volume of water-colour drawings of British lepidoptera, larvae and host plants (E).

DAVY (J. C.) Miss

48 water-colour drawings of British Orchidæ, 1906-1912 (B).

DAWSON (Nelson)

A collection of water-colour drawings of plants, 1932 (B).

DAWSON (Warren Royal) [1888-1968]

Correspondence and photographs relating to W. R. Dawson's investigations into the history and whereabouts of specimens of the Quagga brought to Europe. 1948 (Z).

DAY (E. M.)

A collection of 1,407 original coloured drawings of British fungi was presented in 1934 and a further collection of 196 drawings was bequeathed in 1936 (B).

DEAKIN (Richard) [1809-1873]

A collection of manuscripts relating to Lichens (B).

De CRESPIGNY (Eyre Champion) [1821-1895]

De Crespigny became Conservator of Forests in India and Superintendent of the Botanic Gardens at Dapsorie.

A collection of his original drawings of Indian Plants was purchased in 1877 (B).

DEGON (E.)

Eight water-colour drawings of fishes, c. 1899 (Z).

DE GREY (Thomas) *6th Baron Walsingham* [1843-1919]

A Trustee of the Museum for many years.

A series of autograph letters to A. Günther, 1878-1900, is preserved in the Günther Collection (L).

DELUC (Jean André) [1727-1817]

One autograph diary (No. 2), in French, covering the period June 1805-October 1805, detailing the writer's travels in England in this period.

On it was based the author's *Geological Travels*, Vol. 2, 1811 (P).

DERHAM (William) [1657-1735]

The original MS. of Derham's *Life of Ray* was purchased in 1884 (B).

DESCHAMPS (L. A.)

Deschamps accompanied Entrecasteaux as naturalist on the *Recherche* during the expedition in search of La Pérouse.

His unpublished autograph journals kept during the voyage and on his subsequent travels in Java, with materials for a Flora Javanica, water-colour sketches of Javan scenery, Plants (B), and animals (Z), as well as other notes and memoranda were presented in 1861.

DÉSÉGLISE (Pierre Alfred) [1823-1883]

A collection of letters addressed to P. A. Déséglise from numerous correspondents is preserved in the Museum (B).

DESHAYES (Gérard Paul) [1795-1875]

The author's holograph, which translated formed the article *Conchifera* in Todd's *Cyclopaedia of Anatomy* 1835? (L).

DESMAREST (Anselme-Gaétan) [1784-1838] and **LESUEUR (Charles Alexandre)** [1778-1846]

Planches inédites sur les Polypiers flexibles. 14 plates. c. 1829.

These plates were apparently never published. They were engraved by Lesueur. According to a note in Sir Sidney Harmer's copy, now in the Museum library, the MS. of Desmarest & Lesueur, explaining the plates, was deposited by the authors in 1829 in the library of the "Museum de Paris", where it is still preserved (Z).

DETMOLD (Edward J.) [1883-1957]

One water-colour of an eagle owl. Bequeathed to the Museum in 1965 under the will of Mrs. W. L. M. Frick (L).

DEWEY (Chester) [1784-1867]

Francis Booth's copy of Dewey's *Caricography* which appeared originally in the *Amer. J. Sci.*, 1824-1861. This copy is made up partly of MS. copy of the original, partly of separates with MS. notes, drawings by Booth and three letters from Dewey to Booth (B).

DICKIE (George)

34 reprints of articles on Algae, with MS. notes and letters relating thereto from various correspondents, 1 vol. (B).

DIETZSCH (Johann Christoph) [1710-1769]

Three water-colour botanical drawings (B).

DILHEY

18 sh. original water-colour drawings of Senegal fishes, c. 1899 (Z).

DILLENIUS (Johannes Jacobus) [1687-1747]

Dillenius, first Sherardian Professor of Botany at Oxford from 1728, whose principal work was an *Historia Muscorum*, prepared his own illustrations for the plates; his original drawings for the first 79 plates of that work (the remaining 6 were drawn on the copper direct) form the Banksian MS. No. 56. There is also a collection of plates and the manuscript of *Fungi Catalogi Gissensis* (B).

A further extensive collection of drawings of higher plants and his letters written to Brewer in 1726-28 are also preserved (B).

DINKELL (Joseph)

A number of original drawings, chiefly of fossil vertebrate remains, by J. Dinkell, form part of the Owen Collection of Drawings, presented in 1893 (L).

DISCOVERY SS *Antarctic Exploring Vessel*

The Log Books of the "Discovery", 1901-04, are preserved in the Museum (L).

DITMAS (Frederick) [1811-1876]

An album of water-colour paintings of birds, reptiles, insects &c. and several commemorative cards was presented in 1967 (L).

DODO

An original water-colour drawing of the White Dodo of Réunion by Pieter Holsteyn, the elder, c. 1580-1662 (Z).

DOGS

Five drawings of Chinese dogs by native artists were presented by Miss Oldfield in 1931 (Z).

DOLLMAN (Hereward Chune) [1888-1919]

One volume of water-colour drawings of larvae of north-west Rhodesian lepidoptera with manuscript notes and data, and one volume of data relating to the Dollman collection of insects 1916-1918; 540 drawings of caterpillars of British butterflies and moths, 4 vol.; 12 note-books on British beetles and one botanical note-book (E).

DOLLMAN (John Charles) [1851-1934]

MS. note-books relating to the Egg collection of J. C. Dollman. 3 vols. (Z).

Four volumes of original water-colour drawings of caterpillars of British moths and butterflies.

Some of these drawings were published in W. J. Stokoe's *Caterpillars of British Butterflies* 1944, and *Caterpillars of British Moths* 1948 (E).

A large framed painting in oils of tigers is also preserved in the Museum (Z).

DOLLMAN (John Guy) [1886-1942]

Three original water-colour drawings of mammals, published in *Proc. Zool. Soc. Lond.* 1933: 211-219 (Z).

DOUBLEDAY (Henry) [1809-1875]

An early autograph letter, dated 1829, of this 19th century collector of British lepidoptera is preserved in the Museum (E).

A framed portrait in oils was presented in 1877 (E).

DRAKE-BROCKMAN (R. E.)

See BROCKMAN (R. E. Drake-)

DROUGHT (Isabel)

89 water-colour drawings of plants of Ceylon, 1847-1851 (B).

DRURY (Dru) [1725-1803]

Letter book of Dru Drury, 1761-1783 being copies, nearly all in his own hand of his scientific and other correspondence; one manuscript note-book giving an account of the expenses of printing his *Illustrations of Natural History* with an account of the sales of that work, 1766-1789, also a volume of miscellaneous papers including letters from various correspondents, agreements with ship-captains, a genealogical table of the Drury family &c. (E).

DRYANDER (Jonas) [1748-1810]

On Solander's death, Dryander became librarian to Sir Joseph Banks. His manuscripts in connection with the catalogue of Banks' Library, a manuscript catalogue of the original drawings of animals in that library (Z), his manuscript notes for a memoir on the genus *Erica*, an index to the species described by Jacquin in the latter's correspondence with him, copious additions to Solander's manuscript slip catalogue and numerous manuscript lists, including one of the Plants collected by F. Masson in Madeira, as well as his correspondence (in 1 vol.), are preserved in the Museum.

Also an autograph catalogue of plants in the Jardin Royal des Plantes at Paris, 1777 (B).

DUNKER (W.)

See BERNARDI (A. C.)

DUNN (Edward John) [1844-1937]

A collection of miscellaneous MSS. and typescripts, including a MS. bibliography of E. J. Dunn's publications. 1 vol. (P).

DUNSTAN (Benjamin) [1864-1933]

MS. notebooks, lists of collections, locality index, and catalogue of the figured, described or referred to specimens of Queensland type fossils, also a collection of correspondence with R. J. Tillyard concerning fossil insects, 1913-1923 (P).

DUPPA (Adeline Frances Mary)

Portfolio containing 55 drawings, mostly water-colour, of flowers from Italy and Madeira and of fungi from Ringwood, Hants., 1870-1885 (B).

DURAND (Philippe)

One small manuscript volume "De quibusdam Zoophitis quae in Sinu Gibraltarico reperiunter. Adjectis etiam nonnullis Plantis Marinis" 1796, contains 22 mounted specimens with autograph descriptions (B).

EATON (Mary Emily) [1873-1961]

200 water-colour drawings of North American plants, c. 1917 (B).

EDMONSTON (Thomas) [1825-1846]

The young Shetlander, Thos. Edmonston, who was one of the naturalists on board the *Herald*, had specially studied the Flora of Shetland and added the *Arenaria norvegica* to the British Flora. His *Flora of Shetland* was published in 1845, and his autograph notes, begun in 1837, for this work are preserved in the Museum (B).

EDWARDS (Frederic Erasmus) [1799-1875]

MS. catalogue of the Edwards collection of fossil animals (P).

EDWARDS (Gerard)

A small collection of water-colour drawings and pencil sketches of British plants, 1832-1860 (B).

EDWARDS (Sydenham Teast) [1768-1819]

Edwards was a botanical and zoological artist and editor of the *New Botanic Garden*. Some of the original drawings for this work were acquired in 1895 and 1896 (B).

EGERIA, H.M.S.

MS. notes on the Foraminifera and list of soundings made on the cruise of H.M.S. "Egeria" in 1887-88 are preserved in the Murray Library (M).

EGERTON (Sir Philip de Malpas Grey) [1806-1881]

A series of his autograph letters addressed to A. Günther, 1864-1880, is preserved in the Günther Collection (L).

See also COLE (William Willoughby) 3rd Earl of Enniskillen

EHRET (Georg Dionysius) [1708-1770]

Ehret came to England about 1740. He furnished illustrations, among other works, for Trew's *Plantae Selectae*, and P. Browne's *Civil and Natural History of Jamaica*, and the original drawings for these illustrations are preserved in the Museum. 65 original water-colour drawings of plants from the collection of Sir R. More and 4 volumes of original drawings of rare plants, fruits and seeds, forming the Banksian MSS. No. 16 [106-109], with 22 drawings of plants collected in Newfoundland by Sir J. Banks (five of which were used for illustrations to Aiton's *Hortus Kewensis*), came with the Banksian library. Of other drawings by Ehret, 17 were purchased in 1877 and 20 in 1878 and 1896. The Museum also possesses an autograph autobiography and other manuscripts of Ehret as well as a "Life" of him in the handwriting of C. J. Trew (B).

EIGENMANN (Carl H.) [1863-1927]

Four letters from C. H. Eigenmann to A. Günther, 1901-1910, are preserved in the Günther Collection (L).

ELIOT (Sir Charles) [1862-1931]

Four note-books and one box file containing descriptions of nudibranch Mollusca (Z).

ELLIS (Arthur Erskine)

Book of nature study. Land and freshwater mollusca. pp. 20, 57 drawings. The author's corrected galley-proof of his contribution to a projected new edition of Farmer's Book of Nature Study, which was never published. Included are an explanatory letter and the author's agreement with the publisher. 1946 (Z).

ELLIS (R. A.)

Eleven original coloured drawings of slugs, dated between 1929-1935. (Z).

ELLIS (William W.) [-1785]

Ellis accompanied Captain Cook on the latter's third voyage to the Pacific in the capacity of artist.

115 original water-colour drawings by him of the animals met with from the Banksian MS. No. 33 (Z).

There are also two botanical drawings, one bearing the locality Kamshatka, the other North West America (B).

ELWES (Henry John) [1846-1922]

MS. catalogue of birds' eggs in the collection of H. J. Elwes, 1860-1911 (Z).

ENGLEHEART (Henry) [1801-1885]

Magnified drawings of Australian and Ceylonese Zoophytes bound in two volumes together with a set of tracings of the drawings, also a manuscript list of Sea-weeds and Zoophytes collected and arranged by Mrs. Leopold Grey and the Revd. Henry Engleheart (Z).

ENNISKILLEN *3rd Earl of*

See COLE (William Willoughby)

ENYS (John D.) [1837-1912]

A series of 114 autograph letters of J. Ray and his contemporaries was presented by J. D. Enys in 1884 (B).

EVANS (Caleb) [1831-1886]

Evans made a special study of the geology of the London basin and south of England, and had special opportunities of collecting from sections made during the main drainage works.

His manuscript notes and drawings, in 3 volumes, were presented in 1889 (P).

EVANS (R.)

Notes on 19 species of Pelecypoda and drawings of the gills with MS. descriptions (Z).

EVANS (William Harry) [1876-1956]

MSS. and original drawings of the author's publications on Hesperidae (E).

EVERSHED (M. A.)

Manuscript notes on the plants collected in the Pulney Hills, India. The plants were presented to the Museum in 1957 (B).

FACCHINETTI (Nicolo)

Nine original water-colour drawings of Fishes, and one of a Crustacean, from Rio de Janeiro, made from life and given to Dr. Naegeli by the artist, in 1866 (Z).

FALCONER (Hugh) [1808-1865]

Falconer served as surgeon on the Bengal Establishment of the Hon. East India Company. In association with his friend Captain Cautley he worked at the Siválik beds. In connection with their joint work on the *Fauna Antiqua Sivalensis*, he formed a large collection of drawings, which were presented in 1867 or 1868, and include :-

Sketches for 20 plates of Siválik fauna, including *Colossochelys* and Crocodile ; sketches for 18 unpublished plates of Ruminant remains ; 53 drawings in water-colour and pen-and-ink of Indian fossils, including sketches for plates : and a collection of 170 drawings in water-colour, pen-and-ink, or pencil, of various fossil Mammalia and a Chelonian, drawn by J. Dinkel, J. J. Kaup, and others (P).

FARQUHAR (William), *Major-General* [c. 1771-1839]

Six volumes of original drawings of the fauna and flora of Malacca were lent to the Museum in 1935 for an indefinite period, by the Royal Asiatic Society (L).

On some of the drawings are notes by Major-General T. Hardwicke, whose extensive collections of illustrations of Asiatic plants and animals were bequeathed to the Museum in 1835.

FARRE (Arthur)

124 sheets with 362 Nature-prints of south European butterflies and a few moths, collected mounted and presented to Sir Richard Owen in 1855 (E).

FEILDEN (Henry Wemyss) [1838-1921]

Manuscript diary of an expedition to the Arctic, July to October 1860 (P).

FEILDING (Hon. Mrs.)

A miscellaneous collection of water-colour drawings of North American and Asiatic plants, artists unknown, late 18th and early 19th century, was presented by Mrs. Feilding in 1914 (B).

FINCH (Louisa) *Countess of Aylesford* [1760-1832]

Catalogue of the Mineral collection of the Dowager Countess of Aylesford. 2 vol. The collection was formed during the years 1810-1832 and was sold at auction sales between 1834-1839. Some of the specimens were purchased for the British Museum at these sales, others were acquired at a later date (M).

Catalogue of British plants &c., 4 vol. 1784-1816 (B).

The drawings, bound in 27 volumes, were sold by auction in 1955, whereabouts now unknown but it seems likely that they were broken up and the drawings sold individually.

FINCH-DAVIES (Claude G.)

See DAVIES (Claude G. Finch-)

FISCHER von ROESLERSTAMM (Josef Emanuel) [1787-1866]

55 sheets of original drawings by J. E. Fischer von Roeslerstamm, C. A. F. Harzer, and J. Mann. The collection includes some hand-coloured unpublished plates for Fischer's *Schmetterlingskunde* (1834-43). c. 1835 (E).

FISHER (Robert) [1848-1933]

The manuscript of this author's *The English names of wild flowers*, 1932-34, was acquired in 1938 (B).

FISHES

Seven water-colour drawings of fishes, one inscribed "Albin fecit" (Z).

FISHES

19 original water-colour drawings of South American freshwater fishes, c. 1841 (Z).

FISHES

129 water-colour drawings of fishes, mainly Hawaiian, the majority painted by Mrs. E. G. Norrie c. 1910 (Z).

FISHES

278 original water-colour drawings of Oriental Fishes and Cephalopoda. Many of the drawings are named in C. Tate Regan's holograph but the origin of the collection is unknown (Z).

FISHES

54 sheets of original water-colour drawings of marine and freshwater fishes. East Indian species (Z).

FISHES

Four original water-colour drawings of western North Atlantic fishes (Z).

FITCH (J. N.)

A collection of original water-colour drawings made for B. S. Williams' *Orchid Album* 1882-1897 was presented by Lord Rothschild in 1920 (B).

FITCH (Walter Hood) [1817-1892]

13 original water-colour drawings of plants (B).

FLEGEL (C.)

298 water-colour drawings of insects and larvae. The drawings are undated but the binding is lettered "Frankfurdt 1622" (E).

FLEMING (John) [1747-1829]

Medical officer and botanist in India. A collection of drawings of Indian Plants that had been the property of Dr. Fleming was purchased in 1882 (B).

FLEMWELL (George Jackson) [1865-1928]

16 water-colour drawings of plants and insects (B).

FLETCHER (Sir Lazarus) [1854-1921]

Keeper of the Mineral Department 1880-1909, Director 1909-1919. Manuscript historical notes relative to the arrangement of the mineral collections in the Museum also historical memoranda on the Department, compiled in 1904 for the *History of the Collections* (M).

A series of his autograph letters addressed to A. Günther, 1887-1914, is included in the Günther Collection (L).

FLETCHER (Thomas Bainbrigge) [1878-1950]

A collection of manuscript notes on some families of Micro-Lepidoptera (E).

FLOWER (Sir William Henry) [1836-1899]

The following material is preserved in the Museum.

2 note-books containing pencil sketches.

8 manuscript note-books on the anatomy of the Mammalia.

A quantity of manuscript, relating to various lectures, illustrated by water-colour drawings and pencil sketches.

4 holograph note books containing descriptive and anatomical notes on mammals.

A collection of pencil sketches, water-colour drawings and photographs of animals.

Letters and notes relating mainly to Cetacea.

10 manuscript note-books (Z).

A series of his autograph letters addressed to A. Günther, 1869-1898, is included in the Günther Collection (L).

FLYING FISH, H.M.S.

Rough notes and descriptions of soundings made on the cruise of H.M.S. "Flying Fish" in 1887 are preserved in the Murray Library (M).

FORBES (Alistair Granville)

Two note-books containing details of birds, nest and eggs collected in South America 1913-1919 (Z).

FORBES (Edward) [1815-1854]

A collection of 18 autograph note-books on Natural History (L), also unpublished manuscript notes on British Plants observed in Lycia, Oct. 1841-June 1842 (B).

FORBES (Henry Ogg) [1851-1932]

26 original drawings of Sumatran and Javan Plants made by Forbes during his travels in the Eastern Archipelago, were acquired in 1884 (B), also a manuscript report on the Peruvian guano birds and guano islands made during the period 1911-1913 (Z).

FORSTER (Edward) [1765-1849]

MS. note-book containing "Extracts and observations from Dr. Goldsmith," "Sketch and explanation of the Orders in the System of Linnaeus" and with 54 tracings of various plants, c. 1817, also six note-books containing the botanical observations made by E. Forster from 1784-1848 (B).

FORSTER (John Reinhold) [1729-1798] and (Johann Georg Adam) [1754-1794]

J. R. Forster was naturalist on Captain Cook's second voyage to the Pacific, 1772-75. His son, J. G. A. Forster, acted as his assistant and as artist on the expedition. His original water-colour and pencil drawings of the Animals and Plants observed on that occasion, filling 4 volumes, form the Banksian MSS. No. 6-9 (B and Z). A photocopy of "Observationes Historiam Naturalem Spectantes quas in Navigatione ad Terras Australes instituere coepit G. F. Mense Julio Anno MDCCLXXII" is in the Museum (L). The original manuscript is preserved in the Museum National d'Histoire Naturelle, Paris.

MS. catalogues of plants collected on Cook's second voyage; a numbered sequence and others of particular areas arranged according to the Linnaean system (B).

FOUNTAIN (Margaret E.) *Miss*

862 original water-colour drawings of Lepidoptera larvae and pupae with their food plants, 1907-1939 (E).

FOX (William Darwin) [-1882]

Holograph list of fossils in the collection of the Rev. W. Fox, purchased in 1882 (P).

FRASER (Frederick Charles) [1880-1963]

Original water-colour drawings in one volume lettered *Larvae Lepidoptera Indica*, 1908-1918 (E).

FRASER (John) *Botanist*

The original water-colour drawing of *Thalia dealbata*, by James Sowerby, issued by Fraser in 1794, and a partially coloured proof (B).

FRASER-BRUNNER (A. F.)

See BRUNNER (A. F. Fraser-)

FREEMAN (Ernest Carrick)

MS. catalogue of a collection of British and foreign shells, marine, freshwater and land. 2 vol. 1869-1929 (Z).

FROHAWK (Frederick William) [1861-1946]

69 original drawings of mammals, mostly in water-colour, some in black and white, 74 drawings of birds, 6 water-colour drawings and 2 pencil sketches of reptiles and 1 water-colour of a fish. 1 framed water-colour painting of a Dodo, dated 1905 (Z).

5 framed water-colour drawings of birds and six of mammals (T).

Numerous original drawings of lepidoptera published in works of this author (E).

FRY (N.)

MS. catalogue of Travancore birds collected by Major Fry, with notes on preparing bird skins, c. 1880 (Z).

GAEDE (Max)

MS. catalogue of Microlepidoptera, c. 1940, contained in eleven files (E).

GANDY (Henry Garnett) [1860-1939]

MS. Game Book, illustrated with pen and ink drawings, photographs and press-cuttings, containing sporting records kept by H. G. Gandy from 1876-1929 (Z).

GARDINER (A. C.)

Eight MS. log-books on the ecology of the River Shannon and Lough Derg, 1920-1923 (Z).

GARRETT (Andrew) [1823-1887]

489 original water-colour drawings of South-Sea Fishes by A. Garrett, with his manuscript explanations and notes. These are the drawings and notes utilized by Dr. A. Günther for his monograph in the *Journal des Museum Godeffroy* (Z).

GARRIGA (Joseph)

"Description of the Skeleton of a very large and rare Quadruped [Megatherium] contained in the Royal Cabinet of Natural History of Madrid, 1796" foll. 129. A manuscript transcription of the original text, accompanied by a translation, on opposite pages, both by W. Clift, ? 1838 (P).

GARSTANG (Walter) [1868-1949]

A collection of original drawings of Ascidians collected during the British Antarctic (Terra Nova) Expedition, 1910, and intended to illustrate a report on these animals; this report was never compiled. The drawings without initials are reputed to be by Dr. Garstang, those initialled I.H.G. are by his assistant (Z).

GAY (Jacques Étienne) [1786-1864]

Manuscript biography, in French, of P. Barker-Webb, 1856. Gay's notice of P. Barker-Webb in *Bull. Soc. Bot. France* 1856 was founded on this (B).

GEFFCKEN (William)

1914 original water-colour drawings of lepidoptera, 1868-1888 (E).

GEIKIE (James)

Lectures on Geology, Edinburgh University 1881-82. [MS. notes by R. J. Harvey-Gibson] 1 vol. (P).

GEOLOGICAL COLLECTIONS

Manuscript catalogues of the numerous collections acquired since 1837 (P).

GERARD (John) [1545-1612]

Besides his "Herbal," Gerard wrote a *Catalogus Arborum . . . ac Plantarum . . . in horto J. Gerardi . . . nascentium . . .* 1596, of which rare work a copy in manuscript forms the Banksian MS., No. 89 (B).

GETTYSBURG, U.S.S.

MS. descriptions of soundings made on the cruise of U.S.S. "Gettysburg" in the Atlantic Ocean in 1876 are preserved in the Murray Library (M).

GIBSON (Ernest)

Three note-books containing information on bird skins and eggs collected in South America 1893-1919 (Z).

GILL (Theodore Nicholas) [1837-1914]

14 autograph letters from T. N. Gill to A. Günther, 1861-1873, are preserved in the Günther Collection (L).

GODART (Jean Baptiste) [1775-1825]

548 original water-colour drawings on vellum by several artists for his *Histoire naturelle des Lépidoptères . . . de France* (E).

GODMAN (Frederick Ducane) [1834-1919]

A steel letterbook containing copies of letters written to various persons between 23rd May 1879 and 24th November 1898 (L), also a manuscript catalogue of his birds' egg collection, 4 vol. (Z).

A series of his autograph letters addressed to A. Günther is included in the Günther Collection (L).

GODMAN (Frederick Ducane) [1834-1919] and **SALVIN (Osbert)** [1835-1898]

These two 19th century zoologists became fast friends when undergraduates at Cambridge and this friendship only terminated with Salvin's death.

Their great joint work, the *Biologia Centrali-Americana* was commenced in 1879 and completed in 1915; it comprised 63 volumes. A considerable amount of correspondence, note-books and other manuscript material relating to this work is preserved in the Museum (Z), also many of the original drawings for the insect volumes (E).

GODWIN-AUSTEN (Henry Haversham)

See AUSTEN (Henry Haversham Godwin-)

GOEDART (Johann) [1620-1688]

Two sheets of water-colour drawings of insects and larvae (E).

GOLYNOS OAK

MS. Memorandum on the Golynos Oak, by George Harry, 5th Earl of Stamford, March 6, 1811. MS. notes on the Golynos Keven Oak sent by the Rev. Anchtel Grey to William Clift, 1815 (B).

GOODENOUGH (Samuel), *Bishop of Carlisle* [1743-1827]

The original drawings for the plates to Bishop Goodenough's " Observations on the British species of *Carex* " in the *Transactions of the Linnean Society*, vol. ii and iii, are preserved in the Museum (B).

GORDON (George) [1801-1893]

MS. list of plants gathered chiefly in the Province of Moray. 1 vol. 1829 (B).

GOSSE (Philip Henry) [1810-1888]

Some autograph note-books on Infusoria and Actinologia dated 1849 are preserved in the Museum (Z).

MS. note-book containing descriptions of the genital prehensors in the Papilionidae, 1882 (E).

MS. note-book on the culture of various plants also original water-colour paintings of specimens flowered by P. H. Gosse, 1863-75 (B).

An autograph letter dated 22nd May 1883 is included in the A. Günther Collection (L).

GOULD (John) [1804-1881]

Autograph letters, manuscript notes and drawings relating to Australian Mammals and Birds also autograph letters to Sir W. Jardine, c. 1848-1869. Two framed water-colour paintings of Trout, dated 1862. These were presented by Mrs. Edelsten in 1967 and are attributed to J. Gould (Z).

A pastel vignette of Gould dated 1875, signed by Marian Walker a miniaturist who exhibited at the Royal Academy between 1854 and 1877 was purchased in 1938 (Z).

GOULD (Mrs. Rachel) [1739-1829]

Sister of Philip Rashleigh, *q.v.* and wife of John Gould of Truro. Three original water-colour drawings of Minerals were acquired with the collection bequeathed by Sir Arthur Russell in 1964 (M).

GRAHAM (Maria) Mrs. [1785-1842]

The Museum possess one example of this artist's work dated 1826 (B).

GRANT (William Robert Ogilvie) [1863-1924]

Autograph account of the Sokotra Expedition, 1898-1899 (Z).

GRAY (David)

A number of pencil sketches of Whales (Z).

GRAY (Elizabeth) [1831-1924]

A collection of manuscript material together with some volumes of her scientific correspondence relating to fossils (P).

GRAY (George Robert) [1808-1872]

14 water-colour drawings of birds from G. R. Gray's collection (Z).

GRAY (John Edward) [1800-1875]

Keeper of the Zoological Department from 1840 to 1875, Gray presented in 1861 to that Department 89 volumes of Zoological works and pamphlets, including the manuscript notes by C. R. Darwin, T. Bell, and himself on the Reptiles and

Amphibia collected during the voyage of the *Beagle*. He was a constant donor to his department thereafter (Z).

In 1865 he presented the MSS. and botanical drawings of R. A. Salisbury (B).

On his death in 1875 his widow presented many other works and drawings, of which the most noteworthy are the original water-colour and pen-and-ink drawings of animals made by A. Adams on the voyage of the *Samarang*, and the 65 original water-colour drawings of Chelonia by J. de C. Sowerby used for the illustrations in T. Bell's *Monograph of the Testudinata* and Sowerby and Lear's *Tortoises* (Z).

At a later date the Museum acquired a manuscript volume of his lectures on Plants and Insects, probably delivered about 1819-1820 at Graingers School of Medicine, near the present Guys Hospital, also a considerable amount of autobiographical material which has been mounted and bound in a folio volume (L).

A marble bust of Gray stands in the Zoological Library.

GRAY (Mrs. Robert)

See GRAY (Elizabeth)

GREEN (Edward Ernest) [1861-1949]

The original drawings for his *Coccidae of Ceylon* 1896-1922, are preserved in the Museum (E).

GREEN (James)

536 original drawings used to illustrate the *Catalogue of the fresh-water fishes of Africa in the British Museum* by G. A. Boulenger, 1909-1916, and 9 water-colour drawings of reptiles (Z).

13 original water-colour paintings of reptiles were acquired with the Rothschild bequest in 1937 (T).

GREG (Robert Philips) [1826-1906]

Manuscript supplement to the catalogue of the Thomas Allan collection of Minerals. 1 vol. (M).

GREGOR (William) [1761-1817]

See HAWKINS (John)

GRENFELL (J. G.)

MS. list of collection of Carboniferous Crinoidea purchased in 1891 (P).

GRENVILLE (William Wyndham, Baron) [1759-1834]

A manuscript list of 189 specimens of Peruvian minerals, presented in 1809 (M).

GREVILLE (Robert Kaye) [1795-1866]

A manuscript catalogue of Diatoms, also one volume of correspondence from G. A. W. Arnott and other contemporary botanists (B).

GRIFFITH (W.)

One water-colour drawing of a flower called a " Blue Mountain Waratah " commissioned by George Sutton of Parramatta, 1857 (B).

GRIFFITHS (Amelia Elizabeth) *Miss* [1802-1861]

23 original water-colour drawings of British fungi (B).

GRIFFITHS (Moses) [1743-1819]

Was the servant of Thomas Pennant for whom he drew and engraved illustrations for some of his works. Three original botanical drawings published in John Lightfoot's *Flora Scotica* 1777 are preserved in the Museum (B).

GRIMMOND (William)

One water-colour drawing of a primate, 1906 (Z).

GRISSET (Ernest) [1844-1907]

One original water-colour painting of a Cinerous Vulture (Z).

GRONOVIVS or GRONOW (Laurentius Theodorus) [1730-1777]

Gronow was a Senator of Leyden and one of the best ichthyologists of his day. His collection, and a manuscript description of it illustrated by numerous original drawings, were purchased at an auction in London in 1853 (Z). The manuscript was afterwards printed and issued in 1854 as one of the Museum catalogues.

GRÖNVOLD (Henrik) [1858-1940]

10 pencil drawings made for H. E. Howard's *British Warblers*, published 1907-1914, also the original drawings of birds and birds' eggs for the postcard series and other publications issued by the Museum.

12 pen and ink sketches of skulls of mammals, 6 black and white drawings of heads of birds, 7 water-colour drawings of birds, 3 of eggs and 2 of reptiles (Z).

Framed water-colour drawings, 1 bird (Z), 1 mammal and 2 birds (T).

GROVE (William Bywater) [1848-1938]

A collection of original coloured and pencil drawings of micro-fungi, mostly British, also three note-books and manuscript notes on "New and noteworthy fungi" later published in the *Journal of Botany* (B).

GUDE (Gerard Pierre Laurent Kalshoven) [1858-1924]

Manuscript material comprising—Catalogue of the molluscan families Endodontidae and Helicidae; 13 volumes of faunal tests of mollusca arranged topographically with separate index; one volume of notes on fossil Helioidae (Z).

GUÉNÉE (Achille) [1809-1880]

Manuscripts containing:—

Guénée's observations on the synonymy of European lepidoptera, c. 1857.

Catalogue général des lépidoptères du Globe, c. 1860.

Catalogue des Lépidoptères de ma Collection, 1863 (E).

GUENTHER (Albert Charles Lewis Gotthilf) [1830-1914]

Keeper of the Zoological Department from 1875-1895 and one of the most notable systematic zoologists of the 19th century. A large collection of his correspondence containing autograph letters from naturalists of many countries over the period 1850-1914 was purchased from his grandson in 1969 (L).

A bronze medallion portrait by Frank Bowcher is preserved in the museum (Z).

GUNTHER (Robert William Theodore) [1869-1940]

A collection of manuscript notes relating to the Lady Hippisley collection of Minerals (M).

A file containing autograph note-books and MSS. relating to his early work on marine zoology was included with the Albert Günther Collection purchased in 1969 (L).

GUPPY (Henry Brougham) [1854-1926]

Autograph notes on the rocks, plants and animals of the Solomon Islands, c. 1890 and six boxes of notes relating to rocks, plants and soundings of islands in the Antarctic Region, Indian Ocean and South Pacific (M).

GUPPY (P. Lechmere)

Manuscript correspondence and water-colour drawings of West Indian fishes made during the period 1902-1921 are preserved in the Museum (Z).

GURNEY (John Henry) [1819-1890]

The 19th century Norfolk ornithologist. Some of his manuscript notes and correspondence relating to birds of prey has been presented to the Museum (Z).

GWATKIN (E. N.) *Miss*

270 original water-colour drawings of British plants and a collection of drawings of British fungi (B).

GWATKIN (Henry Melvill) [1844-1916]

Manuscript and typescript lists relating to his collection of Mollusca, c. 1920 (Z).

HAIGH (George Henry Caton) [1860-1941]

Manuscript records of birds observed in Wales, 1888-1925 and Lincolnshire, 1888-1940. 11 vol. One volume containing a general record of birds observed, also a quantity of slips detailing the occurrence of birds and fishes in the British Isles (Z).

HALFORD (Frederic M.)

The author's manuscript of *The Dry-Fly Man's Handbook*, published in London 1913 (E).

HALL (Julian Gartner)

232 original drawings of plants. 3 vol. (B).

HAMILTON (Gerald Edwin Hamilton Barrett-) [1871-1914]

A manuscript journal of a trip to South Georgia in 1913-1914 (Z).

A collection of autograph letters addressed to Sir Norman Kinnear between 14th June 1904 and 16th November 1910 (L).

HAMPSON (Sir George Francis) *Bart.* [1860-1936]

Between 1895 and 1920 he was in charge of the Heterocera collections in the Museum and compiled the extensive *Catalogue of the Lepidoptera Phalaenae in the British Museum* of which 13 volumes plus 2 supplementary volumes appeared in print. On his retirement in 1920 he left behind manuscript for five volumes dealing with the sub-family Noctuinae and these are preserved in the Museum. In addition there are some Manuscript note-books relating to collections of insects made by Hampson in the Nilgiri Hills, c. 1888 (E).

HANCOCK (J.)

Twenty water-colour drawings of Indian birds. With descriptions by — Brookes 1869–1870 (Z).

HANLEY (Sylvanus Charles Thorp) [1819–1899]

One manuscript note-book relating to conchology (Z).

HANSEN (George) [1863–1908]

One volume of original drawings of monstrous flowers of cultivated Orchids with autograph introduction and descriptions, c. 1886 (B).

HAPPE (Andreas Friedrich) [1733–1802]

Six volumes of an apparently unpublished work entitled “ *Naturgeschichte der Insekten* ” containing 840 water-colour drawings of insects, arachnids and crustaceans with manuscript descriptions, 1773 (E).

One volume of original drawings of insects &c. (E).

One volume containing 85 water-colour drawings of fishes and one volume containing 118 drawings of reptiles, both with manuscript descriptions and dated 1775 (Z).

These are part of the Rothschild bequest.

HARDCASTLE (Lucy)

The MS. and original drawings of *An introduction to the elements of the Linnean System of Botany* 1830, are preserved in the Museum (B).

HARDENBURG (Cornelius van) [1755–1843]

Two original water-colour drawings of *Cercopithecus mona* (Z).

HARDWICKE (Thomas), Major-General in the Indian Army [1755–1835]

Hardwicke formed an extensive collection of illustrations of Asiatic zoology, besides making himself some botanical drawings and notes. The greater part of the collection is the work of native artists ; but among the drawings of Fish (in addition to one of the four sets of drawings of Chinese Fish by a native artist that J. Reeves caused to be prepared) are included, some by Major Neeld, others by Major Farquhar, and copies from drawings by Buchanan Hamilton. There is also a series of drawings of Birds by T. W. Lewin.

The collection is composed of the following sets :—

22 original water-colour drawings of Plants made in the north-western provinces of India in 1796, with autograph descriptions (B).

56 water-colour sketches of Plants from the neighbourhood of Plettenburg Bay, S. Africa, by “ C. H. W. ” and “ I. W. B. ” with autograph descriptions by Major-General Hardwicke, 1812 (B).

Water-colour drawings of India and Chinese animals (Z), viz., 194 Mammals, 1,230 Birds, 65 Birds'-nests and eggs, 366 Reptiles, 813 Fish, 545 Insects, 94 Insect larvae, 58 Insects of Nepaul, 97 Arachnida, 233 Crustacea, 97 Mollusca and Radiata.

Water-colour drawings of animals of various countries (Z), viz., 85 Vertebrata and Invertebrata, 118 Mammals, 429 Birds, and 76 Birds by T. W. Lewin.

These sets, which are bound in 32 volumes, were bequeathed by Hardwicke with his specimens to the Museum in 1835, a sum of money being at the same time left

to defray the expense of publishing the scientific descriptions of them. The latter intention was, however, frustrated by a Chancery suit, instituted soon after his death. Some of the drawings were used for plates in J. E. Gray's *Illustrations of Indian Zoology*, and Jardine and Selby's *Illustrations of Ornithology*.

One folio volume of illustrations in water-colour, of Indian zoology and botany, by Hardwicke and Mrs. Duncan Campbell, dated 1822, was acquired with the Rothschild bequest in 1937 (T).

A framed portrait in oils by William Hawkins is preserved in the Museum (Z).

HARDY (James) [1832-1889]

Four original water-colour drawings of birds dated 1876 (Z).

HARGITT (Edward) [1835-1895]

MS. catalogue of the Hargitt collection of birds' eggs. 1 vol. (Z).

HARMER (Frederic William) [1835-1923]

MS. lists relating to fossils and localities, and a list of Marine Mollusca from the Pliocene Deposits of the Anglo-Belgium Basin (P).

See also AUTOGRAPHS

HARMER (Sir Sidney Frederic) [1862-1950]

Keeper of Zoology from 1909-1919 and Director 1919-1927 he was widely known for his researches on the Polyzoa and Cetacea. Many of the original drawings used to illustrate his published works, together with a manuscript bibliography of the Polyzoa, in 8 volumes, have been donated to the Museum (Z).

A series of his letters addressed to A. Günther, 1908-1913, is included in the Günther Collection (L).

HARRIS (Charles Miller) and WEBSTER (F. B.)

Galapagos Islands. Expedition from Hyde Park, Mass., March 17, 1897. Returning to Hyde Park, May 11, 1897. Report of C. M. Harris taxidermist and collector, in command. The manuscript is accompanied by photographs and drawings (Z).

HARRIS (Moses) [1731-c. 1788]

Original water-colour drawings for *The Aurelian*, bequeathed to the Museum by the 2nd Baron Rothschild in 1937 (E).

HARTERT (Ernst Johann Otto) [1859-1933]

Curator of Lord Rothschild's Zoological Museum at Tring from its inception.

A series of his autograph letters addressed to A. Günther, 1892-1909, is preserved in the Günther Collection (L).

HARTGEN (E.)

One volume containing 41 sheets of original water-colour drawings of Brazilian lepidoptera, c. 1891 (E).

HARZER (C. A. F.)

See FISCHER von ROESLERSTAMM (J. E.)

HAVELL (Robert)

Framed painting in oils of a fish hawk attacked by a bald eagle (Z).

HAWKINS (Ellen) Miss [fl. 1821-1868]

The Museum possesses a large number of water-colour paintings of British plants, together with manuscript descriptions, 1821-1864 : contained in seven portfolios (B).

HAWKINS (John) [1761-1841]

A collection of autograph correspondence addressed to John Hawkins from Philip Rashleigh, William Gregor and other contemporary mineralogists (M).

HAWLEY (Sir Henry Cussack Wingfield) [1876-1923]

A collection of original coloured drawings of British fungi with detailed manuscript notes, also collections of descriptions, notes and records of fungi (B).

HAY (Arthur) 9th Marquess of Tweeddale

See TWEEDDALE

HAYES (William) [1729-1799] and (A).

26 coloured etchings and 5 water-colour drawings of the Birds in the collection at Osterley Park 1779-1786 (Z).

HEATHCOTE (Evelyn Dawsonne) [1884-1908]

The original water-colour drawings of Heathcote's *Flowers of the Engadine*, published 1891, were presented in 1938 (B).

HEDGES (Albert V.)

A collection of diaries and note-books relating to British lepidoptera (E).

HENRY (David M. Reid-)

Four water-colour bird drawings were presented in 1961 and twelve original water-colour drawings reproduced in *Birds of the Sudan* by F. O. Cave and J. D. Macdonald, 1955, were presented by the authors in 1968 (Z).

HENSLOW (George) [1835-1925]

90 water-colour drawings of fossils from the Red Crag, Suffolk, 1 vol. (P).

HENSTENBURGH (Hermanus) [1667-1726]

Original water-colour drawings of birds, *Picus major*, *Lanius minor*, and *Parus major* (Z).

Three sheets of water-colour drawings of insects and larvae (E).

HERBAL

Water-colour drawings of plants, with MS. notes in Italian and Latin in two handwritings. 1 vol. ff. 143. c. 1649 (L).

HERING (Erich Martin) [1893-1967]

Three manuscript catalogues and one note-book relating to the Hering collection of leaf-mining insects (E).

HERON-ALLEN (Edward) [1861-1943]

The original drawings used to illustrate this author's works on the Foraminifera, together with manuscripts and correspondence relating to these, were presented with his very fine collection of books on this subject in 1925 and the following years until his demise (Z).

HERRICH-SCHAEFFER (Gottlieb August Wilhelm) [1799-1874]

Numerous pattern plates of several of this author's works (E).

HEYNE (Benjamin) [d. 1819]

MS. report on the copper mines in the Callastry and Venketgherry district of Madras and the copper mines of Agrilandala. Part of Phillipps MSS. No. 19320. See Roxburgh, William.

HIBBERT, afterwards HIBBERT-WARE (Samuel)

Original drawings of Fossil Fishes and Plants from the Burdie House limestone, near Edinburgh, 1834-35, 2 vol. (P).

HICKSON (Sydney John) [1859-1940]

MS. geographical index of Alcyonacea. ff. 190. c. 1910 (Z).

HIERN (William Philip) [1839-1925]

A considerable amount of his botanical manuscript material is preserved in the Museum (B).

HIGGINSON (Ida)

One sketch book of anatomical subjects in pencil, 1865 (Z).

HIGHLEY (Percy) [1856-1929]

Collections of water-colour drawings of plants and sections of flowers, also original drawings of micro-fungi (B).

HILL (D. F.)

Three botanical water-colour drawings (B).

HINDE (George Jennings) [1839-1918]

Manuscript notes relating to fossils in the Hinde Collection. 14 vol. 1918, and a collection of articles and observations (P).

HINDS (Richard Brinsley)

MS. diary of R. B. Hinds, naturalist accompanying the voyage of H.M.S. "Sulphur", 1835-1842.

One volume covers the period Dec. 22nd 1835 to 5th Dec. 1839, the other, Jan. 9th 1836 to July 14th 1840 (L).

HINKINS (Frank R.)

313 drawings of British spiders and their webs, 1897-1932, also drawings made for the "Spiders" postcard series issued by the Museum (Z).

HINTON (Martin Alister Campbell) [1883-1961] and **READ (E. C.)**

Unpublished typescript of memorandum on musk rats in Europe, 1930 (Z).

HIPPISLEY (Lady Elizabeth Anne) [1760-1843]

See GUNTHER (R. W. T.)

HITCHCOCK (M.)

27 sheets of original water-colour drawings of insects and plants of Fiji, 1895-1896 (E).

HOCH (J. G.) [fl. 18th. c.]

Seven original water-colour drawings of Molluscs (Z).

HODGE (George)

Nine original drawings of Crustacea (Z).

HODGSON (Bryan Houghton) [1800-1894]

B. H. Hodgson was appointed Assistant Resident and, later, Resident in Nepal. He made large zoological collections there, supplemented by water-colour drawings of the Vertebrata, by native artists. These were sent home and presented to the Museum in 1845 and 1858; the drawings number 1,319 in seven volumes. There are also two volumes of manuscript descriptions of quadrupeds and birds relating to these collections (Z).

A series of his autograph letters addressed to A. Günther, 1861-1867, is preserved in the Günther Collection (L).

A marble bust of Hodgson stands in the Zoological Library.

HODGSON (Robert Durie)

892 original pencil drawings of British plants, 1909-1947 (B).

HOLLAND (Mrs. Joseph Robberds)

72 sheets of water-colour drawings of South African wild flowers, 1856-1859 (B).

HOLLAND (Richard)

Four MS. note-books, mainly on Foraminifera (Z).

HOLLICK (Alfred T.)

A number of original drawings of Crinoids dated between 1866 and 1876 are preserved in the Museum (Z). Some of these were used to illustrate a paper by W. B. Carpenter in *Proc. R. Soc.* **24** : 211-231.

Folios 464-469 in the Owen collection of drawings comprise sketches of parts of fossil Australian mammals by this artist (L).

HOLLOWAY (J.)

54 water-colour drawings of Hampshire fossils, chiefly from Stubbington, c. 1800 (P).

HOLSTEYN (Pieter) the Elder [c. 1580-1662]

An original water-colour drawing of the White Dodo, and five mounted drawings of *Limulus moluccensis*, *Homarus vulgaris*, *Pyrrhula vulgaris*, *Picus major*, and an unnamed bird (Z), also two sheets depicting 12 insects (E).

HOME (Sir Everard) [1756-1832]

Manuscripts of his *Lectures on Comparative Anatomy*, 1810-1813 (L).

A series of original water-colour drawings by W. Clift, Franz Bauer, and others were reproduced in his "Lectures" and are preserved in the Museum (L).

121 natural history manuscripts, including scientific correspondence addressed to Sir E. Home, some of his autograph notes with those of J. Hunter and others. The whole indexed in the handwriting of W. Clift (L).

HONG KONG

50 original drawings of wild flowers of Hong Kong drawn by a native artist, with the names in the autograph of H. F. Hance 1853-1856 (B).

HOOK (Bryan)

Framed water-colour of Mount Kenya with Gemsbok in foreground (D).

HOOKER (Sir Joseph Dalton) [1817-1911]

Director of the Royal Gardens, Kew, from 1865-1885.

Hooker started on his career as Surgeon and Naturalist on the "Erebus", under Sir J. Ross, during the expedition to the Antarctic regions in 1839-43. Autograph lists of the plants collected, with notes and drawings made during the early part of the expedition (B), and 28 water-colour drawings and pencil sketches of Antarctic fish (Z), some of which were utilised by Sir J. Richardson in illustrating his zoology of the voyage, are in the Museum. In the Murray Library there is a collection of sketches and outline drawings of invertebrate animals dated 1840-41 (M).

Also preserved are a collection of original coloured drawings of Indian fungi, annotated by C. E. Broome (B).

A series of his autograph letters addressed to A. Günther, 1861-1909, is preserved in the Günther Collection (L).

HOOKER (Sir William Jackson) [1785-1865]

Director of the Royal Gardens, Kew, from 1841-1865. The original water-colour drawings by Franz A. Bauer for the plates to Hooker's *Genera Filicum* are preserved in the Museum (B).

HOPKINS (Barbara) *Miss*

400 original drawings made for an "Atlas of Coleoptera larvae" by K. G. Blair, which was never published (E).

HÖRMANN (Joseph Ignaz) [1775-1820]

One water-colour drawing of a tulip (B).

HORSFIELD (Thomas) [1773-1859]

Horsfield practised as a physician in Java and Sumatra from 1799 to 1819, when he became Keeper of the East India Company's Museum in London.

His manuscript lists of Javanese Plants, with letters and 33 original pen-and-ink sketches showing dissections of the new or doubtful genera, 1814-51, which accompanied his collection, are in the Museum (B).

HOUSTOUN (William) [1695-1733]

Houstoun practised as a surgeon in the West Indies. His manuscript lists and descriptions of West Indian plants passed, after the death of Philip Miller with whom he corresponded, into the hands of Sir J. Banks, and form MSS. No. 67-69 (B) of the Banksian collection. The catalogue was published by Banks under the title of *Reliquiae Houstounianae* (1781).

HOWITT (William Samuel) [1765-1822]

Three water-colour drawings of mammals (Z).

HUBRECHT (Ambrosius Arnold Willem) [1853-1915]

MS. notes relating to specimens of Nemertina collected in the Antarctic regions during the expeditions of the "Southern Cross" 1898-1900 and "Discovery" 1901-1904 (Z).

HUDSON (Robert) [1802-1883]

Manuscript catalogue of fossils in the cabinet of R. Hudson, presented to the Museum in 1907 (P).

HUEBNER (Jacob) [1761-1826]

71 sheets of mounted original drawings in water-colour for Huebner's *Beiträge zur Geschichte der Schmetterlinge* and his *Sammlung Europäischer Schmetterlinge*, with manuscript notes by Huebner, Geyer, Herrich-Schaeffer and K. von Rosen, c. 1785.

In addition a large amount of manuscript material, original drawings and engraved pattern plates concerned with Huebner's works is preserved in the Museum.

Many of these are discussed in F. Hemming's *Hübner*, London, 1937. They represent the work of a distinguished band of Bavarian and Austrian entomologists of whom the central figure was Jacob Huebner and who during the period 1770-1850 laid the foundation of the classification of lepidoptera. Huebner's work was carried on by Carl Geyer whose drawings are also included with those of other well known early authors and artists, such as Fischer von Rosslerstamm, Schaedler, Jacob Stoerm, Joseph Mann and Carl Ploetz (E).

HULKE (John Whitaker) [1830-1895]

Manuscript catalogue of the collection of Fossil Vertebrata made by J. W. Hulke and presented by his widow in 1895 (P).

HUME (Allen Octavian) [1829-1912]

Autograph correspondence concerning the donation and transportation of the Hume collection of birds and eggs to the Museum, 1883-1885 (Z).

Seven volumes of autograph Journals and Notes with ornithological Observations made on different expeditions in India 1867-1881 (L).

One note-book relating to Indian birds collected during 1864-1865 was presented in 1922 (Z).

HUNT (William Henry) [1790-1863]

A collection of 60 sheets of water-colour drawings of marine animals (Z).

HUNT (William Holman-) [1827-1910]

See OWEN (*Sir Richard*)

HUNTER (A. H.)

Unpublished thesis on the Sheep Industry of Patagonia, 1940 (Z).

HUNTER (William) [1755-1812]

The well-known Orientalist and Botanist, W. Hunter, was Medical Officer to the East India Company.

His autograph "Outline of a Flora of Prince of Wales' Island" (Penang), is in the Museum (B).

HUTTON (William) [1797-1860]

Two autograph letters, July 1829 and February 1830 addressed to John Lindley, and one letter dated May 1829 addressed to Sir Roderick Murchison (B).

HUXLEY (Thomas Henry) [1825-1895]

A collection of minutes, correspondence and miscellaneous papers concerning the business of the Huxley Memorial Committee. 3 vol. 1895-1900 (L).

HUYSUM (Jacob van) [c. 1687-1740]

Two water-colour botanical drawings painted on vellum and one volume containing 28 drawings of plants (B).

HUYSUM (Jan van) [1682-1749]

One sheet containing three drawings of birds of the Low Countries (Z).

HUYSUM (Maria van) [18th century]

One sheet of water-colour drawings of fruit (E).

IBBETSON (Agnes) Mrs. [1757-1823]

A note-book on botanical and other subjects illustrated with numerous pencil drawings, also a manuscript treatise on botany in the form of 20 letters; (B) the plates which are referred to in this manuscript are not in the Museum.

Three volumes of original water-colour drawings of Grasses with MS. notes, 1809-1822 (B).

IMPEY (Mary) Lady

Wife of Sir Elijah Impey (1732-1809), sometime Chief Justice of Bengal, collected bird paintings executed by native artists during her residence in India. 63 of these paintings were preserved in the library of the Linnean Society of London from 1856 until June 1963 when they were sold by auction and dispersed. The Museum possesses two water-colour paintings of birds from the Impey collection, dated 1778 and 1781 (Z), and one framed painting (T). All three are part of the Rothschild bequest.

IMRIE (Ninian)

Manuscript "Descriptive Catalogue of 120 rare minerals the produce of Norway, Scotland and Greenland presented to the Right Honbl. Lord Gray". 1816 1 vol. (M).

INDIA

37 original water-colour drawings of Indian reptiles, fishes &c. c. 1800 (Z).

INDIA

559 water-colour drawings of Bengal plants, painted by native artists, with their native and occasionally also the Linnean name. 3 vol. (B).

INDIA

One volume of water-colour drawings of Indian insects. Early 19th century (E).

INDIA

116 water-colour drawings, with manuscript descriptions of Indian plants (B).

INDIA

52 original water-colour drawings of lepidoptera of western India and the plants with which they are associated (E).

INDIA MUSEUM

Autograph catalogues and lists of animals relating to specimens and drawings formerly in the Museum of the East India Company. 2 vols., also MS. catalogues and memoranda of the zoological collections in the India Museum transferred to the British Museum in 1879. 2 vols. (Z).

INGLIS (C. M.) [1870-1954]

MS. list of birds' eggs in the collection of C. M. Inglis (Z).

INGRAM (Collingwood)

61 water-colour drawings of Gladioli, 1927 (B).

63 original water-colour drawings of ornamental cherries including the originals for his *Ornamental cherries*, 1948 (B).

INSECTS

54 original water-colour drawings of Japanese Coleoptera by a native artist (E).

INSECTS

MS. notes on insects, with original drawings written and drawn by a collector in 1692 and 1695 (E).

INSECTS

37 sheets of water-colour drawings of imagines and larvae of insects, dated 1813-1814 (E).

INSECTS

1,274 water-colour drawings of German insects, mostly lepidoptera, early 19th century (E).

INSECTS

14 water-colour drawings of European and Asiatic lepidoptera and larvae, late 17th or early 18th century (E).

INSECTS

MS. notes on insects with original drawings, written and drawn by a collector. 1 vol. 1692-1695 (E).

INSECTS

One volume of original water-colour drawings of lepidoptera of France and Algiers, 19th century (E).

INVESTIGATOR, *Royal Indian Marine Survey Ship*

MS. descriptions of soundings made on the cruise of the "Investigator" in Indian waters in 1886 are preserved in the Murray Library (M).

INWARDS (Richard)

In 1898, Mr. Inwards presented a series of 42 water-colour sketches of fossils obtained near Lake Titicaca, with a map of the district (P). The fossils had already been given in 1880.

IRIS H.M.C.S.

MS. descriptions of soundings taken by H.M.C.S. "Iris" from the west coast of New Zealand towards Bondi, N.S.W. in 1912 are preserved in the Murray Library (M).

JACKSON (Arthur Randell) [1879-1944]

Original pencil sketches, with MS. notes, of Arachnida, drawn for a projected work on British spiders which was never published. 64 sh. (Z).

JACKSON (Sir Frederick John) [1860-1929]

One manuscript volume containing notes on the wild life of East Africa and Uganda, 1908-1917. A catalogue of his East African bird collection in 11 volumes. One typescript catalogue of birds, birds' eggs, butterflies, beetles and other insects collected in East Africa (Z).

JACOBS (S. N. A.)

A collection of water-colour drawings of moths, to illustrate papers by the author which appeared in the *Proc. Trans. S. Lond. ent. nat. Hist. Soc.* 1944-1955 (E)

JACQUIN (Nicholaus Joseph von), Baron [1727-1817]

Jacquin, who was a Botanist of note, corresponded with Dryander. His autograph notes and letters, with sketches and water-colour drawings, were included in the Banksian Collection (B).

JAMIESON (B. G. M.)

Unpublished typescript dissertation on taxonomic studies of the Ocneroдрilinae and the Pareudrilinae genus *Stuhlmannia*. 2 vol. 1959 (Z).

JAN MAYEN, S.S.

MS. records of meteorological and other observations made during 1865 and 1868 in the North Atlantic are preserved in the Murray Library (M).

JANISCH (Carl) [1825-1900]

14 plates, numbered 1-6, 9, 11, 15-16, 19-22, being a part of Janisch's unpublished Report on the Diatoms of the Gazelle Expedition, 1874-76. The plates are accompanied by MS. notes and a list by F. B. Taylor, and also by a list apparently in the handwriting of F. Kitten, c. 1889 (B).

JAPAN

20 sheets of water-colour drawings, by a Japanese hand, of insects, reptiles &c. c. 1840 (L).

JAPAN

54 water-colour drawings of beetles by a native artist, 19th century (E).

JARDINE (Sir William) [1800-1874]

Manuscript notes, letters, original drawings, proof sheets, and other material of this prolific author. Some of this relates to the *Naturalists Library*; it also includes the manuscript of the English edition of A. Wilson's *American Ornithology* (Z).

One volume of letters, many bearing well-known signatures, all under the date 1852, was presented to the Museum in 1920 (L).

JELLY (Eliza Catherine) Miss

MS. note-book on Polyzoa with tracings of plates by the compiler, photographs by "Mr. Waters" and sketches of cells "in violet ink by Mr. Busk" (Z).

JENKINSON ()

35 drawings, mostly in pencil, of the anatomy of *Pecten*, *Ostrea* and other Molluscs. With MS. notes (Z).

JENSEN (Fritz)

43 pencil drawings, with manuscript explanations, of the vegetation of Lifu, Loyalty Island, made in 1876 by F. Jensen, were purchased (B).

JERDON (Archibald) [1819-1874]

Manuscript "List of Hymenomycetes fungi found at Mossburnford, Roxburghshire" (B).

JESSON (Thomas)

Manuscript catalogue of his Cambridge Greensand collection purchased in 1893 (P).

JEUDE (Lith de)

An original drawing of *Gibbon condré* (Z).

JOHANN BAPTIST JOSEF FABIAN SEBASTIAN Archduke of Austria
[1782-1859]

Joannes Archdux Austriae icones Plantarum Alpestrium Austria. 51 tabulae ineditae. 1807 seqq. (B).

JOHN (Rev. C.)

Additional observations on snakes. MS. of a paper read before the Linnean Society of London on 3rd March 1807 but not printed in the *Transactions*. The manuscript was sent to Dr. W. Roxburgh in 1804 by the Rev. Dr. John who was then in Tranquebar, Madras (Z).

JOHN (C. S.)

Letters to William Roxburgh. 1 vol. (Phillipps MSS. No. 19520) (B).

JOHN MURRAY EXPEDITION

The John Murray Expedition to the Indian Ocean, 1933-1934 in H.E.M.S. "Mabahiss" was under the leadership of Lt. Colonel R. B. Seymour Sewell. His manuscript station records, log books, charts &c. were presented to the Museum in 1961 (Z).

JOHNSON (Christopher) [1782-1866]

Two volumes of letters from G. A. W. Arnott and other contemporary botanists (B).

JOHNSON (Henry) [1823-1885]

Manuscript notes made by Dr. F. A. Bather when reporting on the Johnson Collection in 1913 (P).

JOHNSON (Theo)

"Illustrations of British Entomology". 3 volumes containing 102 hand drawn and coloured plates with accompanying text in manuscript, 1889. 18 water-colour drawings of insects and their food plants (E).

"Our aquatic Flora". 45 plates with text. The plates are original water-colour drawings (B).

26 hand coloured drawings of birds were acquired with the Rothschild bequest in 1937 (T).

JOHNSON (Thomas) [-1644]

The Botanist and Apothecary, T. Johnson, became a prominent member of the Apothecaries' Company. The Society was in the habit of making botanical excursions, and Johnson published accounts of the results of their expeditions into Kent and to Hampstead Heath. Manuscripts by S. Dale of these, the earliest local Floras known, form the Banksian MS. No. 96 (B).

JONES (Thomas Rupert) [1819-1911]

Original drawings of fossil Ostracoda together with some manuscript notes, 1 vol. A manuscript catalogue of the Rupert Jones collection of fossils was presented by Lady Prestwich in 1896 (P).

JOOSTEN (D. J. H.) [-1882]

One water-colour drawing of *Tulipa Gessneriana* (E).

JORDAN (David Starr) [1851-1931]

13 autograph letters from D. S. Jordan to A. Günther, 1884-1913, are preserved in the Günther Collection (L).

JUDD (John Wesley), C.B. [1840-1916]

In 1897, Dr. Judd presented three photographic facsimiles of maps and of a table by W. Smith (P).

JUSTEN (Frederick) [1832-1906]

In addition to many minor presentations at various times, Mr. Justen gave in 1890 a copy of the rare and valuable *Salicium Woburnense* (B), and in 1896, three volumes containing notes and descriptions, with a few drawings, of Peruvian Plants by A. Mathews (B).

KANNEMEYER (Danniel Roussouw)

A collection of his correspondence with H. G. Seeley concerning the South Africa Fossil Reptilia, 1891-1905, 1 vol. (P).

KAUP (Johann Jacob) [1803-1873]

Kaup was Inspector of the "Naturalien cabinet" at Darmstadt. His original drawings for the illustrations to his *Catalogue of Apodal Fish in the . . . British Museum*, 1856, are preserved in the Museum (Z).

Water-colours by him, chiefly of fossil vertebrata remains, are in the Owen Collection (L) and Geological Collection of drawings (P).

KEENAN (John)

21 sheets of original water-colour drawings of orchids (B).

KELAART (Edward Frederick) [1819-1860]

A manuscript note-book and a series of sketches of invertebrate animals of Ceylon were presented to the Museum by Miss F. Kelaart in 1913 and 1925. Some of these drawings were reproduced in a paper on the nudibranchs of Ceylon, by Sir Charles Eliot, published in the *Proc. Zool. Soc. London* 1906 : 636-691 (Z).

KELLER (Johann Christoph) [1737-1792]

Four water-colour botanical drawings dated 1756-1760 (B).

KELLY (Chloe E. Talbot) [1927-]

Two water-colour paintings of birds were presented in 1961 (Z).

KEMPTER (J.)

One water-colour drawing of an Orang-Utan, 1905 (Z).

KENNEDY (Norman B.)

MS. list of birds and mammals from Manipur, 1945-46 (Z).

KENNEL (Julius von) [1854-1939]

Original water-colour drawings of " Die Palaearktischen Tortriciden " published in *Zoologica, Stuttgart* Heft 54 1908-16 (E).

KENT (William Saville) [1845-1908]

A manuscript catalogue of corals, which comprises a close translation of H. Milne Edwards *Histoire naturelle des Coralliaires*, with the addition of new species, also notes and sketches of water mites (Z).

KENT'S CAVERN COLLECTION

Manuscript list of specimens of fossils (P).

KERR (William) [-1814]

A Botanical Collector sent out to China by Sir Joseph Banks, Kerr, afterwards Superintendent of the Botanical Gardens, Ceylon, visited the Philippines. His autograph journal of a " Botanical Mission to the Island of Luconia in . . . 1805 " is in the Museum (B).

KEULEMANS (John Gerrard) [1842-1912]

Many original water-colour drawings of birds by this artist, also the full set of his pattern plates to G. E. Shelley's *Monograph of the Sun-Birds* (Z).

29 framed drawings of birds and 4 volumes of the original drawings for Sir Walter Buller's *History of the Birds of New Zealand* were acquired with the Rothschild bequest (T), also 7 water-colour drawings of mammals (Z).

Four framed paintings of birds, two in oils and two in water-colour are preserved in the Bird Section (Z).

KING (William) [fl. 1753-1767]

35 water-colour drawings of plants, some painted on vellum (B).

KINNEAR (Sir Norman Boyd) [1882-1957]

For many years in charge of the Bird Section in the Museum and Director 1947-1950. A considerable quantity of his manuscript notes and correspondence, including his unfinished " Biographies of Indian Ornithologists ", was presented by Lady Kinnear (Z).

A holograph Journal of a Whaling Voyage in S.Y. Scotia to the Greenland Seas in 1907 was presented in 1947 (L).

KIRBY (William) [1759-1850]

Two MSS. of the Rev. W. Kirby, the entomologist and joint author with W. Spence of the famous *Introduction to Entomology*, are in the Collection : an

autograph MS. entitled "Museum Entomologicum Barhamense. Pars prima sistens Insecta M. Britanniae indigenae," which was presented with their collections in 1863 by the Entomological Society, and a manuscript catalogue of British Staphylinidae in 3 vol. presented by Dr. J. E. Gray in 1869 (E).

KISCH (B. S.) [1882-1961]

A quantity of correspondence and notes relating to Mollusca of south-western France, 1950-1961 (Z).

KLUYVES (N.)

One water-colour drawing of *Varanus komodoensis*, 1926 (Z).

KNAUTH (Bernhard)

2,000 original coloured drawings of European fungi were purchased in 1938 (B).

KNAUTH (Walter)

107 original coloured drawings of *Russula* were presented in 1939 (B).

KNIGHT (Horace)

384 original water-colour drawings of *Acronycta* and *Caja*.

One volume of water-colour drawings of insect larvae and copies (made by Knight) of Carl Plötz's unpublished drawings of Hesperidae, 16 pls. 1886 (E).

KNIGHT ERRANT, H.M.S.

MS. descriptions of soundings, list of Foraminifera and rough book on cruise made off northern Scotland in 1880 are preserved in the Murray Library (M).

KNOX (M.)

382 original coloured drawings of fungi were presented in 1954 (B).

KNOWLTON (Thomas) [1692-1782]

Knowlton began life as Superintendent of Dr. Sherard's garden at Eltham, and in 1728 entered the service of Richard Boyle, 3rd Earl of Burlington, at Lanesborough, Yorks. He attained eminence as a botanist, and corresponded with many noted contemporaries, including S. Brewer. Knowlton's letters to Brewer between 1728 and 1741. 1 vol. (B).

KOCH (Albert Carl)

Manuscript catalogue of remains of the Mastodon now in the British Museum. Probably relates to remains offered for sale at J. C. & S. Stevens auction rooms in London on 23rd Nov. 1843 (P).

KOENIG (Carl Dietrich Eberhard) [1774-1851]

Keeper of the Mineral Department from its inception in 1837 until his death in 1851. Some of his manuscript is preserved in the Department including his diary covering the period 1816-1817, 1819-1827, a manuscript catalogue of the General Mineral Collection in 1809, 2 vol. and notes on letters written between 1830-35 and 1839-40 (M). Six of his autograph note-books, covering the period 1816-1840 are deposited in the Palaeontological Library (P).

KOHTS (Alexander Eric)

See MOSCOW.—Museum Darwinianum

KONIG (C. D. E.)

See KOENIG (Carl Dietrich Eberhard)

KONIG (Johan Gerhard) [1728-1785]

Konig, a Danish Medical Missionary in Tranquebar, kept journals of his voyages with lists and descriptions of East Indian (including Siam and Malacca) Plants, Animals, and Minerals. These form the Banksian MSS., No. 37-55 (B). An English translation of such portions as relate to the Straits Settlements appeared in the Journ. Straits Branch Roy. Asiatic Soc. Nos. 26 and 27 (1894).

KREBS (Henry)

Manuscript notes from which this author's *West Indian Marine Shells*, 1864, was compiled are preserved in the Museum (Z).

KOUWENHOVEN (G. van)

Two water-colour drawings of flowers (E).

KREFFT (Johann Ludwig Gerhard) [1830-1881]

Curator of the Australian Museum, Sydney, 1861-1874. A series of his autograph letters addressed to A. Günther, 1861-1877, are preserved in the Günther Collection. Some of these deal with his dismissal from his post and subsequent action for redress (L).

KUHN (K.)

One original water-colour drawing of a cassowary (Z).

KUHNERT (Wilhelm) [1865-1926]

Three oil colour paintings of mammals. Bequeathed by Sir William Garstin in 1925 (Z).

LACAITA (Charles Carmichael) [1853-1933]

Correspondence, c. 1925-1931, is preserved in the Museum (B).

L'ADMIRAL (Jakob) [1699-1770]

Seven sheets of water-colour drawings of insects and spiders (E).

One sheet depicting *Phrynus reniformis* and *Gastracantha arcuata* (Z).

LAESTADIUS (Lars Levi) [1800-1861]

Manuscript notes in Latin on a collection of Willows. pp. 16, 1836 (B).

LAISHLEY (Richard) [1815-c. 1890]

One volume of water-colour and pencil drawings illustrating the natural history of New Zealand together with a manuscript entitled "Gleanings of Natural History in New Zealand" (Z), also a note-book containing extracts copied from R. Laishley's autobiography (L).

LAMBERT (Aylmer Bourke) [1761-1842]

In 1841, Lambert presented a copy of Cramer's *Papillons exotiques*, formerly the property of H. Seymer, by whom it had been annotated and some of the plates re-touched (E).

At the sale of Lambert's library in 1842 the Museum acquired the MSS. of H. Ruiz Lopez and J. Pavon relating to their botanical exploration of Peru and Chili in 1777-88, and including the journal of the voyage and description of plants (B).

The original drawings by Ferdinand L. Bauer for some of the plates to Lambert's *Genus Pinus*, with one of the 25 copies of vol. 1, coloured by Franz A. Bauer, are preserved (B).

LANDAUER (M. T.)

See BERNARDI (A. C.)

LANDBECK (Christian L.)

54 original water-colour drawings of the birds of Württemberg, c. 1833-34. Bequeathed by Lord Rothschild in 1937 (T).

LANG (William Dickson) [1878-1966]

Keeper of the Department of Geology, 1928-38. Some manuscript material and 18 boxes of correspondence are preserved in the Museum (P).

LANGMEAD (L. B.)

MS. register of a collection of British Mollusca. 1951 (Z).

LANGTON (Herbert) [1853-1923]

Two box files of MS. notes on birds, including six note-books containing derivations of ornithological names and terms. These were presented in 1923 (Z).

LANKESTER (Sir Edwin Ray) [1847-1929]

Edwin Ray Lankester was appointed Director of the British Museum (Natural History) in October 1898. Almost immediately he was in conflict with the Director of the British Museum, Sir Edward Maunde Thompson, on the question of his subordination to the authority of the Director of the parent Museum. This and other disagreements led to Lankester's compulsory retirement in 1907. Documents and press cuttings relating to these matters are preserved in the Museum (L.)

LATHAM (Ann)

Daughter of the well known eighteenth century ornithologist John Latham ; the Museum possesses a number of original water-colour drawings of birds by this artist (Z).

LATHAM (John) [1740-1837]

A collection of 888 original water-colour drawings of birds, some of which are signed by A. Latham, T. Davies, Lord Stanley, and J. Abbot ; also a MS. sketch of the museum at Dartford in Kent, belonging to Dr. Latham, 1795 (Z).

LA TOUCHE (Thomas Henry Digges)

Typescript catalogue of the Palaeozoic Fossils in the Museum of the Ludlow Natural History Society, 1928. The collection was purchased in 1947 (P).

LAWRANCE (Mary) [fl. 1790-1831]

Three water-colour drawings of plants dated 1794 and 1796 (B).

LAYARD (Edgar Leopold) [1825-1900]

44 sheets of water-colour drawings of insect larvae and imagines, and of fishes from Ceylon all apparently made by Layard c. 1844 (E).

LEACH (John)

50 water-colour drawings of *Erica* 1790 (B).

LEACH (William Elford) [1790-1836]

One pen and ink drawing of a crustacean (Z).

LEARMONTH (Walter Livingstone-)

A cruise in the Arctic. 1888. Reproduction of MS. journal, with mounted photographs in 2 volumes.

Davis' Straits and Baffin's Bay. 1889. Reproduction of MS. Journal, with mounted photographs and newspaper cuttings. 2 volumes (Z).

LEE (Ann), Miss [fl. 1769-1779]

Ann Lee, daughter of James Lee, of Hammersmith, the Horticulturist, was an excellent flower-painter.

19 water-colour drawings by her, mostly on vellum, illustrating the genus *Mesembryanthemum*, are preserved in the Museum (B).

LEE (Charles)

In 1884, 87 water-colour drawings of Cape Plants by F. Masson (B) were presented by C. Lee, nephew of the foregoing.

LEEDS (Alfred Nicholson)

One note-book of the contents of his museum in the holograph of Henry Woodward, 1890. Various notes and lists relating to his collection (P).

LEGGÉ (William Vincent)

Six autograph letters addressed to J. H. Gurney between 1st June, 1877 and 27th February 1878 (L).

LEICESTER *Earl of*

See COKE (Thomas William) *Earl of Leicester*

LEIGH (Miss D. Austen-)

A collection of original coloured drawings of British fungi (B).

LEPIDOPTERA

936 sheets of original water-colour drawings consisting of 269 of larvae of British butterflies and moths, 62 of microlepidoptera and 605 of the eggs of British lepidoptera, 1895-1905 (E).

LEPIDOPTERA

One hundred figures of diurnal lepidoptera prepared by scale transference [Lepidochromy] with the bodies of the insects painted in. From the collection of Dr. Sariziat, ante 1897 (E).

LEWIN (John William) [1770-1819] & **AGNEW (J.)**

A collection of 511 water-colour drawings of British land, fresh and salt-water shells made between 1786 and 1818. Some of the drawings were used by G. Montagu in his *Testacea Britannica* (Z).

LEWIN (Thomas W.)

75 water-colour drawings of Birds by Lewin form part of the Hardwicke Collection of drawings (Z).

LEWIS (Richard T.)

123 original water-colour drawings of Insects and Ticks (E).

L'HÉRITIER DE BRUTELLE (Charles Louis) [1748-1800]

A series of 51 autograph letters from L'Héritier de Brutelle, one of the most celebrated French Botanists of his time, to Dryander, forms the Banksian MS., No. 101 (B).

LHUYD (Edward) [1660-1709]

Edwardi Luidii. . . Lithophylacii Britannici Ichnographia. Being the true cuts of every species of fossils in Mr. Luids collection now reposit in the Ashmolean Museum at Oxford, with their several names transcribed from the Catalogue kept in the press with them December ix. 1722, 1 vol. This is an incomplete set of plates with MS. descriptions from the printed work of 1699 (P).

LIGHTFOOT (John) [1735-1788]

The Rev. J. Lightfoot, some time Librarian and Chaplain to the Duchess of Portland, and the author of *Flora Scotica*, kept a journal of a botanical excursion made in Wales in 1775, of which a transcript by S. Bacstrom forms the Banksian MS., No. 86 (B).

LILFORD *Lord*

See POWYS (Thomas Lyttelton) 4th Baron of Lilford

LIND (James) [1736-1812]

The Scottish physician J. Lind, visited China in 1766, and accompanied Banks on his voyage to Iceland in 1772; he subsequently became physician to the Royal Household at Windsor.

A holograph "Catalogue of such Chinese and Japanese Plants whose Chinese characters are known and are botanically described; being an Index to find there [*sic*] Chinese characters in Kempfer's *Amaenitates exoticae*," &c., 1789, addressed to Sir Joseph Banks formed part of the Banksian Collection (B).

LINDLEY (John) [1799-1865]

An early autograph draft by the celebrated Botanist Lindley for his "Natural System of Botany" is preserved in the Museum, also 16 autograph letters, 1829 to 1832, addressed to William Hutton relating to their joint publication of the fossil flora of Great Britain. 74 water-colour drawings of plants, by Lindley, were purchased in 1897 (B).

LINNÉ (Carl von) [1707-1778]

A series of lectures delivered by the great Swedish Naturalist between 1746 and 1749, and written down by L. Montin, form the Banksian MSS., No. 71-75 (B M Z). An album of holograph letters, portraits &c. relating to Linnaeus is preserved in the Museum (L).

LINNEAN SYSTEM

29 sheets of pencil and water-colour drawings of plants drawn by an ancestor of Mrs. F. M. Miles and classified according to the Linnean System. Probably early 19th century (B).

LINTON (Edward Francis) [1848-1928]

A collection of manuscript notes relating to the genus *Salix* (B).

LISTER (Gulielma) Miss [1860-1949]

Five boxes of original coloured drawings of Mycetoza arranged in alphabetical order of genera.

221 original coloured drawings for plates in her publications on the Mycetoza.

29 notebooks containing original drawings and manuscript notes of fungi, mosses, lichens, algae, mycetoza, insects and mites.

Two notebooks of original drawings and notes on hepatic mosses.

One notebook of original drawings and notes on dissections of amphibia, reptiles, birds &c.

One notebook of original drawings and notes on dissections of snails, worms mammals &c. (B).

A collection of nine sketch-books containing water-colour drawings, mounted photographs &c. of birds, with some MS. notes, c. 1903-1936 (Z).

LISTER (Joseph Jackson) [1857-1927]

Six volumes of manuscript laboratory notebooks mainly concerned with researches on Foraminifera during the period 1892-1909 were presented as part of the E. Heron-Allen collection in 1925, also the original autograph MS. and notes upon the reproduction processes of *Polystomella crispa*. This unfinished work was completed by E. Heron-Allen and published in 1930 (Z).

LISTER (Martin) [1638-1712]

Copies of M. Lister's *De Cochleis* and *Historia Conchyliorum*, annotated by the author, Sir Hans Sloane and James Petiver, are preserved in the Museum (Z).

LITTLEDALE (H. A. P.)

Diary and papers relating to his egg collection made in Southern Africa 1906-1911 (Z).

LOAT (W. Leonard S.)

71 original water-colour drawings and pencil sketches, used in the preparation of Anderson, J. *Zoology of Egypt*, Vol. 3, "The fishes of the Nile" by G. A. Boulenger, 1899-1901 (Z).

LOCKHEAD (William) [-1815]

Lockhead was curator of the St. Vincent Botanic Garden. 19 of his original drawings of West Indian Plants are preserved in the Museum (B).

LOCKET (G. H.) & MILLIDGE (A. F.)

Five volumes of original drawings for the RAY SOCIETY publication on British Spiders, 1951-53 (Z).

LODDIGES (Conrad) [1738 -1826]

See BOTANICAL CABINET

LODDIGES (George) [1784-1846]

Ten manuscript note-books containing remarks on humming birds, 1826-1845 (Z).

George Loddiges seems to have been the actual editor of all the scientific publications bearing the name Conrad Loddiges & Sons.

See also BOTANICAL CABINET

LODER (Gerald Walter Erskine), 1st Baron Wakehurst [1861-1936]

Manuscript "Bibliography of Rhododendrons" 1910 (B).

LODGE (George E.) [1860-1954]

A large collection of pencil sketches of animals and some plants together with his manuscript and typescript notes are preserved in the Museum (Z). Five framed water-colour drawings of birds were acquired as part of the Rothschild bequest (T).

LONSDALE (William) [1794-1871]

Lonsdale, who was some time Curator and Librarian to the Geological Society, made a special study of Fossil Corals.

His unpublished autograph, "Report on some Fossil Zoantharia collected by Sir C. Lyell . . . in Madeira and the Islet of Baxio during 1854," is preserved in the Museum (P).

LOO (Pieter van) [1731-1784]

Four water-colour drawings of flowers (E).

LOTEN (Joan Gideon) [1710-1789]

A collection of 154 coloured drawings of Birds, Mammals, Insects and Plants, painted from life for J. G. Loten, Dutch Governor of Ceylon, 1752-1757, by P. C. de Bevere, in Ceylon and the Malay Archipelago 1754-1757 (L).

LOUREIRO (Joao de) [1715-1796]

The Portuguese Jesuit Loureiro, who travelled in Indo-China, and wrote a *Flora Cochinchinensis*, sent to England original descriptions of the new genera, that form the Banksian MS., No. 93 (B).

LOWE (Percy R.) [1870-1948]

One volume of manuscript check lists of Birds collected during the second cruise of the S.Y. "Zenaida" October 1906 to June 1907, and the third cruise, November 1907 to April 1908, also a collection of manuscript notes dealing with the anatomy and myology of birds together with original figures of some of his published works (Z).

LOWE (Richard Thomas) [1803-1874]

A collection of manuscripts relating to fishes and invertebrates of Maderia 1850-1861 (Z).

LOWE (Willoughby P.)

See BANNERMAN (D. A.)

LUDLOW (F.)

Ten manuscript note-books containing field notes of birds collected mainly in Tibet (Z).

LUMSDEN (Phyllida)

Original water-colour drawings and pen and ink sketches of birds, published in J. D. Macdonald's *Birds of Britain* 1949 (Z).

LYNES (Hubert) [1874-1942]

Thirty-three note-books relating to his bird collecting trips in Europe and Africa, 1910-1936 (Z).

LYSAGHT (Averil Margaret), Miss

Typescript preliminary guide to literature dealing with zoology of Captain James Cook's 1st, 2nd, and 3rd voyages. Compiled 1951 (Z).

M. (E. M.)

Fishes (and other marine animals) at the Andaman Islands, 1868-71 by E.M.M. 19 sh. of water-colour drawings (Z).

MABILLE (Paul) [1835-1923]

35 original water-colour drawings of butterflies. Some of these are the originals of Mabilles types published in GRANDIDIER (A.) *Hist. phys. nat. pol. de Madagascar* 18 & 19, 1885-87 (E.).

M'BAIN (James)

Manuscript "Supplementary remarks on Fossil Trees of Craigleith" 1874 (P).

MACONACHIE (Sir Richard) [1885-]

Manuscript notes on birds by Sir R. Maconachie, who was H.M. Minister at Kabul 1930-1935, used by Hugh Whistler in his *Ornithology of Afghanistan* published in the *J. Bombay nat. Hist. Soc.* 1944 (Z).

McCONNEL (F. V.) [1868-1914]

MS. account of a journey into the interior of Guyana in 1894. 2 vol. (Z).

MACDONALD (Gulielmo Rio)

MS. Index Plantarum in usum Societatis Pharmaceuticae Londinensis, 1835 (B)

MacGILLIVRAY (John) [1822-1867]

Autograph catalogue of Radiata and Molluscs collected during voyage of H.M.S. Rattlesnake 1846-1850 (Z).

MacGILLIVRAY (William) [1796-1852]

213 of the original water-colour drawings of British Animals (13 Mammals, 122 Birds, and 78 Fish) executed between 1831 and 1841 by the celebrated Naturalist, W. MacGillivray, who was noted for the care and fidelity of his drawings, were presented in 1892 by his son P. H. MacGillivray (Z).

McINTOSH (William Carmichael) [1838-1931]

A volume of manuscript notes and sketches relating to Annelids. The notes are in several autographs and probably include those of G. Johnston and W. Baird, as well as those of W. C. McIntosh. 36 of the original drawings used to illustrate *A Monograph of the British Annelids*, 1873-1900 are also preserved in the Museum (Z). These drawings are by McIntosh's sister, Roberta McIntosh, who married Dr. Albert Günther in 1868 (Z).

McKEAN (H.) of *Croydon*

Manuscript account, with some inserted photographs, of the Mollusca of Surrey, 1877-1886 (Z).

McLACHLAN (Robert) [1837-1904]

65 original drawings and pattern plates for the author's *Monographic revision and synopsis of the Trichoptera of the European Fauna*, 1874-1880 (E).

MACONOCHIE (Alexander) [1787-1860]

Capt. Maconochie, R.N., Lieut-Governor of Norfolk Island, gave to R. Brown a series of autograph "Reports on Norfolk Island," containing natural history observations (B).

MADDEN (Sir Frederic) [1801-1873]

Correspondence with W. Roscoe on the subject of the Holkham Catalogue, 1820-30 (B).

MAHLER (P.)

Two oil paintings of mammals and one of a bird (Z).

MAINLAND (Alice M.)

Geographical index to figures of Diatoms contained in books and pamphlets of the Adams Collection in the Department of Botany, ff. 1-708, 1932, also an alphabetical index, 2 vol. 1934 (B).

MAITLAND (Lorna)

71 water-colour paper mosaics of West Australian flowers, 1959 (L).

MAITRE DE DANZIG AUX INITIALES S.N.

20 original drawings of molluscs and crustaceans (Z).

MAJOR (Charles Immanuel Forsyth) [1843-1923]

A manuscript catalogue of fossil Rodentia, 1905, and various papers (P).
See also PARIS (Charles)

MANCHESTER CONCHOLOGICAL SOCIETY

Manuscript records of Mollusca found in Lancashire 1888-1890. 1 vol. (Z).

MANN (J.)

See FISCHER von ROESLERSTAMM (J. E.)

MANTELL (Gideon Algernon) [1790-1852]

One volume of letters from Mantell on "Telerpeton" &c., other letters from Duff, Lyell and Murchison, all addressed to Captain Lambart Brickenden, 1848-1858.

MS. catalogue of the Mantell Collection of Fossils (P).

See also SMITH (M. H.) *Mrs.*

MAPLESTONE (C. M.)

Two original pencil sketches of plates published in the author's paper on Polyzoa which appeared in *Records of the Australian Museum* 8, 1911: 118-119, pls. 34 & 35 (Z).

MARTIN (William) [1767-1810]

A manuscript list of specimens figured in Martin's *Petrificata Derbiensia* preserved in the Museum, compiled by C. D. Sherborn, 1890 (P).

MARTINI (Bartolommeo)

Martini was author of a *Catalogus Plantarum a me in itinere montis Baldi inventarum*, published in 1707.

The manuscript of a further work by him dated 1715, entitled *Catalogo al fascicolo di Monte Baldo delle Piante naturali*, is in the Museum (B).

MARTYN (John) [1699-1768], and **(Thomas)** [1735-1825]

A series of the autograph letters of these Botanists form the Banksian MS. No. 103 (B).

MARTYN (Thomas) *Draughtsman* [fl. 1760-1816]

88 sheets of water-colour drawings and coloured proof plates of Shells, made for the *Universal Conchologist*. These are probably in part original, in part trial or rejected drawings (Z).

MASON (Kenneth) and CAVE (Francis O.)

Manuscript notes on birds collected in 1926 on an expedition into the Shaksagan Valley and the Aghil Range which lie near the frontier between Kashmir and Chinese Turkestan (Z).

MASSEE (George Edward) [1850-1917]

Some drawings of Fungi were presented in 1888 by Mr. Massee, formerly Principal Assistant, Royal Gardens, Kew.

1,036 of his water-colour drawings of Fungi were purchased in 1892 (B).

MASSON (Francis) [1741-1805]

The first botanical collector sent out from Kew Gardens was F. Masson, who travelled in South Africa, the Canaries, Azores, Madeira, the West Indies and North America.

54 of his water-colour drawings of Plants made on these expeditions and a further series of 87 of his water-colour drawings of Plants were presented by Mr. C. Lee in 1885. 1 vol. (B).

MASSON (P. W.)

Manuscript list of timber specimens collected by P. W. Masson, 1901 (B).

MATHEWS (Andrew) [-1841]

Some notes with a few pencil drawings of Peruvian Plants by the Botanical collector, A. Mathews, forming 3 volumes, were presented by his daughters in 1896 (B), also a holograph letter to G. Loddiges dated October 11th 1835, containing coloured sketches of two South American humming birds (Z).

MATTHEWS (Leonard Harrison) [1910-]

Sixty-seven water-colour sketches (Heads and Feet) of South Georgian Birds, made on the "Discovery Expedition" 1927-29 (Z).

MAUND (Benjamin) [1790-1864]

B. Maund combined in his person the callings of chemist, botanist, bookseller, printer and publisher of *The Botanic Garden*.

1,248 water-colour drawings of ornamental flowering plants, originals of the illustrations in *The Botanic Garden* 1825-1851, were presented in 1882 by Miss Sarah Maund. The artists were E. D. Smith, the Misses E. and S. Maund and others (B).

MAYER (F. Shaw)

Four pen and ink sketches of cassowaries, with MS. notes 1930-1933 (Z).

MEADE-WALDO (E. G. B.)

See WALDO (E. G. B. Meade-)

MEDENBACH DE ROOIJ (A. B.)

One volume of unpublished manuscript descriptions of Californian Noctuidae, c. 1875 (E).

MEDICO-BOTANICAL SOCIETY OF LONDON

MS. account of members' subscriptions, list of officers and members, minutes of meetings 1821-1831, Law Book of the Society, 1823 and Catalogue of the Herbarium, 1824-28 (B).

MEDLYCOTT (Sir William Coles Paget) [1831-1887]

Water-colour drawings and pencil sketches of animals of Malta, together with manuscript notes in 16 volumes, also 3 volumes of drawings and sketches of birds and fishes of North America, 1857-1862 (Z).

A collection of sketches and water-colour drawings of plants of Malta, 1853-1857, were presented in 1957 and 256 drawings of Canadian plants, 1868-1885 (B).

MEEN (Margaret) [fl. 1775-1824]

An English flower painter in water-colours in the second half of the 18th century, her works appeared in the Royal Academy from 1775-1785.

There is one example of her work in the Museum (B).

MEIGEN (Johann Wilhelm) [1764-1845]

Numerous original water-colour drawings of Diptera also a number of pen-and-ink drawings (E).

MEIKLEJOHN (R. F.)

Six manuscript field note-books, concerned with egg collecting in Algeria, Crete, Greece, Russia and Switzerland in the period 1919-1939 (Z).

MEINERTZHAGEN (Richard) [1878-1967]

A manuscript catalogue of his bird collection with ecological notes on birds, 42 vols. (Z).

MENZIÉS (Archibald) [1754-1842]

Naturalist and Surgeon on Captain George Vancouver's voyage to the Pacific and North West America, 1790-95.

Some of his manuscript notes on mammals and birds are preserved. 8 ff. (L).

MERIAN (Maria Sibylla) [1647-1717]

Two water-colour drawings of flowers painted on vellum (E).

METZ (Gertraud) [1746-]

55 original water-colour botanical drawings made from plants in Kew Gardens and James Lee's gardens at Hammersmith 1755-1779 (B).

MEYER (Henry Leonard) [-1864]

A pencil sketch of H. L. Meyer, author of *Coloured illustrations of British birds and their eggs*, probably by his wife Mary Anne, was presented in 1961 (Z).

MEYRICK (Edward) [1854-1938]

A collection of his line drawings and water-colour paintings of Micro-Lepidoptera was presented in 1938 and some manuscript descriptions of this group of insects in 1955 (E).

MICHAEL (Albert Davidson) [1836-1927]

3 volumes of original drawings of Oribatidae, Acari, and Gamasidae. Many of these drawings were published in Linnean Society and Microscopical Society journals. The original water-colour drawings of the author's monograph on the British Tyroglyphidae are also preserved in the Museum (Z).

MIERS (John) [1789-1879]

The engineer and botanist, J. Miers spent many years in South America. His MSS. including "A Catalogue of the Woods of Brazil" and original drawings of South American Plants and their dissections, as well as the works used and annotated by him, were presented by J. W. Miers in 1879 and 1880 (B).

MILLER (Gerrit Smith) Jr. [1869-]

Manuscript catalogue of the bird skin collection of G. S. Miller, 1884-1893, 6 vol. (Z).

MILLER (John), otherwise MÜLLER (Johann Sebastian) [1715 ?-1790 ?]

Müller, the draughtsman and engraver, came to England in 1744, and was always known after 1760 as John Miller. He published and projected several illustrated works dealing with Plants and Insects.

"A series of 928 drawings (in water-colour) of the leaves, stalks and ramifications of Plants. . . . executed for the Earl of Bute, in the years 1783-84," in 5 vols. was purchased in 1880, also 27 original drawings in a manuscript work by the 3rd Earl of Bute entitled "Tabular Distribution of the Vegetable Kingdom," 1783 (B).

MILLER (John Frederick) [fl. 1775-1796]

The son of John Miller (or Müller).

He and his brother James were employed by Banks in making finished drawings from S. Parkinson's sketches of the plants collected during Cook's first voyage round the world; these are preserved with the Parkinson drawings to which they refer. He also accompanied Banks in 1772 to Iceland as botanical artist.

25 original water-colour drawings and sketches, 1772-1776 (B).

MILLETT (Fortescue William) [1833-1915]

Manuscript extracts and notes, drawings and tracings relating to the Foraminifera, also the original drawings and correspondence concerning his *Foraminifera of the Malay Archipelago* 1898-1904 and *The Shore Sands of Misaki, Japan* c. 1904 (Z).

MITCHELL (James) [1786-1844]

A collection of manuscript observations on flints in the U.K., and three volumes of manuscript notes of geological excursions (P).

MIVART (St. George) [1827-1900]

A collection of his autograph letters is contained in the A. Günther Collection, also one letter in the Sowerby Collection, filed with William Sowerby Testimonial (L).

MOHR (Paul)

P. Mohr collected numerous fossils, chiefly from Germany and France, which were purchased in 1848. A manuscript catalogue of these is preserved (P).

MOLD (F. R.)

Water-colour drawings of mammals made for the postcard series issued by the Museum, 1925 (Z).

MOLENGRAAFF (Gustaaf Adolf Frederik)

See NEWTON (Richard Bullen)

MONTAGU (George) [1755-1815]

Author of many memoirs on the birds and shells of the south of England. His major zoological works were his *Ornithological Dictionary* and *Testacea Britannica*. A manuscript note-book of Colonel Montagu covering the period 1796-1798 and miscellaneous family MSS. including his will (L).

MONTE BOLCA

8 foll. of rough water-colour sketches of fossil Plants, and 12 of fossil Fish from Monte Bolca. Banksian MS. No. 114 (P).

MONTICELLI (Teodoro) [1759-1846]

A manuscript list of his collection of Vesuvian minerals and lavas, in the autograph of N. Covelli (M).

MONTIN (Lars) [1722-1785]

Certain of Linnæus' lectures delivered between 1746 and 1749, and written down by his pupil L. Montin, form the Banksian MSS. No. 71-75 (B, M, Z), while the journal Montin kept on a journey he made in 1749 to Lapland forms the Banksian MS. No. 83 (B).

MOON (Alexander) [-1825]

37 original water-colour drawings by A. Moon, Superintendent of the Botanic Garden, Ceylon, with autograph descriptions of Ceylon Plants, are preserved in the Museum (B).

MOON (Maley de C.) Mrs.

46 water-colour drawings of sugar canes from New Caledonia, 1869-1870 were presented by Lady Anne Barkly in 1917. Descriptions of these canes were published in J. Caldwell's *Report on New Caledonia* ?1870. Also by this artist there are 12 water-colour drawings of Mangoes grown in Mauritius, 1845-1846 (B).

MOORE (Spencer le Marchant) [1850-1931]

One sheet of original drawings illustrating resemblances between certain insects & arachnids and Euphorbiaceous seeds, c. 1879 and manuscript notes made on his Matto Grosso expedition, 1891-1892 (B).

MORANDI (Giambattista)

Morandi, Knight, of Milan, was author of an *Historia Botanica Practica*, etc., 1744: a manuscript draft for this work, said to be in his handwriting, entitled, "Erudimenta Botanica," etc., and illustrated by 133 plates of his original drawings, is preserved (B).

MORGAN (Robert) [1863-1900]

50 original drawings (published) and 13 (unpublished) of Potamogetons for the work of A. Fryer and A. Bennett *The Potamogetons (Pond Weeds) of the British Isles* 1898-1915 (B).

MORLEY (Claude)

A typescript catalogue of his natural history collection, dated 1946, and an album of signatures of early 20th century entomologists (E).

MORRIS (John) [1810-1886]

A collection of letters referring to the Morris Collection of British Fossils. 1886 (P).

MORRIS (Stanley)

A long series of note-books containing observations and occurrences in natural history with indexes, covering the period 1887-1942; these were presented by Mrs. Morris in 1945 (E).

MORRISON (A.)

Four note-books giving details of localities of his collection of South American and Chinese birds (Z).

MORSE (Mrs. Hosea B.)

152 water-colour drawings of North American wild flowers, 1890-1908 (B).

MORTON (George Highfield) [1826-1900]

A manuscript catalogue of Upper and Lower Palaeozoic Fossils, 1885. 2 vol. (P)

MOSCOW—Museum Darwinianum

A collection of photographs of paintings, sculptures &c., in the Darwin Museum, Moscow, made under the supervision of Dr. Alexander Eric Kohts, 1958 (L).

MOSELEY (Harriet), Miss [fl. 1836-1867]

1,922 original water-colour drawings of British Plants, by Miss Moseley, were purchased in 1886 (B).

MOSELEY (Henry Nottidge) [1844-1891]

Moseley was one of the members of the scientific staff of the *Challenger*. His autograph journal of natural history observations made during the voyage was presented by him in 1883 (Z).

MOSS (A. Miles)

Five sheets of water-colour drawings of larvae of South American lepidoptera, 1912-1945, also a number of letters over the period 1908-1933, from H. I. Thouless to the Rev. A. Miles Moss.

One volume of original drawings of Sphingidae, c. 1912 (E).

Five water-colour drawings of South American plants, c. 1935 (B).

MOURITZ (Leofwyn Beresford) [1888-1915]

Two manuscript note-books relating to the ornithology of Southern Rhodesia (Z).

MÜLLER (J.) afterwards MILLER

See MILLER (John)

MUMFORD (A. A.)

Two letters, dated February 1917, addressed to Sir Lazarus Fletcher, containing biographical details of John Abbot (L).

MUNFORD (George) [1795-1871]

MS. note-book on natural history, 1854-57, and a volume of miscellaneous notes on Pliny's Natural History, 1847-51, were presented in 1955 (L).

MUNT (Henry)

Catalogue of eggs in the collection of H. Munt, purchased by Lord Rothschild in 1926 and bequeathed with the Tring Museum in 1937, 3 vol. (Z).

MURPHY (Robert Cushman) [1887-]

Typescript list of the birds in the Tring Museum in 1932. In that year Lord Rothschild transferred ownership of the whole of this vast collection of birds to the American Museum of Natural History, with the exception of the mounted collection and the skins of the family Struthionidae; this list shows the extent of the collection so transferred. 5 vol. (Z).

MURRAY (Sir John) [1841-1914]

One of the naturalists on board the "Challenger" during the scientific expedition, 1873-1876; he later superintended the publication of the scientific results. His very fine library of works relating to Zoology and Oceanography was presented to the Museum by his son, Mr. J. L. Murray, in 1921. Included in this is his autograph diary kept during the voyage.

An album containing the portraits and autographs of the contributors to the *Challenger Reports*, presented to Sir J. Murray in 1896, is also preserved in the Museum (M).

A series of autograph letters addressed to A. Günther, 1883-1911, is preserved in the Günther Collection (L).

See also CHALLENGER, H.M.S.

MURRAY (Captain William) [1791-]

35 line drawings of fishes, made from specimens taken in the rivers Narbudda and Dhamora, C.P. India (Z).

MYERS (J. G.)

One filing box containing data cards of skins and eggs of birds (Z).

MYRMIDON, H.M.S.

MS. list of soundings taken by H.M.S. "Myrmidon" off the north coast of Australia in 1887 (M).

NATURALIST'S LIBRARY

See JARDINE (*Sir William*)

NEILL (J.)

Neill, who was Deputy Assistant Commissary-General of Albany, King George's Sound, Western Australia, made, at the suggestion of Governor Grey, water-colour drawings of the Vertebrata of the district. 67 of these, some of which illustrate and are referred to in Eyre's *Journals of Expeditions of discovery into Central Australia* (1845), were presented by Mr. Neill in 1845 (Z).

NERO, U.S.S.

MS. account of the deposit samples taken by U.S.S. "Nero" on a trans-Pacific track in 1899-1900 (M).

NEUMANN (Paul)

Two water-colour drawings of cassowaries, 1906 (Z).

NEW SOUTH WALES

70 water-colour drawings of Animals and Plants made near Port Jackson, some of which were used in drawing the plates for J. White's *Journal of a Voyage to New South Wales*. Banksian MS. 34.

These have been erroneously attributed to Thomas Watling who did not arrive in the Colony until 1792; White's *Journal* was published in London in 1790 (B).

See also PORT JACKSON PAINTER

NEWBOULD (William Williamson) [1819-1886]

A number of manuscript note-books containing local lists of plants &c. are preserved in the Museum (B).

NEWMAN (Edward) [1801-1876]

One note-book containing coloured drawings of British Ferns (B).

NEWPORT (George) [1803-1854]

37 pencil sketches and proof plates of Myriapoda c. 1840 (Z).

NEWTON (Alfred) [1829-1907]

Nine letters addressed to A. R. Bloxham concerning Bloxham's natural history notes made during the voyage of H.M.S. *Blonde*, 1824-25. The letters are dated between 1890-1898.

A collection of letters from Newton over the period 1859-1906 is contained in the A. Günther Collection q.v. (L).

NEWTON (Richard Bullen) [1854-1925]

MS. notes on some boulders from West Central Borneo collected by G. A. Molengraff, 1901.

A collection of correspondence addressed to R. B. Newton, 1910-1923 (P).

NICÉVILLE (Charles Lionel Augustus de) [1852-1901]

A series of autograph letters relating to insects of India addressed to T. R. D. Bell, 1891-1901, and 12 sheets of original drawings by B. L. Dós, G. C. Chuckrabutty and B. M. Watson to illustrate de Nicéville's papers in *J. Bombay N.H. Soc.* 1889-1893 (E).

NITZSCH (Christian Ludwig) [1782-1837]

Two volumes autograph MSS. Beobachtungen über Eingeweidewürmer and Beobachtungen über Thierwürmer, 1814-1815 (Z).

NODDER (Frederick Polydore) [fl. 1767-1800]

The botanical draughtsman F. P. Nodder was employed by Sir Joseph Banks to make finished drawings, from Sydney Parkinson's sketches, of the plants collected during Cook's first voyage round the World; these are preserved with the Parkinson drawings to which they refer.

16 water-colour drawings of plants made between 1776 and 1786, and 34 drawings of *Erica*.

The original drawing made by this artist for plate 5 of Aiton's *Hortus Kewensis*, 1767, is also preserved (B).

NORFOLK NATURAL HISTORY

A volume, so lettered, from the library of Dawson Turner (1775-1858) bearing his signature and that of Edward Arnold, a later possessor of the volume, ff. 63.

Contains autograph material of R. Brown, J. de Carle Sowerby, J. Arnold and Dawson Turner (L).

NORMAN (Alfred Merle) [1831-1918] and **SCOTT (Thomas)**

Original drawings of plates 1-9 of *The Crustacea of Devon & Cornwall*, published in 1906 (Z).

See also ALDER (J.) and NORMAN (A. M.)

NORONHA (Fernando) [-1787]

The Spanish botanist F. Noronha or Noroña, who greatly improved the Royal Botanic Gardens at Manilla, subsequently travelled in Java and Madagascar.

A set of 111 water-colour drawings of Java Plants made by him, or for him, of which there is a similar set in the Royal Library at Berlin, were included among the MSS. and drawings of L. A. Deschamps, that were presented by J. R. Reeves in 1861 (B).

NORRIE (E. G.) Mrs.

See FISHES

OATE (H. H. Ten) [1803-1856]

One water-colour drawing depicting seven insects (E).

OATES (Eugene William) [1845-1911]

Four autograph letters addressed to R. G. W. Ramsay between 14th June and 9th October 1882 (L).

OLAFSEN (Jon)

Manuscript "Ichthyo-Graphia Islandica, eller Underretning om de Fiske som leve i salt og ferskt Vand udi Island sammen skreven i Kjobenhavn anno 1737" (Z).

OLD HAWKING CLUB

MS. Journal of the Club from 1905-1926 in three volumes (Z).

OLDFIELD (H. A.)

16 water-colour drawings of Nepalese birds collected in the Himalayas between 1856 and 1864, and drawn by a native artist Rajman Singh, for Dr. H. A. Oldfield, Surgeon-Major of the Bengal Staff Corps (Z).

OLDHAM (Charles) [1868-1942]

One MS. catalogue of his shell collection and a file of his records of genetical studies of the Mollusca (Z).

ONDAATJE (W. C.)

44 original water-colour drawings of Ceylon Holothuridae and Comatula were purchased in 1899, also two water-colour drawings of fishes of the Indian Ocean (Z).

OORT (P. van) [1804-1835]

Three original water-colour drawings *Haliotus discus* and *Triton variegatum* (dorsal and ventral) (Z).

ORBIGNY (Alcide Charles Victor Marie D') [1802-1857]

Mémoires divers (Manuscripts of 18 papers some of which were published in *Ann. Sci. Nat. Zool.* and other journals), also the holograph MS. of *Modèles des Foraminifères vivans et fossies* 2e edition. The published work appeared in 1843.

The original autograph MS. of the section Foraminifères, in SAGRA (R. DE LA) *Histoire physique . . . et naturelle de l'Île de Cuba* Pt. 2., is preserved in the Museum (Z).

ORD (George) [1781-1866]

Autograph letters dated February 22nd, March 28th and April 24th, 1843 addressed to Charles Waterton (Z).

ORDE-POWLETT (W. T.) 4th Baron Bolton [1845-1922]

One volume of letters from Lord Bolton to R. B. Sharpe, chiefly with reference to the latter's edition of Gilbert White's *Selbourne*, 1904-1909, was presented in 1936 (L).

ORLEY (Laszlo)

MS. list of round and other parasitic worms preserved in the Museum, compiled in 1881 (Z).

ORMEROD (Sarah) [1784-1860]

138 sketches of plants, and some mammals, were presented in 1942 (B).

OS (Gregorius Jacobus Johannes van) [1782-1861]

Four original water-colour drawings of shells (Z). Two sheets of water-colour drawings of insects (E).

OSMASTON (A. E.)

MS. catalogue of his collection of eggs of European birds and a catalogue of eggs collected in India (Z).

OWEN (Sir Richard), K.C.B. [1804-1892]

Sir R. Owen was Superintendent of the Natural History Departments of the British Museum, 1856-83.

In 1893, Sir R. Owen's executors presented a large series of MSS. and original drawings including :—

The original autograph notes made while dissecting the Pearly Nautilus, the successive drafts for portions of the memoir, the author's interleaved copy of the completed memoir with his autograph notes and other memoranda as well as the original water-colour drawings from which the plates were engraved, and proof impressions of the plates (L).

The set of his manuscript notes and synopsis of lectures from 1828 to 1864 (L).

Notes and sketches of remains of fossil Reptilia in various Museums, made when preparing his British Association Reports on the British Fossil Reptilia (G).

A set of original water-colour drawings by W. Clift, Franz Bauer, Mrs. Marsh and others for the illustrations to Sir E. Home's papers (L).

520 folios of original drawings by various artists (e.g. G. Scharf, J. Dinkel, S. Parkinson, J. Wolf) in water-colour, pen-and-ink and pencil, with photographs, all of zoological and palaeozoological subjects, mostly fossil Vertebrata, very many being the originals for illustrations in Sir R. Owen's own works (L).

A portrait in oils painted by his friend William Holman-Hunt, O.M. in 1881, was bequeathed to the Museum by C. B. Holman-Hunt in 1934. Holman-Hunt hardly ever accepted a commission for a portrait and this represents a side of the artist's work which is little known (D).

Another portrait of Owen at the age of 40, by H. W. Pickersgill, was acquired in 1949 (D).

PACKMAN (J. C. D.)

Manuscript catalogue of the collection of birds made by J. C. Packman at Mergui in Tenasserim, 1841-1842 (Z).

PAGESMITH (Gordon)

MS. catalogue of his collection of eggs of birds, 1900-1910 (Z).

PAISLEY (J. C.)

One note-book relating to birds' eggs collected in Nigeria, 1933-1934 (Z).

PANZER (Georg Wolfgang Franz) [1755-1829]

18 plates of insects prepared for part 191 of Panzer's *Faunae Insectorum Germanicae Initia*, 1793-1809, but never published (E).

PARIS (Charles)

MS. Catalogue de la Collection d'Ossements fossiles recueillis près de Mitylini, dans l'Île de Samos . . . par C. J. Forsyth Major. 1893 (P).

PARK (Mungo) [1771-1806]

Afterwards celebrated as an African explorer, Mungo Park went in 1792 as surgeon on board the *Worcester* to Sumatra, where he made botanical and zoological observations. 20 water-colour drawings of Fish executed at the time with manuscript descriptions of six of the species were probably included in the Banksian Collection (Z).⁵

PARKER (William Kitchen) [1823-1890]

26 sheets of original pencil drawings of Foraminifera (Z).

PARKINSON (George S.)

In 1896, a series of 185 sketches in water-colour, pen-and-ink and pencil by G. Shaw, the zoologist (L), as well as a portrait of S. Parkinson the artist (Z), were presented by Mr. G. S. Parkinson.

PARKINSON (Sydney) [1745-1771]

Parkinson accompanied Banks as draughtsman on Cook's first voyage round the world (1768-1771).

40 water-colour drawings of animals, mostly on vellum, made from specimens or drawings executed in India, by order of J. G. Loten, and including the originals of some of the figures in Pennant's *Indian Zoology* and *Quadrupeds*, formed the Banksian MS. No. 20 (Z).

12 water-colour drawings made from plants in the gardens at Kew and Hammer-smith, mostly on vellum, and executed in 1767 before he started his ill-fated journey on Cook's first voyage were also acquired with the Banksian Collection (B).

The large collection in 21 volumes of his water-colour drawings and pencil sketches of plants and animals made on the voyage round the world, with finished drawings made from his sketches by T. Burgis, J. Cleveley, Jas Miller, J. F. Miller and F. P. Nodder, came from the same source (B, Z).

Folios 77, 282 and 283 in the Owen Collection of drawings, and drawings number 18 and 19 in the Sir Everard Home collection are also by Parkinson (L).

A portrait of Parkinson in oils was presented in 1896 (Z).

PARKYNS (Mansfield)

Autograph letter to Sir William Jardine concerning a specimen of *Balaeniceps* collected by M. Parkyns. 1851 (Z).

PARSONS (Charles Wynford)

23 drawings of Adelie Penguin and 7 of Emperor Penguin embryos, with MS. notes, made for C. W. Parsons by Miss D. Thursby Pelham, c. 1935 (Z).

PAULI (Anna)

Two sheets of water-colour drawings of insects, c. 1700 (E).

⁵ Cf. Trans. Linn. Soc. iii. (1797), pp. 33-38.

PAVON (Jose) [fl. 1770-1825]

The Spanish botanist, Pavon, accompanied Ruiz Lopez to Peru and Chile.

In addition to the manuscripts named later under Ruiz Lopez, the Museum possesses autograph lists of American and Spanish plants forwarded by Pavon to A. B. Lambert (B).

PAYN (W. A.)

MS. catalogue of the Payn collection of birds, 1920-1949 (Z).

PEAKE (E.)

MS. note-book on slugs and snails, 1909 (Z).

PEILE (Alfred James) [1868-1948]

MS. notes on names and localities of shells, and correspondence from H. W. Preston, B. Walker and E. G. Vanatta, 1921-1929 (Z).

PELHAM (Miss D. Thursby)

Original drawings of Emperor and Adelie Penguins (Z).

PENGELLY (William) [1812-1894]

MS. catalogue of the Pengelly Collection of fossils (P).

PENGUIN, H.M.S.

MS. descriptions of deposits collected by H.M.S. "Penguin" between Funafuti and Fiji in 1896 (M).

PENNANT (Thomas) [1726-1798]

A collection of 73 zoological plates from the library of Thomas Pennant, including birds by P. Brännich and N. Robert, mammals by W. Holler, 1645-1771, also the working copies of T. Pennant's *British Zoology*, 4th edition, and his *Arctic Zoology*, 2nd edition, with autograph annotations and additions (Z).

Correspondence between Sir Sidney Harmer and the Countess of Denbigh concerning the presentation of Pennant's collections to the Museum in 1912. The specimens received included mammals, birds, shells and other invertebrates, minerals and fossils (L).

MS. catalogue of Flintshire fossils (M). Original manuscript catalogues of the Pennant collection of Minerals presented by the Earl of Denbigh in 1913. Vol. 1-2 (M) Vol. 3 (P).

PERCEVAL (Spencer George) [1838-1922]

Eleven water-colour drawings of Devonian Corals in the Perceval Collection and one volume of correspondence addressed to Perceval by members of the Museum staff, 1867-1905 (P).

PERCIVAL (A. B.)

MS. notes on an expedition into South-Western Arabia, August 9th to October 19th, 1899; with a rough map showing the various routes taken by the party (L).

PERKOIS (J.) [1756-1804]

Six water-colour drawings of flowers (E).

PERRIN J. B. [fl. 1793]

Nine water-colour drawings of botanical subjects signed and dated 1793 (B).

PETCH (Tom)

Collections of original coloured drawings of Cryptogams from Ceylon, also correspondence with contemporary Mycologists, notebooks, manuscript slips and notes chiefly relating to Entomogenous fungi, 1930-1948 (B).

PETERS (Wilhelm Carl Hertwig) [1815-1883]

Director of the Zoological Museum, Berlin. A series of autograph letters addressed to A. Günther, 1859-1875, is preserved in the Günther Collection (L).

PETIVER (James) [1663 or 4-1718]

A set of 73 rough water-colour drawings of Cape plants, copied from Sloane Manuscript 5286, forms the Banksian MS. No. 88 (B).

The copy of Rumph's *D'Amboinische Raviteitkamer*, used by Petiver in the preparation of his "Gazophyllacium," and having an interlinear manuscript translation, was transferred in 1889 from the Printed Book Department; it would seem to have previously formed part of Sir Hans Sloane's library (L).

PHILIPS (G.) [fl. 1790]

Two sheets of water-colour drawings of insect larvae (E).

PHILLIPS (William) [1822-1905]

Manuscript monograph on Cyphellae, note-books, manuscript determinations of fungi illustrated with sketches, and collections of correspondence with contemporary Mycologists. Large collections of his original coloured drawings of fungi were purchased in 1906 (B).

PHILLIPPS (Sir Thomas) [1792-1872]

See ROXBURGH (William) for letters from A. Ross, T. Hardwicke and others which were formerly in the manuscript collection of Sir T. Phillipps.

PIAGET (Edouard) [1817-1910]

The original drawings of the 56 plates published in Piaget's *Essai Monographique. Les Pédiculines* and the 17 plates issued with the Supplement to this work were purchased in 1928 (Z).

PICKARD-CAMBRIDGE (F. O.)

See CAMBRIDGE (Frederick Octavius Pickard-)

PIGEONS

Five volumes of original water-colour drawings, by Japanese artists, of different breeds of Pigeons, probably executed for the library of some Japanese nobleman (Z).

PILGRIM (Henry Guy Ellcock) [1875-1943]

Nine volumes of manuscript notes of fossil mammals (P).

PILKINGTON (William) [1758-1848]

Manuscript list, with descriptions of British plants (B).

PILTDOWN

A collection of manuscript notes by A. S. Woodward and Charles Dawson, relating to the Piltdown skull. 1912 (P).

PIPER (G. E. M.), Miss

A manuscript catalogue of rocks, minerals, fossil invertebrates, plants, and vertebrates presented in 1951. The collection belonged to the donor's father by whom it was originally obtained from Mr. J. Chisman (P).

PLANTS

A large collection of water-colour Drawings of Plants copied from old works on Natural History, forming 8 thick volumes. (B).

For a corresponding volume, *See* ANIMALS

PLANTS

124 roughly coloured drawings of plants seemingly copied from old wood-cuts. Bought from the library of J. Soranzo of Patavia in 1781. Banksian MSS. No. 62 (B).

PLANTS

28 water-colour drawings of plants with a manuscript inscription " Pflanzen welche I.R.H. unser Erzherzoginn bekommen und in ihren Garten legte " (B).

PLATT (Joshua) [c. 1699-1773]

A manuscript entitled " Extraneous fossils selected in January 1772, for Christopher Sykes Esqre, of Wheldrick, near Yorks ". 5 fol. (P).

PLAYFAIR (Sir Robert Lambert) [1828-1899]

H.M. Consul General at Algiers, author of *A Bibliography of Algeria*.

A series of autograph letters addressed to A. Günther, 1864-1897, is preserved in the Günther Collection (L).

PLOWRIGHT (Charles Bagge) [1849-1910]

A collection of annotated original coloured drawings of Uredineae, Ustilagineae and Pyrenomycetes was presented in 1953, also manuscript notes and miscellaneous papers on fungi (B).

PLUMIER (Charles) [1646-1704]

The French botanist and traveller, C. Plumier, was author of many works on American plants.

312 copies of his water-colour and pen-and-ink drawings of plants, many of which were used in illustrating his published works, were obtained by the 3rd Earl of Bute [1713-1792], passed into the possession of Sir J. Banks and form Banksian MS. No. 1-5 (B).

PLUNKENET (Leonard) [1642-1706]

A small collection of sketches of botanical subjects (B).

PODMORE (G.)

Three water-colour paintings of Australian fishes, and one crayfish, 1885-1892 (Z).

PONTHIEU (Henry de)

Autograph descriptions of some West Indian Plants, by H. de Ponthieu, a French West Indian Merchant, are preserved in the Museum (B).

POPE (Clara Maria), Mrs. [—1838]

Eleven original water-colour drawings illustrating species and varieties of the genus *Pæonia*, executed in 1821 or 1822 by Mrs. Pope, the artist and flower painter to the Horticultural Society, are preserved in the Museum (B).

POPHAM (Hugh Francis Arthur Leyborne) [1864-1943]

MS. diaries of H. L. Popham, mainly recording his travels and bird notes in Russia, Lapland &c., 7 vol. 1892-1914. One note-book on birds collected in Siberia, 1895-1900.

One manuscript catalogue of birds' eggs in the Popham collection and four note-books relating to his egg collection (Z).

PORCUPINE, H.M.S.

MS. list of bottom deposits and sponges collected in the North Atlantic in 1869-70 (M).

PORT JACKSON PAINTER

70 water-colour drawings of Animals and Plants made near Port Jackson, New South Wales.

Banksian MS. 34. Previously erroneously attributed to Thomas Watling (B).
See also NEW SOUTH WALES

POUJADE (G. A.)

39 original water-colour drawings of South American Heterocera, 1891-1892 (E).

POUSHKIN (Count Apollos de Moussin)

Manuscript list of his collection of Minerals from Russia (M).

POWER (A.) [fl. 1780-1800]

Five water-colour drawings of plants (B).

POWYS (Thomas Lyttelton) 4th Baron of Lilford [1833-1896]

Author of the excellent *Coloured figures of the Birds of the British Islands*.

Three volumes of his autograph correspondence with A. Günther, 1868-1896, are included in the Günther Collection (L).

PRESTON (Hugh Berthon) [1871-1945]

A number of autograph letters from Preston to A. J. Peile, 1921-1924, and a manuscript catalogue of Mollusca, in loose leaf form, c. 1915 (Z).

PRESTWICH (Sir Joseph) [1812-1896]

Manuscript catalogue of the Prestwich Collection of fossils presented to the Museum in 1896 (P).

PROCTER (Joan B.) [1897-1931]

Five original drawings of frogs and toads reproduced in the Museum postcard series, Set K.1 (Z).

PROUT (Louis Beethoven) [1864-1943]

A number of his note-books relating to Heterocera are preserved in the Museum (E).

PULTENEY (Richard) [1730-1801]

The original autograph of Pulteney's *Catalogue of Plants spontaneously growing about Loughborough*, forms the Banksian MS. No. 90 (B).

A manuscript "Flora Malabarica, Plantas sistens, quas H. van Rhee de Drakenstein . . . praeavit. Synonymis Linnaei, Raii and Rhumphii additis per R. Pulteney," forms the Banksian MS. No. 26 (B).

The Museum also possesses his autograph *Catalogue of English Plants*, and unpublished "Flora Anglica abbreviata," (B), a quantity of manuscript material relating to Testacea (Z), and one volume of letters addressed to R. Pulteney during the period 1776-1800 (L).

PUSTET (August) [1891-]

An unpublished typescript "Die Bismarckratte in England", together with an English translation, both dated 1933 are preserved in the Museum (Z).

PYCRAFT (William Plane) [1868-1942]

Manuscript of paper on *The wing of Archaeopteryx* read before the British Association August 13th 1894 (P).

QUECKETT (John Thomas) [1815-1861]

Manuscript catalogue of Coal Sections in the museum of the Royal College of Surgeons (P).

RAFFRAY (Achille) [1844-1923]

Letters from Thomas Brown and others to A. Raffrey with descriptions of new species of Pselaphidae (E).

RAILTON (William) [1800-1877]

Three oil paintings of the Chelsea Physic Garden, mid 19th century (L).

RAMAGE (George A.) [1864-1933]

A collection of original water-colour drawings of plants (B).

RAMBLER, H.M.S.

MS. report of bottom deposits collected from Tizard and Macclesfield Banks, c. 1905 (M).

RAMBUR (Jules Pierre) [1801-1870]

Original water-colour drawings, by E. Blanchard, for the 22 plates of Rambur's *Catalogue systématique des Lépidoptères de l'Andalousie*, 1858-66 (E).

RAMSAY (Robert George Wardlaw-), Captain [1852-1921]

The ornithological library of the Marquess of Tweeddale was presented in 1887 by his nephew, Capt. Wardlaw-Ramsay. The collection comprises 698 works in 2,560 volumes, besides some 200 pamphlets. Captain Ramsay's diary relating to birds collected in Burma 1874-1875 is also preserved (Z).

RAPER (George) [-1797]

72 water-colour drawings of the scenery and natural history of New South Wales, Norfolk Island &c. made by G. Raper, Midshipman in H.M.S. "Sirius"

which sailed with the First Fleet in May 1787. Presented by Miss Eva Godman in 1962 (Z).

RASHLEIGH (Philip) [1729-1811]

The manuscript and original water-colour drawings of his *Specimens of British Minerals* 1797, were acquired with the collection bequeathed by Sir Arthur Russell in 1964 (M).

RATTRAY (John) [1858-1900]

Autograph diary of J. Rattray on board the *Buccaneer*, 1885-1886 (M).

RAY (John) [1627-1705]

114 autograph letters of the celebrated naturalist, J. Ray, and his correspondents, were presented in 1884 (B).

The original MS. of Derham's Life of Ray was acquired during the same year (B).

A portrait in oils of Ray at about the age of 40, attributed to Mrs. Beale, was bequeathed to the Museum by Sir William Watson in 1788 (Z).

REA (Carleton) [1861-1946]

A collection of original coloured drawings of fungi was presented in 1946, also manuscript on the genus *Russula* (B).

READE (H. E.) [fl. 1830]

Five water-colour drawings of plants (B).

READE (Oswald Alan) [1848-1929]

MS. Flora of the Maltese Islands, 1 vol. c. 1894 (B).

REÁUMUR (René Anton Ferchault de) [1683-1757]

A collection of original wash drawings of Invertebrata and Algae, with autograph notes. Some have been reproduced as plates in the *Histoire de l'Academie Royale des Sciences*, Paris, for 1709-1712, but those accompanied by notes are of later date, one bearing reference to 1743. Four plates of Mollusca and Cirripedia by another hand are included (Z).

REES (William James) [1913-1967]

One box file of drafts of papers, and manuscript notes on Mollusca, 1950-1960, also a number of original drawings of Hydroids (Z).

REEVES (John) [1774-1856]

J. Reeves, when Inspector of Tea at the East India Company's establishment in Canton, made careful study of natural history and resources of the country. He employed native artists in making water-colour drawings of the Animals and Plants.

481 of these drawings of Animals (Z) and 911 of the Plants (B), were presented in 1877 with MSS. notes concerning the drawings of Fish, of which Sir J. Richardson states (Rept. Brit. Assoc., 1845, p. 188), that four sets were made, one of which was given to Major-General T. Hardwicke whose collection of drawings was bequeathed to the Museum in 1835.

Another set came to the Museum from Sir John Richardson in 1860 (Z), the fourth set is in the library of the Zoological Society of London.

REEVES (John Russell) [1804-1877]

J. R. Reeves, the son of John Reeves, was in Hon. East India Company's service at Canton for thirty years and devoted to botany and horticulture.

He presented in 1861 the unpublished autograph journals of L. A. Deschamps, kept on the voyage of the *Recherche* in search of La Pérouse, and during subsequent travels in Java, with the notes for a Flora Javanica and the original sketches of Scenery, Animals and Plants by, or made for F. Noronha (B, Z).

On his death, his widow, Mrs Eliza Reeves presented the collection of Chinese drawings which her father-in-law, J. Reeves, had formed (B, Z).

REICHEL (T.) [fl. 1787]

Eleven water-colour drawings of Indian plants made in Madras 1787-1789 (B).

REID (Savile Grey) [1845-1915]

2 MS. volumes of "Stray notes on Ornithology," compiled between 1871 and 1890 (Z).

REID-HENRY (David M.)

See HENRY (David M. Reid-)

REINHARDT (Johannes Christopher Hagemann) [1776-1845]

Naturhistorisk Dagebog i Sommeren 1808. Autograph notes and drawings, principally of insect anatomy (Z).

RESEARCH, H.M.S.

Soundings, log book and other manuscript material relating to the cruise of H.M.S. "Research" in the Bay of Biscay in 1900 (M).

RHOADES (E. L.)

18 original water-colour drawings of fishes from Lake Nyasa, 1908 (Z).

RICHARDSON (Sir John) [1787-1865]

One MS. notebook and miscellaneous tracings and drawings of fishes, mostly cut out from published works (Z).

RICKETT (Charles Boughey) [1851-1943]

MS. notes on the birds of Penang, and other subjects of Chinese natural history; illustrated with photographs and original drawings 1884-1908. Notes on the birds of Fohkien Province, S.E. China from 1889-1904, and a manuscript catalogue of a collection of birds from this region (Z).

RIDEWOOD (Walter George) [1867-1921]

61 drawings of plates appearing in a paper of the structure of the gills in Lamelli-branchiata published in *Phil. Tr. Roy. Soc. Lond. Ser. B.* Vol. 195, 1903 (Z).

RILEY (Alexander)

A contemporary copy of a letter dated from Port Dalrymple, 26 November 1804 from Riley to Lt. Governor W. Paterson relating to articles of hardware in his charge (B).

RISALA-I-KATIB-AL-BAGHDADI

Photostat of Persian MS. on Zoology. The original dated c. 1450 is in the Blacker Library of Zoology, Montreal (Z).

ROBERT (Nicholas) [1614-1685]

Two sepia coloured drawings of plants (B).

ROBIEN (Le Charles de)

203 original Chinese drawings of Plants (B).

ROBINSON (Herbert Christopher) [1874-1929] and **CHASEN (F. N.)**

Birds of the Malay Peninsula. The unpublished manuscript, written by E. Banks, c. 1950, with plates by H. Grönvold, which was to have been the fifth volume of this work, is preserved in the Museum (Z).

ROBINSON (M.)

One album of original coloured drawings of Indian fungi, c. 1928 (B).

ROBSON (Edward) [1763-1813]

Unpublished MS. Supplement to S. Robson's *British Flora* with biographical notes by the author's great-nephew, J. J. Green (B).

ROBSON (Guy Coburn) [1888-1945]

Manuscript of two papers on the Octopoda, apparently unpublished c. 1930 (Z). G. C. Robson was Assistant Keeper in the Mollusca Section of the Museum 1913-1936.

ROBSON (John Emmerson) [1833-1907]

120 water-colour drawings of British lepidoptera, larvae and their food plants. Presented in 1947 (E).

ROEBUCK (William Denison) [1851-1919]

21 volumes of manuscript records compiled for a census of distribution of mollusca in the British Isles (Z).

ROEMER (E.)

See BERNARDI (A. C.)

ROEMER (Johann Jacob) [1763-1819]

210 original drawings, formerly the property of Dr. Roemer, were purchased in 1883 (B).

ROFFEY (John) [1860-1927]

One volume of miscellaneous manuscript material (B).

ROSCOE (William) [1753-1831]

Autograph letters to Dawson Turner and others, with letters to Roscoe from T. W. Coke, *Earl of Leicester* 1820-1830 (B).

ROSS (Andrew)

Letters to William Roxburgh. 2 vols. (Phillipps MSS. Nos. 23283 and 23679).

ROTHSCHILD (Lionel Walter) 2nd Baron [1868-1937]

The munificent bequest by Lord Rothschild of the Tring Museum, together with his working library of nearly 30,000 volumes, came to the Museum in 1937. Many original water-colour drawings of animals are included, some framed and some in bound volumes. These are noted under the appropriate artists (T).

A large collection of his autograph letters over the period 1884–1914 is included in the A. Günther Collection (L).

One note-book listing birds eggs collected in Algeria and western Sahara, 1908–1914, and correspondence in various autographs concerning purchase of birds and eggs from Tristran de Cunha, 1928–1936 (Z).

ROUND (F. H.)

120 original water-colour drawings of *Iris*, c. 1914, were bequeathed to the Museum by the Hon. N. C. Rothschild in 1923 (B).

ROWE (Arthur Walton)

A collection of field note-books, correspondence and geological maps (P).

ROXBURGH (James)

Sketches of animals and plants. Part of Phillipps MSS. No. 18552. See Roxburgh, William.

ROXBURGH (John) [fl. 1717–1817]

One letter to his father William Roxburgh in Phillipps MSS. No. 18552.

ROXBURGH (William) [1759–1815]

The botanist W. Roxburgh was surgeon on the Madras establishment of the Hon. East India Company and afterwards Superintendent of the Calcutta Botanic Garden.

The Museum possesses the following volumes of Roxburgh correspondence from the library of Sir Thomas Phillipps.

Letters from C. S. John and T. Hardwicke, 1 vol. (Phillipps MSS. No. 19320).

Letters from Andrew Ross, 2 vols. (Phillipps MSS. No. 232838, 23679).

Letters to T. Hardwicke and from Roxburgh to Dr. G. Taylor, 1 vol. (Phillipps MSS. No. 18552).

Letters from F. Buchanan (afterwards Hamilton, 1795–1812).

Manuscript copy of his *Flora Indica*, containing autograph notes by him and by Robert Brown that are not in the printed edition; an index to the whole of his botanical MSS.; 14 water-colour drawings of Malayan plants, with one of a *Cycas* from the Moluccas—and some autograph descriptions, with 22 coloured drawings of Indian palms and the drawings of the dissections, used in his *Plants of the Coast of Coramandel*, also one portfolio containing 67 miscellaneous drawings of plants (B).

ROYAL SOCIETY OF LONDON

MS. account of the petrological, botanical, and zoological collections made in Kerguelen's Land and Rodriguez during the Transit of Venus Expeditions in 1874–75 (L). The report of the expedition was published in *Philosophical Transactions* Vol. 168, 1879.

RUIZ LOPES (Hipólito) [1754–1815] and PAVON (José)

These Spanish botanists made a botanical exploration to Peru and Chili 1777–1788, with special reference to *Cinchona*. MSS. lists relating to their collections were purchased at the Lambert sale, 1842, and include “*Flora Peruviana*”; “*Systema vegetabilium Flora Peruviana et Chilensis*”; species in the Peruvian

collection not contained in the above ; lists of fruits and seeds, Spanish and Mexican plants.

Their joint manuscript descriptions of the plants procured, which formed the basis for their *Flora Peruviana et Chilensis*, with Ruiz Lopez's autograph "Relacion historica del Viage" and his important manuscripts on Cinchona, were also purchased at the above sale. (B).

RUSSELL (Anna), Mrs. [1807-1876]

730 of her original water-colour drawings of the higher Fungi were bequeathed by Mrs. Russell in 1876, and 5 more were presented in 1886 (B).

RUSSELL (Lord Arthur)

Manuscript list of the Russell collection of portraits of Naturalists in the library of the Linnean Society of London, compiled by Warren R. Dawson (L).

RUSSELL (Sir Arthur) [1878-1964]

Manuscript catalogue of his collection of Minerals, 1 vol. dated 1924 (M).

RUSSELL (Sir Frederick Stratten) [1897-]

Water-colour paintings and pen and ink drawings used to illustrate *The Medusae of the British Isles* 1953 (Z).

RUYSCH (Rachel) [1664-1749]

One sheet with two mounted water-colour drawings of dragonflies (E).

RYLANDS (Thomas Glazebrook) [1818-1900]

One volume of correspondence from contemporary botanists, addressed to T. G. Rylands (B).

SAFTLEVEN (Cornelius) [1607-1682]

Original charcoal and chalk drawing of *Canis familiaris* (Z).

SALISBURY (Albert Edward) [1876-1964]

17 note-books containing lists of species and notes on nomenclature and ecology of Mollusca, also a card index of molluscan species described between 1850 and 1864 ; this bridges the period between Sherborn's *Index Animalium* and the commencement of the *Zoological Record* (Z).

SALISBURY (Richard Anthony) [1761-1829]

R. A. Salisbury, the botanist, left his property to W. J. Burchell the explorer, on whose decease in 1863 the MSS. and drawings passed into the hands of Dr. J. E. Gray, by whom they were given to the Museum (B) in 1865.

Salisbury's notes and drawings of Ericaceous Plants were transferred from the Royal Gardens at Kew in 1881 (B).

SALMON (Ernest Stanley) [fl. 1900-39]

One notebook containing records of fungi, chiefly from Surrey (B).

SALMON (John Drew)

Manuscript catalogue of the Salmon collection of birds' eggs. 1 vol. c. 1850 (Z).

SALT (Henry) [1780–1827]

Salt acted as secretary and draughtsman to Lord Valentia on his travels in India, Ceylon and Abyssinia, 1802–1805. He was sent to Abyssinia in 1809 by the British Government to carry presents to the Emperor and the 15 rough sketches of Abyssinian plants preserved in the Museum were probably made on this journey (B).

SALTER (John William) [1820–1869]

J. W. Salter, the palæontologist, was apprenticed at the age of 15 to James De Carle Sowerby and when working with him prepared illustrations for the supplement to his *English Botany*. These original drawings were acquired with Sowerby's in 1862 (B).

SALVIN (Osbert) [1835–1898]

Three note-books relating to Salvin's collecting trips in Central America in 1857–1859, and a manuscript list of Central American birds, dated 1862, have been presented to the Museum (Z).

See also GODMAN (F. D.) & SALVIN (O.)

SAMOUELLE (George) [–1846]

Samouelle's reports to the Trustees, British Museum, with lists of accessions, 1830–1841. 3 vol. (E).

SARG (F. C.)

Sarg collected and made coloured drawings of Araneida for the *Biologia Centrali-Americana* of Godman and Salvin, 1879–1915. A MS. note-book of zoological notes on the Spiders of Guatemala, illustrated in pencil and water-colour is preserved in the Museum (Z).

SARS (Georg Ossian) [1837–1927]

Original drawings by G. O. Sars to illustrate his "Challenger" Report on the Schizopoda published in 1885 (Z).

SAUNDERS (George Sharp)

Three volumes of MS. notes on the natural history of Reigate etc. With pencil and water-colour sketches, 1848–1867 (L).

SAUNDERS (Howard) [1835–1907]

Three note-books containing localities and descriptions of birds (Z).

SAUNDERS (John) [1827–1908]

J. Saunders was the first librarian of the Zoological Department and his manuscript catalogue of the library, post 1869, is preserved (Z).

SAUNDERS (William Wilson) [1809–1879]

466 original coloured drawings and 105 tracings of British Basidiomycetes, also collections of coloured spore drawings of fungi and British Discomycetes and Pyrenomycetes (B).

SAVAGE (William)

MS. account of the growth of Plants in a close situation, in the metropolis. 3 sh. 1810 (B).

SAVERY (Roelandt) [1576-1639]

A framed painting of a Dodo by R. Savery, presented by Mr. George Edwards in 1759 (D).

SAVIN (Alfred C.)

Manuscript catalogues of the Savin collections of Fossil Mammalia from the Cromer Forest Bed. 9 vol. (P).

SCHAEDLER (Johann Georg) [1777-1866]

A volume containing water-colour copies of Schiffermüller's original drawings, by Schädler, with names added by Hübner (E).

SCHAEFFER (Julius)

43 original coloured drawings of *Russula* were purchased in 1934 (B).

SCHARF (George) [1788-1860]

A number of original drawings chiefly of fossil vertebrate remains, by G. Scharf, form part of the Owen Collection of Drawings, presented in 1893 (L.)

SCHIFFERMUELLER (Ignaz) [1727-1809]

Original water-colour drawings of pupae, caterpillars and plants, with manuscript text by Schiffermueller and others. 2 vol. c. 1776 (E).

SCHLEIDEN (Matthias Jakob) [1804-1881]

A series of original water-colour and pen-and-ink drawings of Plants, by M. J. Schleiden, Professor of Botany at Jena, with manuscript descriptions of them, the whole bound in 9 volumes, were purchased in 1886 (B).

SCHMIDT (Johann Carl) [1793-1850]

The Museum possesses an autograph work by J. C. Schmidt, the Curator of the Shuttleworth Herbarium at Bern, entitled :—" Beschreibung der inländischen Arten von *Cuscuta* " (B).

SCHOMBURGK (Sir Robert Hermann) [1804-1865]

Sir R. H. Schomburgk, the traveller, acted as Commissioner for delineating the boundary between British Guiana and Venezuela in 1841-43.

A manuscript of his memoir *On the Forest Trees of British Guiana and their uses*, etc., read before the British Association in 1844, and subsequently to the Linnean Society, and printed by that Society in its proceedings, is preserved in the Museum (B).

A series of 248 original water-colour drawings of Plants of British Guiana was presented in 1847 in part by Sir Robert himself, and in part by the Secretary of State for the Colonies, Earl Grey (B).

SCHOUMAN (Aart) [1710-1792]

Two original water-colour drawings of snakes (Z).

SCLATER (P. L.) [1829-1913]

MS. alphabetical index to the Genera in the 27 volumes of the *Catalogue of Birds in the British Museum*, 1899 (Z).

A collection of autograph letters addressed to A. Günther, 1862-1898, is preserved in the Günther Collection (L).

SCOTT (Ernest) [1892-1949]

Manuscript "Log of the sixth Anglo-Catholic pilgrimage to Palestine April-May, 1930".

Presented by his brother Dr. Hugh Scott F.R.S. in 1957 (E).

SCOTT (Hugh) [1885-1960]

Twelve note-books and a box, containing manuscript journals of Hugh Scott over the period 1899-1937, also eight albums of photographs and some miscellaneous note-books (L).

A series of letters addressed to Dr. H. Scott from Dr. David Sharp and other correspondents 1901-1956 (E).

SCOURFIELD (David Joseph) [1866-1949]

A collection of manuscript notes, original sketches and correspondence relating to Rhynie Chert fossils (P), also notes and original drawings relating to Entomotraca (Z). Presented by Mrs. Scourfield in 1950.

SEALARK, H.M.S.

MS. descriptions of bottom samples collected in the Indian Ocean, 1905 (M).

SEEBOHM (Henry) [1832-1895]

4 MS. diaries of travels to Turkey, Greece, Norway, the Danube &c. from 1872-1882, also a manuscript catalogue of the Eggs of Birds in the British Museum in 10 volumes (Z).

SEELEY (Harry Govier) [1839-1909]

A collection of autograph letters, 1892-1893, addressed to A. S. Woodward, also a list of fossil reptiles purchased from Mrs. Seeley, 1909-1910 (P).

"An outline of the Osteology of the animals which are usually named Reptiles".

One volume in the author's autograph (P).

See also KANNEMEYER (Danniel Russouw)

SEWARD (Sir Albert Charles) [1863-1941]

Typescript and illustrations of "Antarctic Fossil Plants of the 1910 'Terra Nova' Expedition" 1914 (P).

SEWELL (Robert Beresford Seymour) [1880-]

A quantity of manuscript station records, log books, charts and miscellaneous data relating to the John Murray Expedition to the Indian Ocean 1933-1934, was presented to the Museum in 1961 (Z).

SEYFFERT (Heinrichus Christophorus)

133 original water-colour drawings of Fungi, by H. C. Seyffert, a physician at Pössneck, from the Banksian MS. No. 65 (B).

SEYMER (Henry) [1745-1800]

A copy of Cramer's *Papillons exotiques* which had belonged to H. Seymer of Hanford, Dorset, who had added the Linnean names and retouched several of the coloured plates, was presented by A. B. Lambert in 1841 (E).

SHARP (David) [1840-1922]

MS. catalogue of the localities for Sharp's collection of British Coleoptera, 1861-75 (E).

SHARP (G. J.)

Two water-colour sketches of cassowaries (Z).

SHARPE (Richard Bowdler) [1847-1909]

This famous ornithologist was in charge of the bird collections in the Museum from 1872 until his death in 1909. One of his last tasks was the completion of the fifth volume of his "Hand-list of the genera and species of birds".

A manuscript key to the English names of birds listed in the hand-list, in Sharpe's holograph, is preserved in the Museum (Z).

SHAW (D.) *formerly D. Schmidt*

Manuscript catalogue of a collection of fossils and minerals, presented by his grandson, Lt. Col. C. T. Shaw, in 1952 (P).

SHAW (George) [1751-1813]

185 original water-colour, pen-and-ink and pencil sketches, by G. Shaw, Keeper of the Natural History Section of the British Museum, 1807-1813, were presented in 1896, also a manuscript copy (by William Clift) of Dr. Shaw's catalogue of part of the natural history collections preserved in spirit in the Hunterian Museum, 1806 (L).

SHELLEY (George Ernest) [1840-1910]

The artist's pattern plates of this author's *Monograph of the Nectariniidae, or family of Sun-Birds*, were presented to the Museum in 1921 (Z).

SHEPHERD (Charles Edward)

Manuscript notes and sketches relating to the Shepherd Collection of fish otoliths (P).

SHERARD (William) [1659-1728]

W. Sherard, the Botanist who was Consul at Smyrna, contributed some notes and observations on the first two volumes of Ray's *Historia Plantarum* and his MSS. endorsed by Ray, form Banksian MS. No. 80 (B).

SHERBORN (Charles Davies) [1861-1942]

Compiler of the stupendous *Index Animalium* covering the years 1758-1850. Sherborn's holograph slips for this work, the minute book of the Committee supervising the compilation, and the manuscript of his last book, published in 1940, under the title *Where is the — Collection* are preserved in the Museum (L), also MS. field notes for Rowe & Sherborn's Chalk Papers published in *Proc. Geol. Soc.* 1900-1908 and "Evidences as to the dates of books, collected while compiling the *Index Animalium*, 1890-1926", 2 vol., together with a collection of correspondence relating to the compilation of the *Index Animalium* 1903-1939 (P).

SHRUBSOLE (William Hobbs) [1838-]

A collection of holograph letters from various correspondents, including Sir Richard Owen, 1879-1914 (P).

SHUEL (Ronald S.)

Two volumes containing details of the Shuel collection of birds' eggs (Z).

SICH (Alfred)

309 original water-colour drawings of Lepidoptera larvae and their food plants, also a note-book containing 103 drawings of moths, 1877-1920 (E).

SIDDALL (John Davies)

MS. note book belonging to J. D. Siddall with autograph letters from H. B. Brady inserted, also the original drawings for the author's paper on *Shepherdella*, and manuscript of a lecture on *The Foraminifera of the River Dee*, read Dec. 11, 1873 (Z).

SIDEBOTTOM (Henry)

The original drawings for the *Report on the recent Foraminifera from the coast of the Island of Delos 1904-09*, are preserved in the Museum, also an album of original drawings for the plates of *Lagenae of the south-west Pacific Ocean* published in the Journal Quekett Microscopical Club 1912-1913 (Z).

SIMPSON (Martin) [1799-1892]

M. Simpson, the Geologist, was author of several works on the geology and palaeontology of Yorkshire.

His original drawings of Belemnites for his book on *The Fossils of the Yorkshire Lias*, consisting of 8 unpublished plates, were presented in 1899 (P).

SIMONS (Perry O.)

MS. notes on localities of the Simons bird collection (Z).

SIMULA (Johann Gottfried)

"Flora exotica", 474 water-colour drawings, 1720 (B).

SLOANE (Sir Hans) [1660-1753]

The original manuscript catalogues of the natural history collections of Sir H. Sloane, 17 volumes in all; the copy of his *Voyage to the Islands Madera, Barbados . . . and Jamaica*, &c., annotated in his autograph; the original drawings for the plates to that work (bound up with the specimens from which they were made in the 8 volumes of Sloane's Jamaica Herbarium) and his copy of Ray's *Historia Plantarum*, with marginal references to his herbarium, and autograph addenda, may be said to have formed the nucleus of the present Natural History Library (B, P, M & Z).

The MS. catalogue of his Vegetable and Vegetable substances Collection. 3 vol. (B).

A series of pen-and-ink drawings with autograph descriptions by G. J. Camellus, entitled "Descriptiones Fruticum et Arborum Luzonis," etc., from Sir H. Sloane's library, was transferred from the MSS. Department in 1884 (B).

MS. list of Sloanian specimens preserved in the Palaeontological Department, compiled by C. D. Sherborn, 1889 (P).

A copy of the portrait, now in the National Portrait Gallery, by Stephen Slaughter, 1736 (D).

SMIT (J.)

Two original water-colour drawings of cassowaries, 1898, 3 other birds and 24 mammals (Z).

One framed water-colour drawing of a bird (T).

SMITH () Major [fl. 1845-1847]

Manuscript of local lists of British plants with descriptions of some 200 British lichens (B).

SMITH (Miss Annie Lorrain) [1854-1937]

A collection of manuscript notes on Cryptogams (B).

SMITH (Arthur) [1916-]

A collection of original drawings of Insects (E).

SMITH (Charles Hamilton) [1776-1859]

Smith's original MS. on *Horses, the Equidae or genus Equus of authors*, illustrated with 100 water-colour drawings, is preserved in the Museum (Z). It formed the basis for the volume in the *Naturalists' Library*.

SMITH (Christian) [1785-1816]

A manuscript biography of Christian Smith, Prof. of Botany at the University of Christiania, who travelled in the British Isles, to Madeira and Teneriffe and lost his life on Tuckey's Congo Expedition in 1816, is preserved in the Museum (B).

SMITH (Christopher) [-1806 ?]

183 original water-colour drawings of Plants from the Straits Settlements by C. Smith, Superintendent, Botanic Gardens, Moluccas, were acquired in 1885 (B).

SMITH (Edward) [1839-1919]

The library purchased in 1963 a grangerized copy of Smith's *Life of Sir Joseph Banks* containing a number of autograph letters from Banks, Sir Evan Nepean, Captain C. J. Phipps, Sir James Smith and others (L).

SMITH (Edwin Dalton) [fl. 1823-1832]

56 original water-colour drawings by E. D. Smith for the illustrations to R. Sweet's *Flora Australasica* are preserved in the Museum (B).

SMITH (Matilda)

A number of pencil sketches of plants of Madagascar, originals of plates published by J. G. Baker in *J. Linn. Soc. Botany* 20 1883 (B).

SMITH (M. H.) Mrs., of Tunbridge Wells

Catalogue of Fossil organic Remains in the cabinet of Mrs. M. H. Smith. (Manuscript list by S. P. Woodward, with water-colour drawings of some of the specimens by him, G. A. Mantell, W. L. Bensted, J. Delves, and T. Merritt. 1845-46 (P).

SMITH (Stanley)

Correspondence addressed to members of the Palaeontological Department, 1924-1933, with copies of the replies (P).

SMITH (William) [1769-1839]

Of the few but valuable maps, or their facsimiles, and memoirs by W. Smith, "The Father of English Geology," the Museum possesses (P) :—

1. *Observations on . . . Water Meadows . . . with an account of Prisley Bog*, 1806.
2. Photograph of the original MS., in the possession of the Geological Society, of a Table of the "Order of Strata and their embedded Organic remains, in the vicinity of Bath, examined and proved prior to 1799." This was dictated by Smith and written down by the Rev. Benjamin Richardson at the house of the Rev. J. Townsend in 1799. It was revised and printed in the *Memoir to the Map* in 1815. This facsimile was presented to the Museum in 1897 by Prof. J. W. Judd.
3. A coloured photographic reproduction of "A map of five miles round the City of Bath, on a scale of one inch and half to a mile . . . 1799," geologically coloured the same year by W. Smith, of which the original is in the possession of the Geological Society, presented in 1897 by Prof. J. W. Judd.
4. A coloured photographic reproduction of the "General Map of Strata found in England and Wales . . . 1801" [Scale 1 in. = 37 m. about], taken from the original in the possession of the Geological Society, presented in 1897 by Prof. J. W. Judd.
5. A geological map begun in 1812 and completed in 1815 entitled, "A delineation of the Strata of England and Wales with part of Scotland" [Scale 1 in. = 5 m.], presented in 1880 by Mr. (afterwards Sir) A. W. Franks.
6. *A Memoir to the Map*, etc., 1815.
7. *A new Geological Atlas of England and Wales* [Scale from 1¼ to 8½ m. = 1 in.], Pt. i.-iii. and vi. [Besides Pt. iv. and v. the maps of Wilts, Cumberland and Westmorland are wanting.] Purchased 1889.
8. *Strata identified by Organized Fossils*, 1816.
9. *Stratigraphical System of Organized Fossils*, 1817.
10. Six coloured geological views and sections across various parts of England and Wales, 1817-19, formerly in the library of Smith's nephew, J. Phillips (afterwards Professor of Geology at Oxford), presented by W. Topley in 1887.
11. *A new Geological Map of England and Wales* [Scale 1 in. = 15 m.], 1827. Presented, in 1884, by W. Carruthers, who notes that it is identical with editions dated 1820 and 1828.
12. *Synopsis of Geological Phenomena*, 1832.

In 1872 "A Book about W. Smith, LL.D., and the Somersetshire Coal-Canal," was projected by W. S. Mitchell; his notes and photographs with geologically coloured keys were purchased, circa 1890 (P).

A collection of correspondence, biographical material and manuscript notes, assembled and presented by A. G. Davis (P).

SMITH (Worthington George) [1835-1917]

A large amount of material by W. G. Smith has been presented to the Botanical Department and includes :—A set of proofs on India paper of his illustrations to J. Stevenson's *Hymenomyces Britannici*; upwards of 1,500 water-colour drawings of fungi, as well as a complete series of the British Hymenomyces; 39 water-colour drawings of British Orchidaceae, and 26 plates of pen-and-ink drawings of pollen grains; 250 sheets of magnified drawings of plants, dated 1905-11;

133 sheets of outline drawings of genera and subgenera for his *Synopsis of the Basidiomycetes*, 1908, and collections of manuscript notes on fungi and diseases of plants (B).

323 pen and ink, and wash process drawings, twice the scale of Nature, of cultivated or garden and greenhouse Plants, being the originals of plates in the *Gardiner's Chronicle*, ? 1904-1915 (B).

SMYTH (William)

Smyth was Mate of H.M.S. " Blossom " which made a voyage to the Pacific and Behring Straits in 1825-1828 and nineteen folios of his water-colour drawings of vertebrates with MS. notes are preserved in the Museum (Z).

SNELLING (Lilian) [1879-]

Four water-colour drawings of plants, c. 1922 (B).

SOAR (Charles David)

Original drawings used to illustrate papers on mites by C. F. George, 1900-1915 (Z).

SOCIETY OF AMATEUR BOTANISTS, LONDON

Two volumes of manuscript of papers read at meetings of the Society, illustrated with some original drawings 1863-1864 (B).

SOLANDER (Daniel Charles) [1736-1782]

Solander, the Swedish botanist, and pupil of Linnæus, became Assistant Librarian at the British Museum and at the same time acted as librarian to Sir J. Banks. He accompanied the latter on Capt. J. Cook's first voyage round the world (1768-71), and the complete set of his autograph notes made during that voyage, from the original rough notes to the completed descriptions, with lists of the various local faunas and floras are preserved (B, Z), as well as a series of lists of the Plants collected during Cook's first voyage (1768-71) in the order in which they were arranged in the drying books in which they were brought home (B).

A " Florula Indiæ Occidentalis " and a " Florula Capensis " contain complete lists of the then known species from those regions (B).

A descriptive slip-catalogue of Animals and Plants,⁶ systematically arranged and kept in Solander cases, has since been bound and occupies, Animals 27 (Z), and Plants 25 volumes (B).

Lists and descriptions by Solander of the Plants (B), and Fish (Z), obtained during the visit with Banks to Iceland in 1772, as well as many other manuscripts written in connection with his curatorship of the Banksian Museum, came with those before mentioned in that Collection.

Many of the above manuscripts are interspersed with notes in Banks' handwriting.

SOLDANI (Ambrogio) [1733-1808]

A copy of Soldani's rare work *Testaccographiæ ac Zoophytographiæ parvæ et microscopiciæ tomus primus (-secundus)*, was by bequest of H. B. Brady presented by the Royal Society in 1891 (L).

⁶ The Plant Catalogue practically formed the basis of Aiton's *Hortus Kewensis* and also relates to the Banksian Herbarium.

SOWERBY (Arthur de Carle) [1885-1954]

Geneological tree of the family of John Sowerby [1718-1766] and Arabella Goodreed [1725-1782], prepared in 1950, also other biographical details of the Sowerby family (P).

SOWERBY (George Brettingham) [1788-1854]

Manuscript catalogue of the Mollusca contained in the Museum of the East India Company (Z).

SOWERBY (George Brettingham) *2nd of the name* [1812-1884]

148 original water-colour drawings of fossil remains from the neighbourhood of Cheltenham, c. 1840 (L).

SOWERBY (James) [1757-1822]

James Sowerby, naturalist and artist, illustrated many works on natural history.

His original drawings for Plates i, ii and xii of Aiton's *Hortus Kewensis*, form part of the Banksian MS. No. 17 (B).

The original drawings for No. 2-4 of Dickson's *Fasciculus Plantarum Cryptogamarum Britanniae*, form the Banksian MS. No. 21 (B).

The original water-colour drawings for the *English Botany*, over 2,500 in number, were purchased in 1859 (B).

The original water-colour drawings for his *English Fungi* were presented in 1876 and have been incorporated in the collection of drawings of Fungi (B).

A collection of coloured drawings of plants growing in the garden of Lettsom at Grove Hill, Camberwell. 2 vol. c.1787 (B).

Manuscript report and correspondence on [Dry Rot in ships] 1812-1814 (B).

Three original water-colour drawings of Minerals were acquired with the collection bequeathed by Sir Arthur Russell in 1964 (M).

213 original coloured drawings of Fungi together with MSS. were purchased in 1937 (B).

An extensive collection of c. 2,500 autograph letters of botanists, geologists, mineralogists, entomologists and antiquaries, mostly written before 1850 to James Sowerby and his son J. de C. Sowerby, together with autograph notes, drafts and drawings relating to zoological and botanical subjects was purchased in 1969 (L) and Departmental Libraries. *See also* Fraser (John).

SOWERBY (James De Carle) [1787-1871]

James De Carle Sowerby was well known both as a naturalist and artist.

His original water-colour drawings for the illustrations to the *Supplement to English Botany* were purchased in 1862 (B).

29 plates of original water-colour drawings of mosses, dated 1803, from which the plates to Dawson Turner's *Muscologiae Hibernicae Spicilegium* were engraved, were purchased in 1866 (B).

The set of 65 original water-colour drawings of Chelonia to illustrate J. Bell's *Monograph of the Testudinata* and subsequently utilised for Sowerby and Lear's *Tortoises*, was presented in 1875 (Z).

SPAENDONCK (Gerrit van) [1746-1822]

70 water-colour drawings of Flowers after Nature, by G. Spaendonck, the celebrated botanical artist at the Jardin des Plantes, Paris, were purchased in 1885 (B).

SPAINK (G.)

Original drawings of *Odostomia* from specimens in the Mollusca Section and Palaeontology Department of the Museum. 13 ff. 1962 (Z).

SPRAGUE (T. B.) and (B.)

Two note-books with numerous drawings relating to Entomostraca. 1899-1901 (Z).

STAINTON (Henry Tibbats) [1822-1892]

This eminent 19th century entomologist conducted an extensive correspondence with the naturalists of his day and a very large number of letters received by him over the period 1852-1892 are preserved in the Museum. A collection of his water-colour drawings illustrating the life-history of the Micro-Lepidoptera was presented by Lord Walsingham in 1893 (E).

STALKER (W.)

Three note-books relating to the birds of New Guinea, c. 1909 (Z).

STANDISH ()

1021 original water-colour drawings on 245 folios, of British Lepidoptera, circa 1800 (E).

STARING (M. H. A.)

One water-colour drawing of *Varanus kumodoensis*, 1926 (Z).

STARKE (Chloe Lesley)

Seven wash drawings of bones of reptiles (Z).

STEBBING (Thomas Roscoe Rede) [1835-1926]

Many original drawings used to illustrate this author's publications have been presented, including those of his "Challenger" Report on the Amphipoda published in 1889 (Z).

STEINMAN (Bella)

Seven water-colour drawings of insect larvae, ante 1880 (E).

STELFOX (Arthur William)

Original drawings by A. W. Stelfox to illustrate his paper—The Pisidium Fauna of the Grand Junction Canal in Herts and Bucks—published in *J. Conchology* 15 1918 : 289-304, also three box files of notes and correspondence relating to Mollusca, covering the period 1907-1950 (Z).

STENNETT (Ralph)

43 original water-colour drawings of plants, named by David Don, 1805-1807 (B).

STEPHENS (James Francis) [1792-1852]

One volume of letters from various correspondents addressed to J. F. Stephens, 1825-1837 (Z), also 94 original pattern plates of his *Illustrations of British Entomology* (E).

STEPHENS (William) [fl. 1718-1732]

A "Catalogus Plantarum in Horto Dubliniensi," in part in the handwriting of W. Stephens, Botanist and Lecturer at Trinity College, Dublin, forms the Banksian MS. No. 92 (B).

STEPHENSON (Thomas Alan) [1898-1961]

Five original framed paintings of invertebrate animals and one of iridescent sea weeds were presented by Mrs. Stephenson in 1965 (Z).

STEWART (James) [1791-1863]

A collection of water-colour drawings of birds by Stewart, published in Sir William Jardine's *Naturalists Library* (Z).

STONE (Sarah)

One portfolio of drawings, mostly of zoological subjects, for Sir Ashton Lever's Museum, 1781-1785 (L). Thirteen water-colour drawings of birds, c. 1788, were acquired with the Rothschild bequest in 1937 (T).

STRACHEY (Sir Richard) [1817-1908]

A small collection of manuscript notes and sketches relating to Geology, presented in 1909 (P).

STRICKLAND (Catherine Dorcas Maule) Mrs.

A collection of miscellaneous sketches and photographs, including a number of water-colour drawings of birds by Mrs. Catherine Strickland, wife of Hugh Strickland, daughter of Sir William Jardine, covering the period 1846-1873 (Z) and (L).

Manuscript diary of a continental honeymoon tour in 1845 (P).

STRICKLAND (Hugh Edwin) [1811-1853]

A sketch book of a tour in Asia Minor in 1837. Some of these sketches were reproduced in Sir William Jardine's *Memoirs of H. E. Strickland*, 1858.

An autograph diary of a tour of Scotland in 1838 (P).

Manuscript journal of a visit to the continent of Europe in July-October 1845 (L).

STUART (John) 3rd Earl of Bute

See MILLER (John)

SUTHERLAND (Peter Cormack) [1822-1900]

Manuscript notes and descriptions of zoological specimens collected during the voyage of the steamship Isabel in 1852 (Z).

SWAINSON (Isaac) [1746-1812]

Formed a private botanical garden at Twickenham and a collection of 11,325 plates and original water-colour drawings of plants; these were acquired in 1913 (B).

SWAINSON (J. T.) [—1825]

Manuscript catalogue of fossil shells (P). Manuscript catalogue of British shells 1783–1808 (Z).

SWANSTON (William)

Autograph MSS. relating to the geological excursions of W. Swanston, 1875–1876 21 ff. (P).

SWEBACH-DESFONTAINES (Francois Louis) [fl. 1769]

MS. prospectus: " Histoire naturelle, ou exposition des morceaux, les mieux choisis pour servir à l'étude de la minéralogie et de la cristallographie ", with 160 original drawings in colour, some in two versions, of minerals. The prospectus is signed " à Paris 1789. Swebach Desfontaines . . . La revolution est cause que cet ouvrage n'a pas paru ".

Recueil complet de Mineralogie. . . 5 vol. MS. and 246 hand-coloured plates (M).

SWEDEN

192 original water-colour drawings, on 24 sheets, of Swedish moths, caterpillars, and spiders. Forms the Banksian MS. No. 87 (E).

SWEET (Robert) [1783–1835]

The 56 original water-colour drawings by E. D. Smith for Sweet's *Flora Australasica* are preserved in the Museum (B).

SWINEY LECTURES ON GEOLOGY

Manuscript abstracts of these lectures from 1883–1949 are preserved in the Museum (P).

SYKES (William Henry) [1790–1872]

Manuscript notes, with a few small sketches by W. H. Sykes, and some water-colour drawings by native artists, describing the economic plants and agriculture of the Deccan. 10 volumes. ? 1824–30 (L).

SYLVIA, H.M.S.

MS. account of soundings obtained in the Red Sea by H.M.S. " Sylvia ", 1877 (M).

TALBOT (Percy Amaury) [1877–]

24 water-colour and pencil sketches of Nigerian plants (B).

TAUBE (Baroness Helene von)

See BICKNELL (Clarence)

TAYLOR (C.) [1762–1818]

Letters from William Roxburgh. 1 vol. (Phillipps MSS. No. 18552) (B).

TAYLOR (J. E. Campbell-)

MS. catalogue of British land and freshwater Mollusca in the collection of J. E. Campbell-Taylor, presented to the Museum in 1948 (Z).

TAYLOR (J. Kidson)

MS. notes on shells of the genera *Cypraea*, *Amphidromus* and *Olivella*. 302 pp. c. 1915 (Z).

TAYLOR (John William) [1845-1931]

208 MS. note-books containing data collected by the author for his *Monograph of the land and freshwater Mollusca of the British Isles*, published between 1894-1921; this was never completed. When publication was suspended the author was 76 years old with about a quarter of the land and all the aquatic species still to be done, so much of the manuscript data is unpublished.

There are also the author's own copies of two of the volumes with his holograph annotations and additions, together with a quantity of manuscript notes, correspondence and a typescript list of his shell collection (Z).

TAYLOR (R.)

A collection of letters from G. A. W. Arnott, C. Johnson and other botanists, 1858-1859 (B).

TAYLOR (Simon) [-1798]

25 water-colour drawings of plants, some dated 1776-1777 (B).

106 water-colour drawings of plants, undated, formerly in the collection of the Earl of Bute (B).

TAYLOR (Thomas Lombe-)

Sub-kingdom Mollusca. A manuscript catalogue in four volumes (Z).

TCHERNAVIN (Vladimir Viacheslavovich) [1887-1949]

A collection of original drawings and photographs used in his ichthyological publications is preserved in the Museum (Z).

TEALE (Sir Edmund Oswald) [1874-]

Manuscript details of localities of the Teale Collection of Australian fossils, presented in 1925 (P).

TEIXEIRA (J.)

One water-colour drawing of *Tulipa Gesneriana* dated 1820 (E).

TEMPLE (Vere) *Miss*

102 original water-colour drawings of British plants and trees, dated between 1928 and 1967, was acquired in 1968 (B).

TEMPLETON (John) [1766-1825]

300 drawings of Irish Cryptogams, with manuscript notes. Presented by Miss A. L. Smith in 1931 (B).

TENISON (William Percival Cosnahan) [1884-]

225 original drawings published in C. T. Regan & E. Trewavas *Fishes of the families Stomiidae and Malcosteidae*, 1930. 14 original drawings published by these authors in their paper on Deep Sea Angler-Fishes, 1932. 10 drawings of Oceanic Angler-Fishes published in the Museum postcard series Sets M 3 and M 4. 4 original drawings of Patagonian coast fishes published in *Discovery Reports* 16 1937 (Z).

TERZI (Engel) [-c. 1944]

Numerous examples of the very accurate line and colour drawings of insects by this artist are preserved in the Museum (E), also seven pen and ink drawings of mammal skulls (Z).

THOMAS (Michael Rogers Oldfield) [1859-1929]

Oldfield Thomas was in charge of the mammals in the Museum at the time of the removal to South Kensington and devoted the next forty years to building up these collections. Two portraits in oils of Thomas were bequeathed in 1929 ; one is signed by J. E. Braun and dated 1904, the other is by an unidentified artist (Z).

THORBURN (Archibald) [1860-1938]

18 original drawings by A. Thorburn for his *British Mammals* published 1920-21 (Z).

THORNHILL (W. Blundell)

A notebook containing original drawings of Lagenidae, with short MS. notes, c. 1895-1900. At the time of his death (c. 1900) W. B. Thornhill was engaged on an account of the Lagenidae from the south-west Pacific. His collection passed to H. Sidebottom who published the work, 1912-1913 (Z).

THUNBERG (Carl Pehr) [1743-1822]

An autograph "Flora Capensis" made some time prior to 1782 by the celebrated naturalist Thunberg (that is of interest as showing the state of the work at that time as contrasted with its extension when first published in 1820), with a transcript in Dryander's handwriting, were among the Banksian MSS. (B).

TICEHURST (Claude Buchanan)

Four folders of incomplete notes for a book on Indian birds (Z).

TICKELL (Samuel Richard) [c. 1809-1875]

41 water-colour drawings and illustrated MS. relating to Indian Birds, forming one of a set of volumes from which the illustrated MS. work by Tickell on mammals &c. of India, in the library of the Zoological Society of London was elaborated, also 64 water-colour drawings of Arakan fishes (Z).

TILLI (Michael Angelus) [1655-1740]

An autograph "Specimen Plantarum quae in Horto Medico Sapientiae Pisanae locisque finitimis extant" 1713-30 (3 vol.), by M. A. Tilli, Professor of Botany at Pisa, forms the Banksian MS. No. 111 (B).

TOMLIN (John Read le Brockton) [1864-1954]

Two manuscript note-books on *Oliva* &c. Seven files containing autograph lists of Mollusca in the Museum collections c. 1923 (Z).

TONGE (Mrs Olivia Frances) [1858-1949]

Sixteen sketch books of Indian subjects, done at Sind, Calcutta, etc., between 1908 and 1913 were presented in 1952 (L).

TOPLEY (William) [1841-1894]

A set of the six views and geological sections of various parts of England and

Wales, made by W. Smith in 1817-19, was presented in 1887 by W. Topley, the Geologist. (P).

TOURNEFORT (Joseph Pitton de) [1656-1708]

A copy of the manuscript of the celebrated French Botanist Tournefort, entitled "Catalogue des Plantes que M. P. de Tournefort trouva dans ses voyages d'Espagne et de Portugal," forms the Banksian MS., No. 82 (B).

TOYNBEE (Mrs. Henry)

189 original water-colour drawings of Marine Animals and Plants made by Mrs. Toynbee during voyages between England and India, via the Cape, in 1856-58, with manuscript notes, were presented in 1895 by Capt. H. Toynbee (Z).

TREGONING (Joseph) of Truro

A collection of autograph correspondence addressed to John Hawkins, a distinguished Cornishman and mining geologist, covering the period 1800-1840 (M).

TRISTRAM (Henry Baker) [1822-1906]

Manuscript register of the egg cabinets of the Rev. H. B. Tristram, 9 vol. [in 3]; these were presented to the Museum in 1927. Volume 1 contains a portrait and biographical details of the collector (Z).

TRITON, H.M.S.

MS. descriptions of soundings taken in the Atlantic Ocean, 1882 (M).

TRUAN y LUARD (Alfred) [1837-1890]

Autograph letters from various correspondents to Truan, 1886-1890 (B).

TUCKEY (James Kingston) [1776-1816]

8 original drawings of crustacea, by several artists, collected on Captain Tuckey's expedition to explore the River Congo in 1816 (Z).

TUNNARD (T. E.)

Notes on birds' eggs collected in Ceylon, 1923-1926 (Z).

TURNER (Dawson) [1775-1858]

Autograph letters to William Roscoe and others, 1809-1829 (B).

TUSCARORA, U.S.S.

MS. descriptions of soundings taken by U.S.S. "Tuscarora" in the Pacific Ocean, 1873-1878 (M).

TWEEDDALE, Arthur Hay, 9th Marquess of [1824-1878]

The Marquess of Tweeddale, traveller and ornithologist, formed an extensive library, which, numbering 698 works in 2,560 volumes with about 200 pamphlets, was presented by his nephew, Capt. R. G. Wardlaw-Ramsay, in 1887. Two manuscript catalogues of the specimens of birds in the Tweeddale collection, dated 1880 are preserved (Z).

TWELVETREES (William Harper) [1848-1919]

101 mounted original drawings, mostly in pencil, of fossil plants, shells and bones from the Russian Permian cupriferos marls north of the town of Orenburg, 1877, 1 vol. (P).

TWINING (Elizabeth) [1805-1889]

176 drawings of plants including the originals for her *Illustrations of the Natural Order of Plants* 1849-1855 (B).

TYTLER (R. C.)

326 original water-colour drawings of Indian Birds made for R. C. Tytler c. 1840-1860 (Z).

UDINE (G. da)

See BIRDS

ULRICH (Edward Oscar) [1857-]

Manuscript catalogue of species and thin-sections contained in a set of American fossil Bryozoa prepared for the Museum in 1897-99, with notes on systematic classification (P).

VALOROUS, H.M.S.

MS. notes on Foraminifera collected from the North Atlantic Ocean, 1875 (M).

VAN DER BYL (P. B.)

12 manuscript note-books of expeditions to Asia, Africa, Europe and North America between 1897 and 1921 (Z).

VAN DER VINNE (Jan Laurenszoon) [1699-1753]

Four sheets of water-colour drawings of tulips (E) and one drawing designated by the artist as "La Charmante Bleue" (B).

VAN DER VINNE (Laurens) [1658-1729]

Two water-colour drawings of lepidoptera (E).

VAN DER VINNE (Vincent) [1736-1811]

Two water-colour drawings of flowers (B).

VEEN (Rochus van) [-1706]

Water-colour drawings of *Cobitus barbatulus*, *Trutta favio*, *Trigla gurnadus*, signed and dated 1670, *Lacerta agilis*, *Pica caudata*, *Epeira diadema*, and *Cancer pagurus*, undated (Z).

Six sheets of water-colour drawings of insects, c. 1673-1680 (E).

VELLOZO (José Mariano da Conceicao) [1742-1811]

Thirteen original line drawings for his *Florae Fluminensis* 1825, are preserved in the Museum (B).

VERREAUX (Jean Pierre) [1807-1873]

Photostat of unpublished journal of J. P. Verreaux for the years 1842-1844. The original MS. is in the library of the Australian Museum (Z).

VICARY (W.)

MS. notes made by Dr. F. A. Bather when reporting on the Vicary collection of fossils presented in 1903 (P).

VICTORIA, Queen of Great Britain and Ireland

In 1841, Queen Victoria presented a large series of water-colour drawings by Francis Bauer, "being that part of Mr. Bauer's drawings made at the expense of the late Sir Joseph Banks, Baronet, which did not accompany his Library and Botanical Collections when transferred to the Museum, but was bequeathed by Sir Joseph to his late Majesty King George the Fourth" (B).

VIENNA.—Kaiserlich-Koenigliches Naturhistorisches Hofmuseum.

21 water-colour drawings of types of *Eurema* in the Vienna Museum, c. 1887 (E).

VOET (Karel Borchart) [1670-1745]

Eight sheets of water-colour drawings of beetles and one drawing of a butterfly on *Scabiosa* (E).

WAIT (W. E.) [1878-1957]

MS. register of birds' eggs collected in Ceylon, 1907-1928. 1 vol. (Z).

WAITE (H. W.)

MS. Register of H. W. Waite collection of Indian bird skins, the greater part of which were presented to the Museum in 1948 & 1949 (Z).

WAKEHURST, Lord

See LODER (Gerald Walter Erskine)

WALDO (Edmund Gustavus Bloomfield Meade-) [1855-1934]

28 diaries and note-books covering the period 1889-1923, and some correspondence concerning observations on Kites. One note-book relates to the cruise of the R.Y.S. "Valhalla", 1905-1906, and contains the original observation of the sea-serpent seen off the coast of Brazil, December 7th 1905, and reported in the *Proc. Zool. Soc. London* 1906 : 719, also one note-book on birds of the Canary Islands collected 1887-1888 (Z).

MS. account of a collection of Butterflies from Morocco, 1903 (L).

WALKER (Bryant) [1856-1936]

Ten letters addressed to A. J. Peile relating to description and collection of shells, 1922-1929 (Z).

WALKER (Francis) [1809-1874]

Manuscript account of the Diptera of Madeira, apparently unpublished (E).

WALKER (John Francis)

Correspondence relating to fossil Brachiopoda addressed to J. F. Walker, 1865-1907 (P).

WALLACE (Alfred Russel) [1823-1913]

Two MS. note-books, giving localities for his collections of birds &c. in the Malay Archipelago, 1855-1861.

Four volumes of original pencil drawings of fishes of the Rio Negro, made between 1850-1852.

A number of MS. descriptions of fishes and some other animals of the Amazon and Rio Negro (Z).

A framed portrait in oils is preserved in the Museum (D).

WALLER (Edward) [1803-1873]

Seven drawings—" J. J. Wild ad nat. del. "—of British Foraminifera dredged off the W. Coast of Kerry and off the Shetland Is., by E. Waller, 1870 (Z).

WALLICH (George Charles) [1815-1899]

59 sheets of original drawings in pencil and water-colour, of marine animals, mostly microscopic, with two manuscript charts of voyages between Portsmouth and Calcutta in 1850, 1851 and 1857, and a manuscript notebook containing critical comments on the Reports of the " Challenger " Expedition with summarized details of Sir James Ross's dredgings (Z).

The original manuscript notes and drawings descriptive of the results of dredging during August, 1860, when on H.M.S. " Bulldog ", off the south-west coast of Greenland are also preserved in the Museum (L).

A collection of original drawings and manuscript notes on Desmidiaceae and Diatomaceae was presented by the Royal Microscopical Society in 1918 (B).

WALLICH (Nathanael) [1786-1854]

100 water-colour drawings of plants made by native artists for Wallich's *Plantae Asiaticae Rariores* 1830-1832 (B).

WALSINGHAM, Baron

See DE GREY (Thomas)

WALTON (Sarah)

One water-colour drawing of *Cephalanthera grandiflora* (B).

WARD (John)

Manuscript Catalogue of Fossil Fishes and Amphibia from the Coal Measures, principally of North Staffordshire, 1892 (P).

WARREN (Samuel Hazzledine) [1873-1958]

Two-note-books of numbered localities and specimens of fossils collected by S. H. Warren. Purchased in 1936 (P).

WARREN (William) [1839-1914]

A collection of his manuscript notes relating to Heterocera (E).

WATELET (Adolphe) [1811-1879]

Watelet, the palaeobotanist was author of a *Description des Plantes fossiles du bassin de Paris*, 1866. The original pencil drawings for the plates to that work, with 21 additional unpublished ones, and their descriptions in manuscript, were purchased in 1880 (P).

WATERHOUSE (Alfred) [1830-1905]

The famous 19th century architect who in 1868 was entrusted with the construction of this Museum, on which he allowed himself an unwonted exuberance of detail. Two sketch books containing pencil drawings for the ornamentation of the Museum were presented in 1962 (L).

WATERHOUSE (George Robert) [1810-1888]

Letters of Waterhouse to his father J. E. Waterhouse dated 1836 and other

correspondence relating to his employment at the Zoological Society of London and later as Keeper of Geology in the British Museum, also a series of letters addressed to the well known entomologist, H. T. Stainton, 1861-1864 (L).

A preliminary manuscript for a catalogue of Fossil Vertebrata in the Museum, written between 1847 and 1851 is also preserved (P).

WATLING (Thomas) [1762-]

Watling was convicted of forgery and sentenced at Dumfries in April 1789 to be transported for 14 years ; he eventually reached Sydney, New South Wales, on 7th October 1792. A collection of 512 original water-colour drawings of the Natives, Animals, Plants and Scenery (with maps) in the neighbourhood of Port Jackson, New South Wales, c. 1792-1794, was purchased in 1902 (Z). The collection has come to be known as the " Watling Drawings " although many are not by Watling and the works of at least three distinct artists are included. Paintings by Watling are signed Thos. Watling or T. Watling, none of the others have any signature.

WATSON (Hewett Cottrell) [1804-1881]

The manuscript records used in the compilation of Watson's *Cybele Britannica* were presented in 1887, also MS. notes intended for an Addenda (B)

WATERTON (Charles) [1782-1865]

MS. copy of an unpublished paper on " Living in the Tropics ". ff. [i] 9. 1838 (L).

WATSON (Robert Boog) [1823-1910]

One note-book containing manuscript notes on Mollusca c. 1863-1892 (L), also autograph notes on the Mollusca obtained by the Challenger Expedition 1873-1876 (M).

WATSON (White) [fl. 1773-1831]

Manuscript " Catalogue of a collection for Fossils, the produce of Derbyshire. . . " 1 vol. 1799 (M).

WATTISON (J. T.)

Six sheets of original drawings for Wattison's " Lepidopteros de Portugal " *Mems Estud. Mus. Zool. Univ. Coimbra*, No. 29, 1928-1930.

The drawings, made by a Portuguese convict imprisoned for forging bank notes were checked and corrected by the author (E).

WATTS (G.) Lt. Colonel

Eight volumes of MS. botanical note-books, 1921-1947 (B).

WEBB (Philip Barker) [1793-1854]

Manuscript biography of P. Barker-Webb by Jacques Gay, q.v. 1856 (B).

WEBBER (John) [1752-1793]

Webber was appointed draughtsman to Captain Cook's third voyage. One water-colour drawing of *Pringlea antiscorbutica* is preserved in the Museum ; also two of plants bound with the collection of drawings by Francis Masson (B).

WEHDEMANN (C. H.)

56 original water-colour sketches of plants growing about Plettenburg Bay on

- the coast of Africa, with autograph descriptions by Major-General Hardwicke, 1812 (B).
- WELWITSCH (Friedrich Martin Josef)** [1806-1872]
Correspondence addressed to Welwitsch, c. 1865 is preserved in the Museum, also his manuscript notes on Cryptogams (B).
- WENDLAND (Johann Christoph)** [1755-1828]
20 water-colour drawings of the genus *Erica*, some dated 1787 (B).
- WESTON (Joseph)**
Manuscript catalogue of a collection of fossil fishes purchased in 1890 (P).
- WESTWOOD (John Obadiah)** [1805-1893]
Three volumes of original water-colour drawings of insects, c. 1832, 36 unpublished drawings of Madeiran insects, and 24 water-colour drawings of Lepidoptera from Madeira and the Canary Is., together with 15 unpublished drawings of Coleoptera from the Salvages, 1857-1860 (E).
- WETHERELL (Nathaniel Thomas)** [1800-1875]
Figures cut out from an unpublished plate of London Clay shells from Highgate Archway, also some manuscripts referring to his paper on the Well at Hampstead c. 1832-1838 (P).
- WHALE**
Oil painting of a stranded Rorqual Whale, late 16th century (Z).
- WHEELER (Edwin), of Clifton** [1833-1909]
2,449 water-colour drawings of British Fungi made between 1880 and 1895 by Mr. Wheeler, were presented in 1895 (B). 127 sheets of water-colour drawings of fishes from British localities, done between 1897 and 1908, were purchased in 1959 (Z).
- WHEELER (J. F. G.)**
Four coloured drawings for J. F. G. Wheeler's report on "Nemerteans from the South Atlantic" published in *Discovery Reports* 9 : 215-294, 1934 (Z).
- WHELER, Mrs.**
Five water-colour drawings of birds made by a native artist for Mrs. Wheeler, wife of a member of the Supreme Council of Bengal, c. 1783 (Z).
- WHIMPER (Charles)** [1853-]
See WHYMPER (Charles)
- WHISTLER (Hugh)** [1889-1943]
Typescript of an unpublished work on the birds of the Himalayas, 212 sh. c. 1942, six bound volumes of manuscript notes on measurements of Indian birds and one of Palaearctic birds, 24 box files containing the author's MS. notes on Indian birds, 2 box files of notes on moulting in birds and one note-book listing the bird skins in the Whistler collection (Z).
- WHITE (John) Navigator**
Copy of a water-colour drawing made about 1585 by J. White, containing the earliest known representation of the King Crab, *Limulus polyphemus* (Z).

WHITE (John) [1757-1832]

White went as surgeon-general to Botany Bay. The original drawings used for some of the plates of White's "Journal of a Voyage to New South Wales" are included in the Banksian MS. No. 34 (B).

WHITE (Timothy)

A manuscript copy of Moses Harris' *Exposition of English Insects* 1776, containing water-colour copies of the plates published in Harris' work, each inscribed "T. White pinx." ; the holograph title-page is dated "York 1786" (E).

WHITEHEAD (John) [1860-1899]

Catalogue of birds' eggs in the collection of J. Whitehead, 1881 (Z).

WHYMPER (Charles) [1853-]

Framed water-colour painting of a Shoebill Stork, presented by Sir William Garstin in 1925 (Z).

WHYMPER (Edward) [1840-1911]

Three manuscript note-books, with other notes, drawings, proofs and correspondence relating to the Greenland expedition of 1867, also lists of Insects, Spiders &c. collected in Ecuador, Switzerland and North America in the period 1879 to 1892 (Z).

WIGG (Lilly) [1749-1828]

An autograph "Catalogue of Esculent Plants," 1810, by L. Wigg, botanist, of Great Yarmouth, is preserved in the Museum (B).

WIGHT (Robert) [1796-1872]

A large collection of water-colour drawings and manuscript relating to Indian plants (B).

WILCOCK (Joseph) [fl. 1888]

One volume of woodcuts of British Unionidae, and 62 unbound woodcuts of Mollusca together with miscellaneous manuscript correspondence relating to his publications (Z).

WILD (John James)

Official artist on the *Challenger* during the scientific expedition of 1873-1876. His autograph diary kept during the voyage is preserved in the Museum (M).
See also WALLER (Edward)

WILEMAN (A. E.) [1860-1929]

Nine original drawings for the author's "Notes on Japanese Lepidoptera and their larvae" published in the *Philippine Journal of Science* 1914-1925 (E).

WILKINS (Guy Lawrence) [1905-1957]

138 original drawings of Mollusca were presented by Mrs. A. Wilkins in 1966 (Z).

WILKINS (Sir Hubert) [1888-1958]

Two typescript copies, with manuscript notes by the author, of *Undiscovered Australia*, published in 1928 (L).

WILLEMOES-SUHM (Rudolph von) [1847-1875]

One of the naturalists on the *Challenger* during the scientific expedition of 1873-1876 whose death in 1875 occurred on the voyage to Tahiti. His autograph diary kept during the expedition is preserved in the Museum, also a collection of rough sketches and MS. notes left on board H.M.S. Challenger after his death (M).

WILLIAMS (Frederick Newton) [1862-1923]

MS. of flora of the county of Middlesex. Families 1-50 Campanulaceae-Rosaceae. With the introduction and other notes (B).

WILLIAMS (Roswell C.)

138 sheets of drawings of American Lycaenid genitalia (E).

WILLIAMSON (Sir Walter) [1867-1954]

Manuscript notes on birds of the Far East, mainly Thailand, also papers relating to his collection of Siamese birds' eggs (Z).

WILSON (Alexander) [1766-1813]

Original manuscript of *American Ornithology ; or the natural history of the Birds of the United States*, English edition, in 2 volumes, 1832.

The volumes contain cuttings from the first edition of the *American Ornithology*, with many MS. additions, and from these notes Sir William Jardine published the English edition of the work (Z).

WILSON (Edward Adrian) [1872-1912]

The naturalist and Antarctic explorer. Material preserved in the Museum comprises, one volume of pencil sketches and water-colour drawings of British mammals with MS. notes, 1890-1907.

A quantity of manuscript notes and original drawings of marine mammals c. 1901-1911, also pencil sketches of whales, dolphins and seals made on the British Antarctic "Terra Nova" Expedition, 1910 (Z).

A framed sepia painting of *Periphylla* (Z).

WILSON (Edwin)

173 original drawings of *North American Tortricidae* published in the work by Lord Walsingham, 1879 (E).

WILSON (William) [1799-1871]

W. Wilson, the botanist was author of *Muscologia Britannica*. His original drawings and notes, as well as his correspondence (filling 12 volumes) relating to Mosses, were purchased with his Herbarium in 1874 (B).

WINDT (L. E.)

A manuscript on "The Barberry Bush, an enemy to Winter Corn," 1806, translated from the German original of L. E. Windt, that was published 1806, is in the Museum (B).

WING ()

61 sheets of zoological sketches in pencil (Z).

WINKLER (Tiberius Cornelius) [-1898]

Manuscript "Catalogue des poissons fossiles" 1860 (P).

WINKWORTH (Ronald) [1884-1950]

MS. card index of "Who's Who in Conchology" covering the 17th century until 1950, and a quantity of manuscript material including systematic notes, and a card catalogue of genera and species of Mollusca (Z).

WITHERBY (Henry Forbes) [1873-1943]

MS. catalogue of the birds in the museum of H. F. Witherby, 1890-1931, 2 vol. (Z).

WITHERS Mrs.

Flower Painter in Ordinary to Queen Adelaide.

Three botanical water-colour paintings dated 1839-1847 (B).

WITHOOS (Alida) [1659 or 60-1715]

Daughter of Mathias Withoos [1627-1703] a noted painter of plants, reptiles and insects, she worked in her father's manner and eleven of her water-colour plant drawings are preserved in the Museum (B).

WITHOOS (Matthias) [1627-1703]

Three sheets of water-colour drawings of insects (E).

WITHOOS (Pieter) [1654-1693]

Framed painting of the Reunion Dodo and other birds (Z).

WITHERST (Johannes) [1648-1695]

One water-colour drawing of a plant, *Icosandria dipentagynia*, dated 1682 (B).

WOLF (Josef) [1820-1899]

Original water-colour drawings of the Aye-Aye, by Wolf, are included in the Owen Collection of Drawings (L).

WOLLASTON (Thomas Vernon) [1822-1878]

Autograph correspondence between Sir Richard Owen and T. V. Wollaston relating to expurgation of derogatory remarks in the preface to his *Catalogue of Coleopterous Insects of the Canaries* published by the Museum in 1864 (E).

WOOD (Casey Albert) [1856-1942]

Typewritten copy of a letter dated November 12, 1923, containing, *inter alia*, ornithological notes of a voyage to Fiji, Australia, New Zealand &c. (Z).

WOOD (Henry Hayton) [1825-1882]

200 drawings of Bryophytes (B).

WOOD (Searles Valentine) [1798-1880]

The original drawings and MS. notes for the *Monograph of the Crag Mollusca* 1848-1882, were presented as part of the E. Heron-Allen Library (Z).

WOODWARD (Sir Arthur Smith) [1864-1944]

Keeper of the Geological Department from 1901 until his retirement in 1924. Large numbers of his manuscripts, including letters, note-books, Piltdown skull material and his own and Lady Woodward's autobiographical notes are preserved in the Museum (P).

WOODWARD (Samuel) [1790-1838]

A collection of papers, printed and in manuscript. Includes "An outline of Geology" and "On the Geology of Gt. Britain," both in manuscript. 1 vol. (P).

WOODWARD (Samuel Pickworth) [1821-1865]

A manuscript "Catalogue of Fossil Organic Remains in the Cabinet of Mrs. M. H. Smith, of Tunbridge Wells," 1845, with water-colour drawings by S. P. Woodward (who compiled the Catalogue), W. H. Bensted, and others, was presented in 1892 (P).

Some original drawings by Woodward are included in the Davidson collection of drawings of Brachiopoda, which was presented in 1886 (P).

The original MS. and drawings for the plates of *A Manual of the Mollusca*, 1851-1856, and notes and original drawings of Molluscan radulae are preserved in the Museum (Z), also manuscript "Notes from Nature" made at Norwich, 1832-1834 (L).

Manuscripts of his *Sketch of the Norwich Crag Deposit with a descriptive catalogue of its fossils*, *A Synoptical table of British Organic Remains*, 1829 and *Theoretical view of Geological Changes* 1835 are also preserved (P).

WOOLWARD (Florence Helen) Miss [1854-1936]

A collection of drawings of poplars and elms, also 16 water-colour drawings of West Indian and Madeira plants which were presented in 1933 (B).

WOOSNAM (R. B.) [1880-1915]

MS. notes on mammals and birds collected in S. Africa, 1903-1904, and mammals observed in Persia, 1905 (Z).

WRIGHT (Charles A.)

Ten note-books relating to birds collected at Malta 1860-1869, one note-book on birds of Spain, Greece and Turkey, 1873, and two small note-books containing records of plants collected in England 1884-89. There are also a quantity of manuscript notes on the shells of Malta (Z).

WRIGHT (C. W.) & (E. V.)

Typescript catalogue of the collection of Cretaceous Fossils presented to the Museum in 1939 (P).

WRIGHT (Joseph)

Four volumes of tracings of figures of Foraminifera (Z).

WRIGHT (Thomas) [1809-1884]

Manuscript material relating to the Wright Collection of fossil invertebrates purchased in instalments between 1887-1906 (P).

WUYTS (O. F.)

A collection of correspondence regarding asymbiotic culture of orchid seeds (B).

YALDEN (Thomas) [fl. 1750-1774]

Autograph descriptions of plants and animals, chiefly Scottish, 1773-1774 (B).

YATES (James) [1798-1871]

A collection of 25 water-colour botanical drawings by various artists, made for James Yates, mid 19th century (B).

YOUNG (William) [fl. 1753-1784]

302 water-colour drawings of Plants from North and South Carolina made in 1767 by W. Young, with manuscript title, index and dedication, form the Banksian MS. No. 24 (B).

ZAHN (Martin)

Four original sketches, dated 1944-1956, made for W. Troll's published works (B).

ZAPHIRO (Ph. C.)

MS. notebook on collection of fishes during the trip to Kaffa and Lake Rudolphe, 18th April 1905 (Z).

ZELLER (Philipp Christoph) [1808-1883]

Four volumes of correspondence between the two eminent entomologists, P. C. Zeller and H. T. Stainton, covering the period 1869-1883, and a large number of letters addressed to Zeller by numerous correspondents are preserved in the Museum, also a number of original drawings, diaries and manuscript notes (E).

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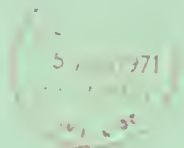
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Printed in Great Britain by
Alden & Mowbray Ltd
at the Alden Press, Oxford

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CHARLES DARWIN'S
QUERIES ABOUT EXPRESSION

R. B. FREEMAN

AND

P. J. GAUTREY



BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
HISTORICAL SERIES

Vol. 4 No. 3

LONDON : 1972

Handwritten: The Hands at the same time ^{high} ~~are raised~~
 raised & the face high, ~~and the~~ ^{the} palms
 directed ^{inward} "you" & away to ^{inward} ~~inward~~

QUERIES ABOUT EXPRESSION.

- (1.) Is astonishment expressed by the eyes and mouth being opened wide, and by the eyebrows being raised?
- (2.) Does shame excite a blush when the colour of the skin allows it to be visible? and especially how low down the body does the blush extend?
- (3.) When a man is indignant or defiant does he frown, hold his body and head erect, square his shoulders and clench his fists?
- (4.) When considering deeply on any subject, or trying to understand any puzzle, does he frown, or wrinkle the skin beneath the lower eyelids.
- (5.) When in low spirits, are the corners of the mouth depressed, and the inner corner of the eyebrows raised by that muscle which the French call the "Grief muscle?" The eyebrow in this state becomes slightly oblique, with a little swelling at the inner end; and the forehead is transversely wrinkled in the middle part, but not across the whole breadth, as when the eyebrows are raised in surprise.
- (6.) When in good spirits do the eyes sparkle, with the skin a little wrinkled round and under them, and with the mouth a little drawn back at the corners?
- (7.) When a man sneers or snarls at another, is the corner of the upper lip over the canine or eye tooth raised on the side facing the man whom he addresses?
- (8.) Can a dogged or obstinate expression be recognized, which is chiefly shewn by the mouth being firmly closed, a lowering brow and a slight frown?
- (9.) Is contempt expressed by a slight protrusion of the lips and by turning up the nose, with a slight expiration?
- (10.) Is disgust shewn by the lower lip being turned down, the upper lip slightly raised, with a sudden expiration, something like incipient vomiting, or like something spat out of the mouth?
- (11.) Is extreme fear expressed in the same general manner as with Europeans?
- (12.) Is laughter ever carried to such an extreme as to bring tears into the eyes?
- (13.) When a man wishes to shew that he cannot prevent something being done, or cannot himself do something, does he shrug his shoulders, turn inwards his elbows, extend outwards his hands and open the palms; with the eyebrows raised? *and not sure*
- (14.) Do the children when sulky, pout or greatly protrude the lips? *of the lips*
- (15.) Can guilty, or sly, or jealous expressions be recognized? though I know not how these can be defined.
- (16.) As a sign to keep silent, is a gentle hiss uttered?
- (17.) Is the head nodded vertically in affirmation, and shaken laterally in negation? *lip when white*

Observations on natives who have had little communication with Europeans would be of course most valuable, though those made on any natives would be of much interest to me.

General remarks on expression are of comparatively little value; and memory is so deceptive that I earnestly beg it may not be trusted.

A definite description of the countenance under any emotion or frame of mind, with a statement of the circumstances under which it occurred, would possess much value. An answer within six or eight months, or ~~any~~ ^{any} to any single one of the foregoing questions would be gratefully accepted. In sending answers, the questions need not be copied, but reference may be made to the numbers of each query.

CHARLES DARWIN,

DOWN, BROMLEY, KENT.
1867.

CHARLES DARWIN'S
QUERIES ABOUT EXPRESSION

BY
RICHARD BROKE FREEMAN
AND
PETER JACK GAUTREY

Pp. 205-219; 1 *Plate*



BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
HISTORICAL SERIES Vol. 4 No. 3
LONDON: 1972

THE BULLETIN OF THE BRITISH MUSEUM
(NATURAL HISTORY), *instituted in 1949, is
issued in five series corresponding to the Departments
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*World List abbreviation
Bull. Br. Mus. nat. Hist. (hist. Ser.).*

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TRUSTEES OF
THE BRITISH MUSEUM (NATURAL HISTORY)

Issued 24 October, 1972

Price 65p

CHARLES DARWIN'S QUERIES ABOUT EXPRESSION

By R. B. FREEMAN & P. J. GAUTREY

THE intention of this paper is to publish, for the first time, the original text of *Queries about expression* which Darwin had had printed for private circulation in 1867, and to compare its text with that of other printed and manuscript versions.

In the first (1872) and all subsequent editions and issues of *The expression of the emotions in man and animals* Darwin writes (page 15): 'Conventional expressions or gestures, acquired by the individual during early life, would probably have differed in the different races, in the same manner as do their languages. Accordingly I circulated, early in the year 1867, the following printed queries with a request, which has been fully responded to, that actual observations, and not memory, might be trusted. These queries were written after a considerable interval of time, during which my attention had been otherwise directed, and I can now see that they might have been greatly improved. To some of the later copies, I appended, in manuscript, a few additional remarks:—'

Then follow sixteen numbered paragraphs, several with more than one query in them, and some final remarks. Another version, with seventeen queries and many other differences, was published by the Smithsonian Institution of Washington in 1868. When the Darwin *Bibliographical Handlist* was published in 1965, these were the only two versions of the queries that were known to us, although the existence of an original was assumed and it is fairly accurately described at No. 231. Since then, six further versions of the text, as well as related manuscript material including a consolidated set of the answers, have come to light. All of these are in the Darwin archive or the Robin Darwin deposit in the University Library at Cambridge. There are now eight texts known as follows:

1. A printed proof with corrections in Darwin's hand. The corrections bring the text, exactly, up to the printed version. Darwin's corrections are all easily legible, and this may be the proof from which the compositor worked, or it may be a copy. It has a printed date of 1867 as in the final work, but, bearing in mind the 'early in the year 1867' quoted above, it may have been pulled late in 1866. (DAR 96).

2. A copy of the original printed version without any manuscript alterations or additions. (DAR 53 [1]).

3. Another copy of No. 2, but with alterations and additions in Darwin's hand to queries (1), (13) and (14), and a small deletion in the final remarks. This copy is reproduced here in facsimile and will serve to represent both this and text form No. 2. The three deleted words are 'even a year'. The additions, so far as they can be read, are as follows:

(1) The hands at the same time being opened and raised high, with the fingers separate and the palms directed towards the person causing the astonishment.

(13) & mouth opened.

(14) . . . Do they press join arm to lips under In blue pencil, left hand margin. No. 31 Dr. Rothrock* keep for Desc. of Man.

It is clear that this copy could never have been sent to a correspondent: the additions are far too illegible. It may have been intended as a key copy for alterations that Darwin wished to make to copies sent out later, but these alterations bear almost no relation to the texts of Nos. 5 and 6. There are also no 'few additional remarks'. (Robin Darwin deposit).

4. A rough draft, entitled *Expression of Savages*, on both sides of a single sheet, of nine queries on expression, one on ideas of feminine beauty, and three on domestic animals. These are addressed to an unnamed correspondent who was familiar with Tierra del Fuego, Patagonia and the Falkland Islands. The sheet is undated, but there is plentiful evidence (see page 213) that a fair copy of it was sent on January 6th 1860 to 'Mr. Bridges, a catechist residing with the Fuegians'.

5. A copy, dated 1867, in Emma Darwin's hand, but signed by Charles. This copy is accompanied by a letter to Dr F. Müller, written by Mrs. Darwin but again signed by Charles, dated February 28th, without year. The consolidated answers show that the Müller to whom this letter was addressed was Ferdinand Jakob Heinrich (1825-96), Government Botanist of Victoria, Australia, from 1852 until his death, later K.C.M.G., F.R.S. and a Baron. Another F. Müller also sent replies; he was Johann Friedrich Theodor known as Fritz (1822-97), a schoolmaster in Brazil, later to be a personal friend of Darwin and the author of *Für Darwin*. (DAR. 92).

6. A copy in the hand of Dyson Lacy, Aramac, Baccaro, near Rockhampton, Queensland, with answers to all seventeen queries and text of sixteen, that for No. 6 being omitted. A note in Darwin's hand at the top of the first page of the manuscript reads 'Observations made by a relative of Mr. E. Wilson on return several hundred miles into interior of Queensland Australia—received Sept. 18, 1868. Edward Wilson of Hayes Place, Kent is mentioned on page 19 of *The expression of the emotions*, and Dyson Lacy, the relative, on page 20. (Robin Darwin deposit).

7. The text in the *Annual Report of the Smithsonian Institution* for 1867, (1868). Miss Mary Sharon Carmody, Research Assistant at the Institution, informs us that no original copy for this version survives in the archives at the present time.

8. The text in *The expression of the emotions* (1872) and all later printings.

All eight texts differ to a greater or lesser extent. No. 1, the proof, needs no further consideration because its corrections, when made, produce No. 2. No. 3 also needs no further consideration because the alterations to it do not relate to the other versions. A detailed collation of the three printed texts, Nos. 2, 7 and 8, shows that all three differ from each other in many points, and a comparison of these differences with the three manuscript texts, Nos. 4, 5 and 6, may throw some light on why the printed ones differ. It is possible, but not probable, that there may have been a

*Spelt Rottrock throughout in the consolidated answers. Joseph Trimble Rothrock, M.D. (1839-1922), American botanist; he answered the queries in relation to his experience with North American Indians.

second, earlier or later, printed version. Darwin says only that he appended in manuscript to later copies: had he had the leaflet reprinted he would surely have mentioned the fact, and it is much more probable that the copy he sent to the printer had the additional material added to it.

The collation of Nos. 2, 7 and 8 is as follows:

Title: 2: Queries about expression

7: Queries about expression for anthropological inquiry

8: [No title], but in index Queries concerning expression.

1. 2. Is astonishment expressed by the eyes and mouth being opened wide and by the eyebrows being raised?
 7. and 8. As 2.
2. 2. Does shame excite a blush when the colour of the skin allows it to be visible? and especially how low down the body does the blush extend?
 7. color. All after the first interrogation point wanting.
 8. As 2.
3. 2. When a man is indignant or defiant does he frown, hold his body and head erect, square his shoulders and clench his fists?
 7. Comma after shoulders.
 8. As 2.
4. 2. When considering deeply on any subject, or trying to understand any puzzle, does he frown, or wrinkle the skin beneath the lower eyelids.
 7. Comma omitted after frown. Interrogation point added at end.
 8. Interrogation point added at end.
5. 2. When in low spirits, are the corners of the mouth depressed, and the inner corner of the eyebrows raised by that muscle which the French call the 'Grief muscle?'. The eyebrow in this state becomes slightly oblique, with a little swelling at the inner end; and the forehead is transversely wrinkled in the middle part, but not across the whole breadth, as when the eyebrows are raised in surprise.
 7. inner corner or angle of the eyebrows. grief l.c.g. Whole of second sentence wanting.
 8. As 2, but 'Grief Muscle'.
6. 2. When in good spirits do the eyes sparkle, with the skin a little wrinkled round and under them, and with the mouth a little drawn back at the corners?
 7. When in good spirits do the eyes sparkle, with the skin around and under them a little wrinkled, and with the corners of the mouth a little drawn back?
 8. As 2.
7. 2. When a man sneers or snarls at another, is the corner of the upper lip over the canine or eye tooth raised on the side facing the man whom he addresses?
 7. the canine teeth.
 8. As 2.
8. 2. Can a dogged or obstinate expression be recognized, which is chiefly shewn

- by the mouth being firmly closed, a lowering brow and a slight frown?
7. shown. Comma after brow.
 8. shown.
9. 2. Is contempt expressed by a slight protrusion of the lips and by turning up the nose, with a slight expiration?
 7. and turning up of the nose.
 8. As 2.
 10. 2. Is disgust shewn by the lower lip being turned down, the upper lip slightly raised, with a sudden expiration, something like incipient vomiting, or like something spat out of the mouth?
 7. shown. No comma after expiration. Last eight words wanting.
 8. shown. spit.
 11. 2. Is extreme fear expressed in the same general manner as with Europeans?
 7. and 8. As 2.
 12. 2. Is laughter ever carried to such an extreme as to bring tears into the eyes?
 7. and 8. As 2.
 13. 2. When a man wishes to shew that he cannot prevent something being done, or cannot himself do something, does he shrug his shoulders, turn inwards his elbows, extend outwards his hands and open the palms; with the eye-brows raised?
 7. show. Comma after hands. Last four words wanting, with interrogation point after palms.
 8. show.
 14. 2. Do children when sulky, pout or greatly protrude the lips?
 7. Comma after children. Comma after pout.
 8. As 2.
 15. 2. Can guilty, or sly, or jealous expressions be recognized? though I know not how these can be defined.
 7. and 8. As 2.
 16. 2. As a sign to keep silent, is a gentle hiss uttered?
 7. As 2.
 8. This query is absent.
 17. 2. Is the head nodded vertically in affirmation, and shaken laterally in negation?
 7. No comma after affirmation.
 8. As 2, but numbered 16.
2. Observations on natives who have had little communication with Europeans would be of course most valuable, though those made on any natives would be of much interest to me.

General remarks on expression are of comparatively little value; and memory is so deceptive that I earnestly beg it may not be trusted. *A definite description of the countenance* under any emotion or frame of mind, with a statement of the circumstances under which it occurred, would possess much value. An answer within six or eight months, or even a year, to any *single* one of the foregoing

questions would be gratefully accepted. In sending answers, the questions need not be copied, but reference may be made to the numbers of each query.

7. Observations on natives who have had little communication with Europeans would be, of course, the most valuable, though those made on any natives would be of much interest.

General remarks on expression are of comparatively little value. A definite description of the countenance under any emotion or frame of mind would possess much more value.

An answer to any single one of the foregoing questions would be gratefully accepted.

Memory is so deceptive on subjects like these that I hope it may not be trusted to.

8. Printed as one paragraph. Expression with an upper case E. No italics. 'An answer . . . of each query' all wanting.
2. is signed to right at foot CHARLES DARWIN and to left and below DOWN, BROMLEY, KENT, /1867.
7. is headed below title and between two short rules BY CHARLES DARWIN, OF DOWN, BROMLEY, KENT, ENGLAND.
8. is without signature or address.

Query numbers are in parentheses, e.g. (2) in 2 and 7, but not in 8, e.g. 2.

It is clear that text version No. 8, that in *The expression of the emotions*, is printed from a printed or a manuscript copy of No. 2, the original printed leaf. The differences are slight; show and shown for shew and shewn; one interrogation point added and one moved, both correcting composition faults; and spit for spat in query 10, perhaps a misprint. The two large changes are the omission of query 16, which results in the renumbering of query 17, and the omission of parts of the final remarks. Darwin purports that he reprints the queries in their original form, and it is possible that he struck out query 16 in some later copies. It does differ from the rest in that it is concerned with language rather than with expression, the matter of the enquiry. The 'gentle hiss' *st* is treated by the *Oxford English dictionary* as an interjection usually verbalized in English as hist, hush, or whist. This query is not discussed in the text of the book. The last two sentences, about how soon he wants the answers and in what form they would be helpful, are irrelevant in the printed book, and could with justification be omitted.

No. 7, what the Smithsonian Institution printed, is more difficult. A minor Americanism, color for colour, and eight added or omitted commas can be ignored. But there are textual differences in queries 2, 5, 6, 7, 9, 10 and 13. In four of them the queries are shorter, the variation in each case being at the end; in query 2 eleven words are wanting; in query 5 the whole of the second sentence of forty words is wanting; in query 10 eight words and in query 13 four. In query 7 there is 'the canine teeth' instead of 'the canine or eyetooth' and in query 9 'turning up of the nose' instead of 'turning up the nose'. In the concluding remarks there are a number of differences, the most important perhaps being the placing of the statement

about not relying on memory at the end, rather than incorporating it in the second sentence.

On the evidence of the three printed versions alone, it is clear that No. 7 could not have been composed from an unaltered copy of No. 2; no editor, let alone a compositor, would have made such alterations to printed copy in front of him. It is possible that No. 7 was printed from a copy of No. 2 with manuscript alterations, but the fact that four of these are conspicuous omissions and the structure of the concluding remarks make this improbable. It is possible also that No. 7 was printed from an earlier version, before the additions and the rewording of the concluding remarks, but there is no evidence for the existence of such a printed leaf.

It is also possible that No. 7 was printed from a manuscript copy sent to the Smithsonian Institution shortly before the printed version was available, and one of the surviving manuscript versions, No. 5, gives some evidence to support this view. This version is a primary source in Mrs Darwin's hand, whereas No. 6, in Dyson Lacy's hand, is secondary, being transcribed in Queensland from some other sources. In No. 7, the absent words in queries, 2, 5, 10 and 13 are exactly the same as in No. 5. Query 7 has 'canine teeth' as in No. 7 rather than 'canine or eye tooth' of No. 2. Query 9 has 'turning up of the nose' as in No. 7 rather than 'turning up the nose' of No. 2. The concluding remarks are as in No. 7, rather than those in No. 2, with the statement about not relying on memory at the end. On this last point, a letter to A. R. Wallace, which is No. 1 of the letters commented on below, gives additional evidence. The only difference is in query 7 which concludes 'with the mouth a little drawn back in the corners' which more closely resembles No. 2 'with the mouth a little drawn back at the corners', rather than No. 7 'with the corners of the mouth a little drawn back.'

On the other hand, there is a letter in the Robin Darwin deposit from George Gibbs to Darwin, headed Smithsonian Institute, Washington, March 31, 1867, which reads 'Professor Baird has shown me your circular "Queries about expression"'. This would tend to suggest a printed text.

The Dyson Lacy version, No. 5, does not give any further evidence. It is a rough transcription throughout, which was perhaps based on a late manuscript copy. The eleven additional words are present in query 2, and query 10 has the last phrase, but query 5 is omitted altogether, although the answer, misnumbered 6, is present. Query 13 is only present in abbreviated form. On the other hand there is 'canine teeth' in query 7 and 'turning up of the nose' in query 9. Two such variants which agree with Mrs Darwin's manuscript and disagree with the first printed version cannot be coincidence. The concluding remarks are omitted.

No. 4 has been left until last because its connection with the printed texts is remote. But its composition is undoubtedly about seven years earlier than the others, and probably represents Darwin's first ideas on the subject.

The evidence for this is fourfold:

1. From the manuscript itself, the different order of the questions, the indication to the copyist to change the order of the questions, and the striking out of the three questions on domestic animals.

2. Also from the manuscript, the use of red crayon for the title and the particular

paper on which it is written is characteristic of around 1859. Indeed this paper is known to students of the Cambridge archive as 'Origin paper' because almost the whole of the long version of *On the origin of species* is written on it.

3. In the consolidated answers, the only set from Tierra del Fuego (No. XXIX, from Mr Bridges) has the seven individual answers to the queries in the same order as they are in No. 4, whereas all the other thirty-four sets have them in the order found in the printed text. For example, the query about nodding and shaking the head is No. 1, that about astonishment No. 3, but in the printed text these are Nos. 17 and 1 respectively.

4. A letter to Sir Charles Lyell (*Life and letters*, Vol. II, pp 264-265) dated January 10th [1860], reads 'By the way I sent off a lot of questions the day before yesterday to Tierra del Fuego on expression.' The internal evidence for the year of this letter is fortunately good. The first volume of Hensleigh Wedgwood's *A dictionary of English etymology*, is referred to as 'new'; it was published in 1859. The insertion of A. R. Wallace's name on page 484 of a new edition of *On the origin of species* is referred to. It occurs on this page only in the fifth thousand, i.e. the second edition, which was published on January 7th, 1860.

The only correspondent in Tierra del Fuego who is referred to in *The expression of the emotions* is 'Mr. Bridges, a catechist residing with the Fuegians' who 'answered some questions about their expression, addressed to him many years ago'. This was Thomas Bridges (1841-1898), a missionary with the South American Mission and later a farmer. In 1860 he would have been working from the Keppel Mission in the Falkland Islands, but later he moved to Ushuaia on the north side of the Beagle Channel (see Riesenbergs, 1940).

He translated two Gospels and the Acts into the language of the Yaghan boat Indians, and compiled a dictionary of it which was not published until 1933, when the Yaghans were extinct. In a brief autobiographical article (1892) Bridges writes that he first entered the service of the mission in 1861, but this may be a slip of memory for Darwin clearly knew him as a catechist very early in 1860.

This set of queries, probably Darwin's first attempt to collect material for what was eventually to become the book, is of sufficient interest to be printed in full:

[Title on Verso, Darwin's hand, red crayon] Expression of Savages
[Recto]

Do the Fuegians or Patagonians λ or both λ nod their heads λ vertically λ to express assent & shake their heads horizontally to express dissent?

Do they blush? & at what sort of things? Is it chiefly or most commonly in relation to personal appearance or in relation to women?

Do they express astonishment by λ widely λ open eyes λ uplifted eyebrows λ & open mouth

Do they evince anger or fear by same expression of countenance & actions as we do?
 λ B [ringed]

Do they express contempt by the same gesture [?] as we do, namely by turning up nose & puffing out their breath or even spitting?

Do they frown when trying to understand anything or considering any difficulty?

Do they ever shrug their shoulders to show that they are incapable of doing or understanding anything?

[This query is ringed and with an insert mark to show that it should precede the previous two]

Do they sneer, which is chiefly shown by turning up the corners of upper lip?

Λ see Back a [ringed]

What ideas of feminine beauty have the Fuegians; do they admire women with strong American cast of countenance or such as at all approach Europeans in appearance.

[This query is deleted]. Do the Fuegians take any pains in breeding or matching their dogs; or is all left to chance.—The habits of the Fuegian dogs would be worth observing.

E Λ [ringed]

[Verso]

B [ringed] When out of spirits or (in some [deleted]) dejected do they turn down the corners of the mouth?

a [ringed] Any information on the manner of Expression of countenance of any emotion in savages would be curious, & I believe is a subject, which has been wholly overlooked.—The only satisfactory method to collect information is to make notes at the time.—

[These queries are deleted]. Are the young of the Wild Pigs at the Falkland Islands striped lengthways on the back when first born?

What colour are the calves of the white cattle with red ears, on the Falkland Islands?

Mr. Norman

Write on both sides of paper.

The copyist was Mr Ebenezer Norman, at one time schoolmaster at Downe; he transcribed for Darwin for many years. His transcript survives together with a part only of the answers and presumably it had travelled to the Falkland Islands and back. It is, as ordered, written on both sides of two sheets and signed at the end 'Charles Darwin Down Bromley, Kent January 6 1860'. Oddly, it contains the three queries about animals, and it must be presumed that they were struck out at some later date.

Some other relevant information is available in printed letters and associated editorial comment:

1. A letter to A. R. Wallace (*Alfred Russel Wallace: letters and reminiscences*, Vol. I, page 140) dated March 7, 1860.

'The addresses which you have sent me are capital, especially that to the Rajah; and I have dispatched two sets of queries. I now enclose a copy to

you, and should be very glad of any answers; you must not suppose the P.S. about memory has been lately inserted; please return these queries, as it is my standard copy'.

The two recipients are apparently identified on page 20 of *The expression of the emotions*.

'The Rajah Brook has given me some information with respect to the Dyaks of Borneo. Respecting the Malays, I have been highly successful; for Mr. F. Geach (to whom I was introduced by Mr. Wallace), during his residence as a mining engineer in the interior of Malacca, observed many natives who had never before associated with white men'. A fragment of manuscript for this passage and a letter identify him more closely as Frederick F. Geach. (Robin Darwin deposit). Rajah C. Brooke is mentioned on page 207 of the book, but the position in relation to the first two Rajahs of Sarawak is confusing.

In 1860, the apparent date of the letter, the first Rajah, Sir James, was still in Sarawak; he retired to England in 1863 and died in 1868. He was succeeded, at his death, by his nephew, his sister's son, Sir Charles Anthony Johnson Brooke.

Although clearly printed as 1860, the date of this letter is suspect. Firstly there is no mention of Rajah James in the book; secondly the letter seems to be in answer to Wallace's reply to one printed in *Life and letters*, No. 4 below, which is dated February 26 [1867], and No. 5, dated March [1867], also relates; thirdly the 'P.S. about memory' could not possibly have been inserted some time before 1860, although it is hinted at in the queries sent to Tierra del Fuego in that year; and fourthly Wallace was in the far-east until 1863, and it is most improbable that Darwin would have sent his standard copy so far and asked for it back. An unpublished letter at Cambridge (Robin Darwin deposit) from Rajah Charles to Darwin, dated from Sarawak Nov. 30/70 reads as follows:

Dear Sir,

Altho' three years have passed since I recd yr note accompanied by the 17 queries about expression—since then I have been a year in Europe or I should have sent a reply before—as I have never lost sight of observing the countenances of the people—more particularly the Dyaks of Sakarang and Sarebus tribes—From Malays I think little originality can be expected as they are early tutored in conducting themselves in an orthodox Mahomedan Code—for instance—when seated on a mat receiving, or visiting a stranger, the feet are not to be shown—they are doubled up underneath—the hands clasped one on the other—not to show the palms—body slightly stooping & head inclined downwards—eyes looking down—in being surprised, they slowly move their heads to & fro without expressing any remark—These customs are brought from other parts more than derived from their forefathers.—I enclose a few answers yr queries—and regret they are not more complete—I have lately forwarded a

female Maias* to the Taunton Museum—I believe a perfect specimen—tho' not large & found in the Rajang river some little distance from Si Munjan & Batang Lupar where Mr. Wallace & Signor Beccari obtained their specimens. If I can be of any service in obtaining a few natural history specimens I shall be happy to do my best.

I am

Dear Sir

Yrs faithfully

C. Brooke

The first sheet of this letter is on mourning paper, presumably for his uncle. In the consolidated list of answers received to the queries, Rajah Brooke's answers are not entered in the list under localities. Had they been, they would have come between the Australian and the Indian ones and numbered XIII. In the list under questions they are entered, without acknowledgement to the Rajah, as No. 36, and there are eleven entries. Mr F. Geach is No. 34 and 35 in both lists. It would seem that both these sets of answers were received after the consolidated lists were made up, perhaps in 1869 or 1870. The letter to Wallace should clearly be dated 1866 or thereabouts.

2. A letter to A. R. Wallace (*Life and letters*, Vol. III, page 95) dated February 26 [1867] states 'I would send such a person a list of queries'.

3. A letter to A. R. Wallace (*Life and letters*, Vol. III page 95) dated March [1867] states 'I will, however, see if I can get the queries inserted in some Indian paper'. This letter clearly relates to No. 2, and probably also to No. 1; the dates for Nos. 2 and 3 are probably correct because their matter concerns the early stages of the production of *The descent of man* which appeared in 1871.

4. A letter to Fritz Müller (*Life and letters*, Vol. III, page 112) dated February 22nd [1869] states 'accordingly I enclose some questions as a guide and if you could answer me even one or two I should feel truly obliged'. Müller answered the queries from Brazil. For the dating of this letter see No. 6 below.

5. A letter to Thomas Henry Huxley (*More letters*, Vol. I, page 287) dated Jan. 30th [1868], states 'Give Mrs. Huxley the enclosed, and ask her to look out when one of her children is struggling and just going to burst out crying'. A footnote refers 'the enclosed' to the queries, presumably at this date in printed form. The first paragraph of this letter refers to the receipt by Huxley of an advance copy of *Variation under domestication* which was published on 30 January 1868, and the third to George Darwin being placed second Wrangler in the Mathematical Tripos for 1868. The Tripos list was posted on 24 January 1868 (*Emma Darwin*, 1904, Vol. II, page 216; 1915, Vol. II, pages 187-88). This letter is probably in reply to an undated note from Huxley a part of which has been printed in *Life and letters of Thomas Henry Huxley*, Vol. I, page 306. This note is stated to belong

*The Dyak word for the orang-outang, more usually anglicized as mias.

'to the very end of this year [1868], or to the beginning of the next'. Its true date must be in the last week of January 1868.

6. A letter to Fritz Müller (*More letters*, Vol. II, page 98) dated January 30th [1868]. The estimated year of this or of No. 4 must be wrong, because this one acknowledges the receipt on October 5th of Müller's answers to the queries, and is dated apparently before the latter was sent out. There is in the Darwin archive a set of fifty-eight letters from Darwin to Müller, copied out by the latter for Francis Darwin, and numbered consecutively. That of 22 February bears the number 13, and the previous letter, 12, has a postscript dated 1 January 1867. The letter dated 30 January, No. 20, immediately precedes one bearing the date 1868. Therefore 30 January [1868] would appear to be correct, whilst that dated 22 February should be [1867] not [1869].

It will be noticed that in none of the letters listed above, nor in the letter to Rajah Charles Brooke, is there any mention of *printed* queries. Printed queries are however mentioned twice in editorial matter:

7. In *Life and letters*, Vol. III, page 134, 'The work required much correspondence, not only with missionaries and others living among savages to whom he sent his printed queries, but among physiologists and physicians'.

8. In *More letters*, Vol. II, page 108. 'Mr. [Francis] Galton had written on Nov. 7th 1872 offering to send to various parts of Africa Darwin's printed list of questions intended to guide observers on expression.' The offer was refused.

The consolidated answers are written on twenty-six half sheets of brief writing paper (12.72 × 8 inches), on one side of the paper. They are mostly in Mrs Darwin's hand in ink, but with some additions by Charles in ink or pencil. The first seven sheets are numbered 1-7, and they summarize the answers by locality, starting with Australia and moving westwards to North America. The correspondents are identified and numbered I-XXXI. The last four, XXXII to XXXV are one from New Zealand and three about Malaysians; these presumably arrived after the rest had been arranged. The remaining nineteen sheets are unnumbered and summarize the results query by query from 1 to 17. The same thirty five sets of answers are used, although they have here Arabic numerals, 1-35. A thirty-sixth set, for the Dyaks, is entered last for eleven of the queries. These are presumably Rajah Charles Brooke's answers, though his name is not mentioned.

These consolidated answers throw no further light on the history of the development of the queries than has been referred to above. They do however form much of the evidence on which almost two-thirds of the book itself is based. They are considered in Chapters VI-XIII, and many of the individual observations are quoted, although the order in which the expressions are considered is not the same as the order of the queries.

CONCLUSIONS

Although the evidence is not complete, certain conclusions may be drawn. It can be seen that Darwin was asking queries about expression of at least one correspondent as early as January 6th 1860. The text of the queries printed by the Smithsonian

Institution in 1868 was composed from an earlier version than that printed as a single leaf in 1867; though whether the copy was manuscript or printed is not apparent. The text printed in *The expression of the emotions*, 1871, was composed from a suitably altered copy of the leaf.

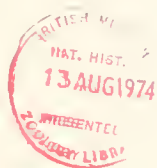
ACKNOWLEDGEMENTS

We are grateful to Sir Robin Darwin and to the University Librarian, Cambridge, for permission to print from original manuscripts. We are grateful also to the Librarian of the Smithsonian Institution, Washington, for attempting to trace the original copy from which the Institution printed the queries; and to Lady Nora Barlow, Dr Sydney Smith and Professor Robert C. Stauffer for trying to improve on our transcription of the additions to the copy of the queries which is reproduced here. The third of these is considered by us all to be an example of Darwin's hand at its worst.

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THE ENTOMOLOGICAL
PUBLICATIONS OF PIERRE
MILLIÈRE (1811-1887)

K. SATTLER
AND
W. G. TREMEWAN



BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
HISTORICAL SERIES Vol. 4 No. 4
LONDON: 1973

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BY
KLAUS SATTLER
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WALTER GERALD TREMEWAN

Pp. 221-280 ; 3 Plates



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THE BULLETIN OF THE BRITISH MUSEUM (NATURAL HISTORY), instituted in 1949, is issued in five series corresponding to the Departments of the Museum, and an Historical series.

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In 1965 a separate supplementary series of longer papers was instituted, numbered serially for each Department.

This paper is Vol. 4 No. 4 of the Historical series. The abbreviated titles of periodicals cited follow those of the World List of Scientific Periodicals.

World List abbreviation :
Bull. Br. Mus. nat. Hist. (hist. Ser.).

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TRUSTEES OF
THE BRITISH MUSEUM (NATURAL HISTORY)

Issued 16 August, 1973

Price £2.70

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By K. SATTLER and W. G. TREMEWAN

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SYNOPSIS

Four entomological works of Millière, which were published in parts, are discussed in detail and their dates of publication established. All entomological works of Millière are listed in the bibliography. All taxa described by Millière are catalogued together with their original references and the dates of publication.

INTRODUCTION

PIERRE MILLIÈRE was born on 1 December, 1811, at Saint-Jean-de-Losne (Côte d'Or) and died on 29 May, 1887, at Cannes (Alpes-Maritimes). During his life he wrote 61 entomological papers in which he described over 260 new taxa.

Four of Millière's publications, namely *Iconographie et Description de Chenilles et Lépidoptères inédits*, *Catalogue raisonné des Lépidoptères (du Département) des Alpes-Maritimes*, *Lépidoptérologie*, and *Catalogue raisonné des Lépidoptères des Alpes-Maritimes, 2^e Supplément, et Notes entomologiques diverses*, are made up of parts, most of which were published at different times. Nearly all of these parts were also published as articles in periodicals. The issue in a periodical was published either before or after that which forms part of one of the above works. Both issues were printed from the same or different type-set, with or without alterations, the text sometimes having been revised. In some cases two different editions of a part (*livraison, fascicule*) of one of the above works are known.

Throughout the present paper the following terms are used: *edition* - to distinguish two different versions (termed editions 'a' and 'b') of a particular part (*livraison, fascicule*) in the same work; *issue* - to distinguish the publication of a part (*livraison, fascicule, partie*) in one of the above works from that in a periodical.

The different editions and issues which have come to our notice are recorded below ; however, it seems likely that further variations may be found when more copies are examined.

When there are two editions, the accompanying plates appear to have been printed from the same blocks, except those of the *Iconographie, livraison 1*, editions 'a' and 'b', which were printed from different blocks. In *livraison 6* of the *Iconographie* copies of plates 2-4 are found with and without the printer's signature. As a rule the plates are coloured, but certain issues in periodicals are accompanied by uncoloured plates. As might be expected in hand-coloured plates, differences in coloration were found between copies. Occasionally copies were found in which a figure has been missed and left uncoloured. The plates are generally well preserved but in some figures deterioration of the pigments has occurred. This is especially noticeable in the plates of some of the periodicals, for which usually inferior pigments were used.

The publication of the above works in parts with different editions and issues resulted in great difficulty in determining the exact date of publication of each new taxon. Consequently we have attempted to establish as accurately as possible from all available evidence the dates of publication of the various parts of these works. The evidence for the establishment of these dates is presented in parts I-IV of the present paper. Details of each part and the established dates of publication are tabulated, the tables containing the pagination of each edition and issue of every part. As the plates in the periodicals do not differ from those in the above four works details are given only once. The established dates for each edition and issue are included ; the earliest date is given in bold type.

All taxa described by Millière, regardless of their status, are catalogued in part V of the present paper. It should be noted that Millière was not always consistent in designating taxa as aberrations, varieties, or races, the term 'var.' having been used to denote both aberrations and subspecies.

The Bibliography includes a complete list of the entomological works of Millière, with their exact dates of publication.

We have *established* the exact dates of publication from the available evidence in accordance with the provisions of the *Int. Code zool. Nom.* Article 21 (1961), which reads as follows :

Article 21. Interpretation of date. - The date of publication of a work and of a contained name or statement affecting nomenclature is to be interpreted in accordance with the provisions of this Article.

- (a) **Date specified.** - The date of publication specified in a work is assumed to be correct in the absence of evidence to the contrary.
- (b) **Date incomplete.** - If the date of publication is not completely specified, it is to be interpreted as the earliest day demonstrated by evidence, but in the absence of such evidence, as
 - (i) the last day of the stated month, when month and year, but not the day, are specified ; and as
 - (ii) the last day of the year, when only the year is specified.
- (c) **Date incorrect.** - If the date of publication specified in a work is found to be incorrect, the date is to be interpreted as the earliest demonstrated by the evidence.

- (d) **Dates of work issued in parts.** – If parts of a work were published on different days, the date of each is reckoned independently.
- (e) **Range of dates.** – If the specified date of publication contained within a work is a range of dates, the work is to be dated from the latest day within that range; but if evidence proves that one or more parts were issued before that day, it or they are to be interpreted as dating from the earliest day demonstrated by the evidence.
- (f) **Date not stated.** – In the absence of internal evidence of its date of publication, a work is to be dated in whole or in part from the earliest date demonstrated by external evidence, such as mention in another work.

We have *cited* the dates in accordance with Recommendation 22A, which reads as follows :

Recommendation 22A. Method of citation. – In citing the date of publication of a name, an author

- (1) should not enclose the date in either parentheses or square brackets if the work containing it specifies the date of publication;
- (2) should enclose the date, or part of it, in parentheses if it is determined by evidence derived from the volume concerned other than in (1); or
- (3) should enclose the date, or a part of it, in square brackets if it is determined only from external evidence.

Throughout the present paper plate numbers are cited as found in the original work, i.e. Roman or Arabic; however, in the catalogue of taxa described by Millière all Roman plate numbers have been converted into Arabic. All plates are coloured unless otherwise stated.

We have examined all available copies of the works of Millière in the libraries of the British Museum (Natural History), London, Royal Entomological Society, London, Muséum national d'Histoire naturelle, Paris, Société entomologique de France, Paris, and L. G. Higgins, Chobham, Surrey. In addition we have received information on the copies in the libraries of the Museum für Naturkunde an der Humboldt-Universität, Berlin, Forschungsinstitut Senckenberg, Frankfurt, Zoologische Sammlung des Bayerischen Staates, Munich, and Naturhistorisches Museum, Vienna.

In establishing the dates of publication of the individual parts the following evidence was taken into consideration: dates on original wrappers, title pages, plates and any further dates cited in the text. The dates of receipt which were recorded by Stainton in his personal copies of Millière's works were also considered. In addition to these sources we have examined the following bibliographical works and catalogues: *Bibliographie de la France* (1850–90), British Museum (Natural History) library catalogue (1910), Derksen & Scheiding-Göllner (1968), Hagen (1862), Horn & Schenkling (1928), Junk (1900–13), Lorenz (1869; 1877), Staudinger & Rebel (1901), Staudinger & Wocke (1861; 1871), Taschenberg (1890), *Zoological Record* (1850–90). Reference was made to the obituaries by [Anonymous, a] (1887), [Anonymous, b] (1887), [Anonymous, c] ([1888]), Constant (1887), D[immock] (1888), Gozis (1887), Heylaerts (1888), and Kheil (1887). Various periodicals, including *Annls Soc. ent. Belg.*, *Annls Soc. ent. Fr.*, *Annls Soc. linn.*

Lyon, Berl. ent. Z., Bull. Soc. ent. Fr., Mém. Soc. Sci. nat. hist. Cannes, Naturalista sicil., Naturaliste, Petites Nouv. ent., Revue Ent., Revue Mag. Zool., and Stettin. ent. Ztg have been checked for reviews, book notices, and casual references.

ACKNOWLEDGEMENTS

We are particularly indebted to Dr P. Viette, Muséum national d'Histoire naturelle, Paris, for reading parts of the typescript and suggesting improvements, as well as for help during a visit to the libraries of the Muséum national d'Histoire naturelle and the Société entomologique de France, Paris. We thank Dr H. J. Hannemann, Museum für Naturkunde, Humboldt-Universität, Berlin, Dr H. Schröder, Forschungsinstitut Senckenberg, Frankfurt, Dr W. Dierl, Dr W. Forster, and Dr G. Mauermaier, Zoologische Sammlung des Bayerischen Staates, Munich, and Mr R. Imb, Naturhistorisches Museum, Vienna, for information on copies of works by Millière in the libraries of their institutions, and Dr L. G. Higgins, Chobham, for allowing us to examine a copy of the *Iconographie* from his private library. We are also indebted to Dr I. W. B. Nye, Mr B. V. Ridout, and Mr P. E. S. Whalley, British Museum (Natural History), London, for advice and assistance.

PART I

Iconographie et Description de Chenilles et Lépidoptères inédits

Between 1859 and 1874 Millière published under the above title a work in three volumes, comprising 35 *livraisons* with 154 plates. With the exception of numbers 11 and 27 to 35 the *livraisons* were also published in the *Annls Soc. linn. Lyon* (1858-72). An article under the same title and accompanied by a plate 155 was published by Millière in *Annls Soc. linn. Lyon* (N.S.) 25 : [1]-12 (1878). This article also forms *fascicule* [4] of another work under the title *Lépidoptérologie*, which is discussed in part III of the present paper.

As the exact date of publication of each *livraison* was unknown, incorrect dates have sometimes been cited in the literature. Therefore it was necessary to establish as accurately as possible from all available evidence the date of publication of each *livraison*. Details of each *livraison* and the established dates of publication are tabulated below (Tables 1-3). The tables contain the pagination of each edition and issue of every *livraison*. As the plates in the *Annales* do not differ from those in the *Iconographie* details are given only once. The tables are followed by a detailed discussion of all available evidence. All taxa described as new by Millière in the *Iconographie* are included in the catalogue which forms part V of the present paper.

Throughout part I of our work the following terms are used :

Iconographie - *Iconographie et Description de Chenilles et Lépidoptères inédits* ;

Annales - *Annales de la Société Linnéenne de Lyon* ;

(N.S.) - Nouvelle Série ;

Society - Société Linnéenne de Lyon ;

Edition – to distinguish two different versions (termed editions ‘a’ and ‘b’) of the same *livraison* in the *Iconographie* ;

Issue – to distinguish the publication of a *livraison* in the *Iconographie* from that in the *Annales*.

We have examined five complete sets, volumes **1** and **2** of an incomplete set, and unbound copies with their original wrappers of *livraisons* 1–7 and 10 of the *Iconographie*, and a run of the *Annales*.

In establishing the dates of publication of the individual *livraisons* the following evidence was taken into consideration: dates on the original wrappers (when present) and title pages, the dates on the first page of the ‘Explication des Planches’, and on the plates, and the date of submission of the manuscript to the Society or the date on which Millière signed some of the *livraisons*. Reference was made to *Biblioph. Fr.*, *Petites Nouv. ent.*, *Zool. Rec.*, and Staudinger & Wocke (1861; 1871), for any additional evidence.

Original wrappers are preserved for *livraisons* 1–7 and 10. It is probable that wrappers were also issued for *livraisons* 8 and 9. We have not found wrappers for any of the *livraisons* of volumes **2** and **3** and it is possible that no such wrappers were issued.

Volumes **1** and **2** of the set of the *Iconographie* in the L. G. Higgins library have grey original wrappers (front portion only) which are dated 1875 and were therefore issued after completion of the work. These wrappers are marked ‘Iconographie et Description de Chenilles et Lépidoptères inédits, par P. Millière, Lauréat de la Sorbonne (Médaille d’Or 1874). Tome Premier [‘Tome Deuxième’ on wrapper of volume **2**] Paris, E. Deyrolle Fils, 23, rue de la Monnaie. 1875’.

Original wrappers, which are preserved for some of the volumes of the *Annales*, indicate that each volume was issued complete in one part. Where original wrappers are preserved, the date on the wrapper agrees with that on the title page of the volume. Some volumes bear two dates, as for example ‘1859. Janvier 1860’. This may be interpreted as the volume for the year 1859, which was issued in January 1860. Internal evidence (recorded dates of the deaths of members of the Society) shows that the year of publication cited on the title pages of volumes **10** and **11** is erroneous.

A title page was issued with each of the *livraisons* 1–9, 11 and 23 of the *Iconographie*. The title pages of *livraisons* 1, 11 and 23 are also the title pages of volumes **1**, **2** and **3** respectively. Two different title pages of *livraison* 1 (and volume **1**) are known (page 230, Pls 1, 2). Another title page, which lacks the volume number and the exact date of publication, is found in each volume of the set in the L. G. Higgins library (Pl. 3). This title page was not intended for a specific volume, as blank spaces were left so that the volume number and exact date could subsequently be filled in as appropriate. Some authors have erroneously considered the date on the title page of each volume to apply to all included *livraisons*.

Livraisons 1–28 were submitted to the Society for publication. The date of submission of the manuscripts is recorded on the first page of each *livraison* under the title. *Livraisons* 29–35 were not submitted to the Society but were signed and dated by Millière at the end of the text. We consider that the *livraisons* were

completed and ready for press, but not yet published, on the date of submission or signature. Although *livraisons* 1-28 were submitted to the Society, only 1-10 and 12-26 were published in the *Annales* (N.S.), volumes 5-19, which, except for volume 14, were recorded in *Biblioph. Fr.* Only *livraison* 11 of the *Iconographie* was recorded in *Biblioph. Fr.*, possibly because that *livraison* was not published in the *Annales*. However, *livraisons* 27-35 were neither published in the *Annales* nor recorded in *Biblioph. Fr.*

From 1866 onwards Millière's work was recorded in *Zool. Rec.*, but because of the time lapse between publication and record, the available data have little significance.

Livraisons 23-28, 30, and 32-35 of the *Iconographie* were recorded in *Petites Nouv. ent.* between 1870 and 1875 as 'just published'. However, in our opinion the 'vient de paraître' should not be interpreted in too strict a sense. For example, *livraison* 30 was recorded in *Petites Nouv. ent.* issued 15 April, 1873; however, almost seven weeks earlier, on 26 February, 1873, a printed copy of this *livraison* had been presented to the Société des Sciences naturelles et historiques... de Cannes. The *Iconographie* was also advertised in *Petites Nouv. ent.* but with apparent discrepancies concerning the number of plates available.

The donation of volumes 1 and 2 as well as *livraisons* 25-32 and 34 to the library of the Société des Sciences naturelles et historiques... de Cannes... was recorded in *Mém. Soc. Sci. nat. hist. Cannes*.

Staudinger & Wocke (1861: XVI) recorded *livraisons* 1 and 2 in their bibliography. In the catalogue and the 'Corrigenda et Addenda' they also include all the species which Millière described as new in *livraisons* 3 and 4, and on plate 1 of *livraison* 5, citing plate references only. We consider plates 1 and 3 of *livraison* 4 and plate 1 of *livraison* 5 as having been published in advance of the rest of these *livraisons*, as they were available to Staudinger & Wocke for citation in their catalogue.

Staudinger & Wocke (1871: XXIX) recorded *livraisons* 1-25 in their bibliography. In the catalogue they also include the species dealt with in *livraison* 26, citing plate references only.

The *Iconographie* consists of *livraisons* 1-35, of which *livraisons* 1-10 and 12-26 were also published in the *Annales*. The title pages of *livraisons* 1-9 are marked 'Extrait des Annales de la Société Linnéenne de Lyon...'. Although this implies that the *livraisons* of the *Iconographie* are reprints from the *Annales* the majority appear to have been published earlier. For example, according to the dates on the title pages *livraison* 2 was published in the *Iconographie* in 1859 and in the *Annales* in January, 1860. In this respect *livraisons* 3-6 are analogous. Similarly the title page of *livraison* 8 edition 'a' (dated 1863) is marked 'Extrait... vol. X', but was never published in the *Annales*. Millière submitted a revised edition 'b' to the Society at a later date, and it is this edition which agrees with the issue published in the *Annales*. A further indication is found in *livraison* 25, in which pages 49 and 50 of the *Annales* are erroneously numbered 129 and 130 respectively. The latter pagination is that of the *Iconographie* and indicates that the *Iconographie* was printed before the *Annales*.

In most instances the issues in *Iconographie* and *Annales* agree except in pagination and signatures. Identical printer's errors and damaged type indicate that both issues were printed from the same type-set, but sometimes with minor modifications. For example, in *livraison* 19 (*Iconographie* 2: 329 = *Annales* 16: 1) 'var. *panoptes*' has been moved to a different position. Similarly, in *livraison* 20 (*Iconographie* 2: 407 = *Annales* 16: 79) the 'Explication des Planches' has been re-arranged. Occasionally the two issues agree in contents but differ slightly in format, having been printed from a different type-set, although the same type-face was used (see *livraisons* 8-10). In the *Iconographie* two editions of *livraisons* 1 and 8 are known. In addition to the slightly revised text they differ in type-face and format, which accounts for the different number of pages. Two impressions of *livraison* 28 are known. As can be seen from minor typographical errors and damaged type they were printed from different type-set, although the same type-face was used. As the text had not been revised and the format appears to be identical the two impressions are not regarded as different editions.

Two different editions of plates of *livraison* 1 are known. Those which accompany the issue in the *Annales* are also found in edition 'a' of the *Iconographie*. However, we have examined one copy of the *Iconographie* in which plates of both editions are mixed. Differences between the plates of editions 'a' and 'b' are discussed under *livraison* 1 (page 230). In *livraison* 6 copies of plates 2-4 are found with and without the printer's signature. Apart from *livraison* 1 and the minor discrepancies in *livraison* 6 there is no indication that the plates were printed from different blocks.

The 35 *livraisons* are accompanied by 154 plates. The plates of *livraisons* 1-6 are numbered independently, each *livraison* beginning with plate 1. When citing these plates it is necessary to add the appropriate *livraison* number in order to distinguish, for example, (liv. 1) pl. 3 from (liv. 4) pl. 3. The plates of *livraisons* 7-35 are numbered 33-154.

Volume 1

Livraison 1

Iconographie. *Livraison* 1 was submitted to the Society on 9 August, 1858. Two different editions which are here termed 'a' and 'b' are known. The original wrapper and title page of edition 'a' and the title page of edition 'b' are dated 1859. Editions 'a' and 'b' of this issue of *livraison* 1 are therefore assumed to have been published not earlier than 10 August, 1858, and not later than 31 December, 1859.

Staudinger & Wocke (1861: XVI) recorded *livraisons* 1 and 2 as having been published in 1859. All species included in *livraison* 1 are dated 1859 except *Psyche malvinella* which on page 27 is dated 1858. References are made to the plates only with the exception of *Psyche malvinella* for which 30 is cited as the page reference. This shows that edition 'a' was available to Staudinger & Wocke, as in edition 'b' *Psyche malvinella* is found on page 29.

Edition 'a' comprises an original wrapper, a fly-leaf, a title page (Pl. 1), pages [1]-36, and plates 1-4. The fly-leaf bears the printer's name and address on the

reverse side. The title page is not marked 'Première Livraison' nor 'Tome Premier'. According to the title page this edition was issued in Lyon by F. Dumoulin; however, the original wrapper indicates that it was issued in Paris by F. Savy. No printer is indicated on the last (page 36) or any other page. The plates were printed by Tourfaut, Paris.

On the back wrappers of *livraison* 1, edition 'a', and *livraison* 2 both *livraisons* are advertised for sale. The fact that *livraison* 2 is advertised on the back wrapper of *livraison* 1 shows that both *livraisons* were published simultaneously.

Edition 'b' comprises a fly-leaf, a title page (Pl. 2) which at the same time is a title page of volume 1, pages [1]-34, and plates 1-4. We have not seen an original wrapper. The fly-leaf does not bear the printer's name and address on the reverse side. The title page is marked 'Première Livraison' and 'Tome Premier'. This edition was issued in Paris by F. Savy. The last page (page 34) is marked 'Lyon. - Association typographique, Regard, rue Tupin, 31'. The plates were printed by Houiste, Paris.

The text of edition 'b' differs from that of edition 'a' and appears to have been revised. The two editions differ in format and type-face. Consequently page references to certain species do not agree. Some of the plates differ in some details from those in edition 'a'. For example, plate 3 depicts a complete moth (fig. 3) (right half only on Tourfaut plates) and the larva (fig. 1) differs in some detail, particularly the head. On plate 4 a complete moth (fig. 3) is illustrated (right half only on Tourfaut plates), while the position of the number 'III' is different from that on the Tourfaut plate.

It should be noted that the two editions are not always clearly differentiated as regards the plates. For example, we have examined one copy in which Tourfaut plates and Houiste plates are mixed.

Annales. *Livraison* 1 was published in (N.S.) volume 5: [15]-50, plates 1-4, for the year 1858. We have not seen an original wrapper of volume 5 but the title page is dated 1858. On page IX the death on 28 September, 1858, of a member of the Society was recorded. This issue of *livraison* 1 is therefore assumed to have been published not earlier than 29 September and not later than 31 December, 1858.

Volume 5 was recorded in *Biblioph. Fr.* (2) 3: 445, issued on 24 September, 1859.

This issue is accompanied by uncoloured Tourfaut plates.

REMARKS. We are unable to decide whether edition 'a' was published earlier or later than edition 'b'. Edition 'a' agrees with the issue in the *Annales* except in pagination and signatures, and appears to have been printed from the same type-set.

The above evidence indicates that *livraison* 1 was first published in the *Annales*.

Livraison 2

Iconographie. *Livraison* 2 comprises an original wrapper, a title page, pages [51]-112, and plates 1-6. *Livraison* 2 was submitted to the Society on 6 August, 1859. The original wrapper and the title page are dated 1859. This issue of *livraison* 2 is therefore assumed to have been published not earlier than 7 August and not later than 31 December, 1859.

The pagination is not continuous, *livraison* 1 ending on page 36 and *livraison* 2 beginning on page 51. However, *livraison* 1 in the *Annales* terminates on page 50 and this may account for the gap in pagination.

All species included in this *livraison* were recorded by Staudinger & Wocke (1861) as having been published in 1859. References are given to the plates only except for *Stegania permutaria* for which page 65 is cited.

On the back wrappers of *livraison* 1, edition 'a', and *livraison* 2 both *livraisons* are advertised for sale. The fact that *livraison* 2 is advertised on the back wrapper of *livraison* 1 shows that both *livraisons* were published simultaneously.

Annales. *Livraison* 2 was published in (N.S.) volume 6 : [385]-446, plates 1-6, for the year 1859. We have not seen an original wrapper of volume 6 but the title page is dated January, 1860. This issue of *livraison* 2 is therefore assumed to have been published not earlier than 1 January and not later than 31 January, 1860.

Volume 6 was recorded in *Biblioph. Fr.* (2) 4 : 273, issued on 16 June, 1860.

REMARKS. The two issues of *livraison* 2 agree except in pagination and signatures and appear to have been printed from the same type-set.

The above evidence indicates that *livraison* 2 was first published as part of the *Iconographie*.

Livraison 3

Iconographie. *Livraison* 3 comprises an original wrapper, a title page, pages [113]-192, and plates 1-10. *Livraison* 3 was submitted to the Society on 13 August, 1860. The original wrapper and the title page are dated 1860. This issue of *livraison* 3 is therefore assumed to have been published not earlier than 14 August and not later than 31 December, 1860.

This *livraison* was not recorded by Staudinger & Wocke (1861 : XVI) in their bibliography, but of the 24 included species, the four described as new by Millière were accounted for (*Sciaphila limontana*, *Argyrolepis mulsantana*, *Nemoria bruandaria*, *Agrotis constanti*). These were recorded in the 'Corrigenda et Addenda' (1861 : 189-190) and were erroneously dated 1861. References were given to the plates only.

Annales. *Livraison* 3 was published in (N.S.) volume 7 : [193]-272, plates 1-10, for the year 1860. We have not seen an original wrapper of volume 7, but the title page is dated February, 1861. This issue of *livraison* 3 is therefore assumed to have been published not earlier than 1 February and not later than 28 February, 1861.

Volume 7 was recorded in *Biblioph. Fr.* (2) 5 : 365, issued on 3 August, 1861.

REMARKS. The two issues of *livraison* 3 agree except in pagination and signatures, and appear to have been printed from the same type-set.

The above evidence indicates that *livraison* 3 was first published as part of the *Iconographie*.

Livraison 4

Iconographie. *Livraison* 4 comprises an original wrapper, a title page, pages [193]-221 ([222]-[224] blank), and plates 1-4. *Livraison* 4 was submitted to the

Society on 8 July, 1861. The original wrapper and the title page are dated 1861. This issue of *livraison* 4 is therefore assumed to have been published not earlier than 9 July, and not later than 31 December, 1861.

There is evidence that plates 1 and 3 were issued prior to the publication of *livraison* 4. This *livraison* was not recorded by Staudinger & Wocke (1861: XVI) in their bibliography but, of the eight included species, the two described as new by Millière were accounted for (*Alucita olbiaella*, illustrated on plate 1, and *Eupithecia globulariata*, illustrated on plate 3). These were recorded in the 'Corrigenda et Addenda' (1861: 190-191) and dated 1861. References were given to the plates only. There is no evidence that plates 2 and 4 were issued prior to the publication of *livraison* 4. Plates 1 and 3 must have been available before [30] September, 1861, the date of publication of Staudinger & Wocke's work.

On the back wrapper of *livraisons* 4 and 5 both *livraisons* are advertised for sale. The fact that *livraison* 5 is advertised on the back wrapper of *livraison* 4 shows that both *livraisons* were published simultaneously.

Annales. *Livraison* 4 was published in (N.S.) volume 8: [177]-205, plates 1-4, for the year 1861. We have not seen an original wrapper of volume 8 but the title page is dated February, 1862. This issue of *livraison* 4 is therefore assumed to have been published not earlier than 1 February and not later than 28 February, 1862.

Volume 8 was recorded in *Biblioph. Fr.* (2) 6: 461, issued on 11 October, 1862.

REMARKS. The two issues of *livraison* 4 agree except in pagination and signatures and appear to have been printed from the same type-set.

The above evidence indicates that *livraison* 4 was first published as part of the *Iconographie*.

Livraison 5

Iconographie. *Livraison* 5 comprises an original wrapper, a title page, pages [225]-256, and plates 1-4. *Livraison* 5 was submitted to the Society on 11 November, 1861. The original wrapper and the title page are dated 1861. This issue of *livraison* 5 is therefore assumed to have been published not earlier than 12 November and not later than 31 December, 1861.

There is evidence that plate 1 was issued prior to the publication of *livraison* 5. This *livraison* was not recorded by Staudinger & Wocke (1861: XVI) in their bibliography but, of the ten included species, one of the two species described as new by Millière, and illustrated on the plates, was accounted for (*Butalis dorycniella*, illustrated on plate 1). This was recorded in the 'Corrigenda et Addenda' (1861: 191) and dated 1861. Reference was made to the plate only. There is no evidence that plates 2 and 4 were issued prior to the publication of *livraison* 5. The fact that the second new species (*Zygaena genevensis*, illustrated on plate 3) was not accounted for indicates that plate 3 was not available to Staudinger & Wocke prior to the publication of their catalogue. Plate 1 must have been available before [30] September, 1861, the date of publication of Staudinger & Wocke's work; this is prior to the submission of *livraison* 5 to the Society.

On the back wrappers of *livraisons* 4 and 5 both *livraisons* are advertised for sale. The fact that *livraison* 5 is advertised on the back wrapper of *livraison* 4 shows that both *livraisons* were published simultaneously.

Annales. *Livraison* 5 was published in (N.S.) volume 8: [209]-240, plates 1-4, for the year 1861. We have not seen an original wrapper of volume 8 but the title page is dated February, 1862. This issue of *livraison* 5 is therefore assumed to have been published not earlier than 1 February and not later than 28 February, 1862.

Volume 8 was recorded in *Biblioph. Fr.* (2) 6: 461, issued on 11 October, 1862.

REMARKS. The two issues of *livraison* 5 agree except in pagination and signatures and appear to have been printed from the same type-set.

The above evidence indicates that *livraison* 5 was first published as part of the *Iconographie*.

Livraison 6

Iconographie. *Livraison* 6 comprises an original wrapper, a title page, pages [257]-280, and plates 1-4. *Livraison* 6 was submitted to the Society on 10 February, 1862. The original wrapper and the title page are dated 1862. This issue of *livraison* 6 is therefore assumed to have been published not earlier than 11 February and not later than 31 December, 1862.

On page 279 (Explication des Planches) (= page 23 of the *Annales*) the date 1861 is given. This may be a typographical error or it could indicate that the *livraison* was originally intended for publication in 1861.

Annales. *Livraison* 6 was published in (N.S.) volume 9: [1]-24, plates 1-4, for the year 1862. The original wrapper and the title page of volume 9 are dated February, 1863. This issue of *livraison* 6 is therefore assumed to have been published not earlier than 1 February and not later than 28 February, 1863.

Volume 9 was recorded in *Biblioph. Fr.* (2) 7: 381, issued on 15 August, 1863.

On page 23 (Explication des Planches) (= page 279 of the *Iconographie*) the date 1861 is given (*see above*).

REMARKS. The two issues of *livraison* 6 agree except in pagination and signatures and appear to have been printed from the same type-set.

The plates of this *livraison* were printed by Geny-Gros, Paris (all other plates with the exception of some of *livraison* 1 were printed by Houiste, Paris). The printer's signature is missing on some copies of plates 2-4.

The above evidence indicates that *livraison* 6 was first published as part of the *Iconographie*.

Livraison 7

Iconographie. *Livraison* 7 comprises an original wrapper, a title page, pages [281]-312, and plates 33-36. *Livraison* 7 was submitted to the Society on 11 August, 1862. The original wrapper and the title page are dated 1863. This issue of *livraison* 7 is therefore assumed to have been published not earlier than 11 August, 1862, and not later than 31 December, 1863.

Page 309 (Explication des Planches) and the plates are dated 1862. The plates are numbered 33-36 and are referred to as such in the text, but in the 'Explication des Planches', pages 309-312 (pages 53-56 of the *Annales*), they are numbered 1-4.

Annales. *Livraison* 7 was published in (N.S.) volume 9 : [25]-56, plates 33-36, for the year 1862. The original wrapper and the title page of volume 9 are dated February, 1863. This issue of *livraison* 7 is therefore assumed to have been published not earlier than 1 February and not later than 28 February, 1863.

Volume 9 was recorded in *Biblioph Fr.* (2) 7 : 381, issued on 15 August, 1863.

REMARKS. The two issues of *livraison* 7 agree except in pagination and signatures and appear to have been printed from the same type-set.

From this *livraison* onwards the plates are numbered consecutively to the end of volume 3, while they are numbered independently in each of the *livraisons* 1-6.

The above evidence indicates that *livraison* 7 was first published in the *Annales*.

Livraison 8

Iconographie. Two different editions which are here termed 'a' and 'b' are known.

Livraison 8, edition 'a', comprises a title page, pages [313]-344, and plates 37-40. Edition 'a' was submitted to the Society on 10 November, 1862, and on page 341 (Explication des Planches) (= page 339 of edition 'b') is dated 1862. We have not seen an original wrapper but the title page is dated 1863. Edition 'a' of this issue of *livraison* 8 is therefore assumed to have been published not earlier than 11 November, 1862, and not later than 31 December, 1863.

The first page of *livraison* 9 (page 345) is continuous with the pagination of this edition.

Livraison 8, edition 'b', comprises a title page, pages [313]-342, and plates 37-40. Edition 'b' was submitted to the Society on 13 July, 1863, and on page 339 (Explication des Planches) (= page 341 of edition 'a') is dated 1863. We have not seen an original wrapper but the title page is dated 1864. Edition 'b' of this issue of *livraison* 8 is therefore assumed to have been published not earlier than 14 July, 1863, and not later than 31 December, 1864.

The first page of *livraison* 9 (page 345) is not continuous with the pagination of this edition.

The text of edition 'b' differs slightly from that of edition 'a' and appears to have been revised. The two editions differ in format and type-face. Consequently page references to certain species do not agree.

Annales. *Livraison* 8 was published in (N.S.) volume 10 : [187]-216, plates 37-40, for the year 1863. We have not seen an original wrapper of volume 10 but the title page is dated February, 1863 [*recte* 1864]. This issue of *livraison* 8 is therefore assumed to have been published not earlier than 1 February and not later than 29 February, 1864.

Volume 10 was recorded in *Biblioph Fr.* (2) 8 : 437, issued on 17 September, 1864.

Livraison 8 was recorded (as having been published in February, 1864) in *Zool. Rec.* (1865) 2 : 573, issued (not earlier than August) 1866.

The text of this issue differs slightly from that of edition 'a' in the *Iconographie* and appears to have been revised. This issue also differs from edition 'a' in format and type-face as well as in pagination and signatures. The text of this issue agrees with that of edition 'b' in the *Iconographie*, except for some discrepancies in the spelling of scientific names. This issue agrees with edition 'b' in type-face but differs in format and was therefore printed from a different type-set; it also differs in pagination and signatures.

REMARKS. The above evidence indicates that *livraison* 8 was first published as edition 'a' of the *Iconographie*.

Livraison 9

Iconographie. *Livraison* 9 comprises a title page, pages [345]-372, and plates 41-44. *Livraison* 9 was submitted to the Society on 11 January, 1864. We have not seen an original wrapper but the title page is dated 1864. *Livraison* 9 is therefore assumed to have been published not earlier than 12 January and not later than 31 December, 1864.

Annales. *Livraison* 9 was published in (N.S.) volume 10: [217]-244, plates 41-44, for the year 1863. We have not seen an original wrapper of volume 10 but the title page is dated February, 1863 [*recte* 1864]. This issue of *livraison* 9 is therefore assumed to have been published not earlier than 1 February and not later than 29 February, 1864.

Volume 10 was recorded in *Biblioph. Fr.* (2) 8: 437, issued on 17 September, 1864.

This issue of *livraison* 9 was recorded (as having been published in February, 1864) in *Zool. Rec.* (1865) 2: 573, issued (not earlier than August) 1866.

This issue agrees with that in the *Iconographie* in contents and type-face but differs in format and was therefore printed from a different type-set; it also differs in pagination and signatures.

REMARKS. The above evidence indicates that *livraison* 9 was first published in the *Annales*.

Livraison 10

Iconographie. *Livraison* 10 comprises an original wrapper, pages [373]-424, and plates 45-50. *Livraison* 10 was submitted to the Society on 11 January, 1864. No title page was issued but the original wrapper is dated 1864. *Livraison* 10 is therefore assumed to have been published not earlier than 12 January and not later than 31 December, 1864.

This issue of *livraison* 10 was recorded in *Zool. Rec.* (1865) 2: 565, issued (not earlier than August) 1866.

An index (Table alphabétique des matières contenues dans ce volume) to *livraisons* 1-10 is included in *livraison* 10 (pages [419]-424) and forms part of the *Iconographie*.

No index to *livraisons* 1-10 was issued with the *Annales*. When there are discrepancies in references to certain species in editions 'a' and 'b' of *livraisons* 1 and 8, the index refers to edition 'a' only.

Annales. *Livraison* 10 was published in (N.S.) volume **11**: [1]-45, plates 45-50, for the year 1864. We have not seen an original wrapper of volume **11** but the title page is dated February, 1864 [*recte* 1865]. This issue of *livraison* 10 is therefore assumed to have been published not earlier than 1 February and not later than 28 February, 1865.

Volume **11** was recorded, and erroneously cited as volume **2**, in *Bibliographie Fr.* (2) **9**: 209, issued on 13 May, 1865.

This issue agrees with that in the *Iconographie* in contents (except for the absence of an index and some minor discrepancies) and type-face but differs in format and was therefore printed from a different type-set; it also differs in pagination and signatures.

REMARKS. The above evidence indicates that *livraison* 10 was first published as part of the *Iconographie*.

TABLE I

Iconogr. Descr. Chenilles Lépid. inédits
Volume 1

<i>Iconogr. Descr. Chenilles Lépid. inédits</i>				<i>Annls Soc. linn. Lyon</i>		
liv.	pages	plates	date	vol.	pages	date
1 [a]	[1]-36	1-4	[31. XII.] 1859	5	[15]-50	[31. XII.] 1858
1 [b]	[1]-34	1-4	[31. XII.] 1859	—	—	—
2	[51]-112	1-6	[31. XII.] 1859	6	[385]-446	[31.] I. 1860
3	[113]-192	1-10	[31. XII.] 1860	7	[193]-272	[28.] II. 1861
4	—	1, 3	[29. IX.] 1861	—	—	—
—	[193]-221	2, 4	[31. XII.] 1861	8	[177]-205	[28.] II. 1862
5	—	1	[29. IX.] 1861	—	—	—
—	[225]-256	2-4	[31. XII.] 1861	8	[209]-240	[28.] II. 1862
6	[257]-280	1-4	[31. XII.] 1862	9	[1]-24	[28.] II. 1863
7	[281]-312	33-36	[31. XII.] 1863	9	[25]-56	[28.] II. 1863
8 [a]	[313]-344	37-40	[31. XII.] 1863	—	—	—
—	—	—	—	10	[187]-216	[29.] II. 1864
8 [b]	[313]-342	37-40	[31. XII.] 1864	—	—	—
9	[345]-372	41-44	[31. XII.] 1864	10	[217]-244	[29.] II. 1864
10	[373]-424	45-50	[31. XII.] 1864	11	[1]-45	[28.] II. 1865

Volume 2

Livraison II

Iconographie. *Livraison* II comprises a title page, pages [1]-36, and plates 51-54. *Livraison* II was submitted to the Society on 9 May, 1864. The title page, which also is the title page of volume **2**, is dated 1864. Page 33 (*Explication des Planches*) and the plates are dated 1864. This *livraison* was recorded in *Bibliographie Fr.* (2) **8**: 526, issued on 5 November, 1864. This issue of *livraison* II was therefore published not earlier than 10 May and not later than 4 November, 1864.

Livraison II was recorded in *Zool. Rec.* (1865) **2**: 565, issued (not earlier than August) 1866.

Annales. *Livraison* 11 was not published in the *Annales*.

REMARKS. This is the only *livraison* of the whole work to have been recorded in *Bibliophic Fr.*

The above evidence indicates that only one issue of *livraison* 11 was published, viz. in the *Iconographie*.

Livraison 12

Iconographie. *Livraison* 12 comprises pages [37]–67 ([68] blank), and plates 55–58. *Livraison* 12 was submitted to the Society on 14 November, 1864. Page 64 (Explication des Planches) bears no date. The plates are dated 1864. This issue of *livraison* 12 is therefore assumed to have been published not earlier than 15 November and not later than 31 December, 1864.

This issue of *livraison* 12 was recorded in *Zool. Rec.* (1865) 2 : 565, issued (not earlier than August) 1866.

Annales. *Livraison* 12 was published in (N.S.) volume 11 : [258]–288, plates 55–58, for the year 1864. We have not seen an original wrapper of volume 11 but the title page is dated February, 1864 [*recte* 1865]. This issue of *livraison* 12 is therefore assumed to have been published not earlier than 1 February and not later than 28 February, 1865.

Volume 11 was recorded and erroneously cited as volume 2 in *Bibliophic Fr.* (2) 9 : 209, issued on 13 May, 1865.

REMARKS. The two issues of *livraison* 12 agree except in pagination and signatures and appear to have been printed from the same type-set.

The above evidence indicates that *livraison* 12 was first published as part of the *Iconographie*.

Livraison 13

Iconographie. *Livraison* 13 comprises pages [69]–100 and plates 59–62. *Livraison* 13 was submitted to the Society on 9 January, 1865. Page 97 (Explication des Planches) and the plates are dated 1865. This issue of *livraison* 13 is therefore assumed to have been published not earlier than 10 January and not later than 31 December, 1865.

This issue of *livraison* 13 was recorded in *Zool. Rec.* (1865) 2 : 565, issued (not earlier than August) 1866.

Annales. *Livraison* 13 was published in (N.S.) volume 12 : [413]–444, plates 59–62, for the year 1865. We have not seen an original wrapper of volume 12 but the title page is dated 6 January, 1866, which is therefore accepted as the correct date of publication of this issue.

Volume 12 was recorded in *Bibliophic Fr.* (2) 10 : 185, issued on 28 April, 1866.

REMARKS. The two issues of *livraison* 13 agree except in pagination and signatures and appear to have been printed from the same type-set.

The above evidence indicates that *livraison* 13 was first published as part of the *Iconographie*.

Livraison 14

Iconographie. *Livraison* 14 comprises pages [101]-143 ([144] blank) and plates 63-66. *Livraison* 14 was submitted to the Society on 10 April, 1865. Page 140 (Explication des Planches) and the plates are dated 1865. This issue of *livraison* 14 is therefore assumed to have been published not earlier than 11 April and not later than 31 December, 1865.

This issue of *livraison* 14 was recorded in *Zool. Rec.* (1866) 3 : 439, issued (not earlier than November) 1867.

Annales. *Livraison* 14 was published in (N.S.) volume 13 : [1]-43, plates 63-66, for the year 1866. We have not seen an original wrapper of volume 13 but the title page is dated 30 June, 1866, which is therefore accepted as the correct date of publication of this issue.

Volume 13 was recorded in *Bibliographie Fr.* (2) 10 : 469, issued on 13 October, 1866.

This issue of *livraison* 14 was recorded in *Zool. Rec.* (1866) 3 : 439, issued (not earlier than November) 1867.

REMARKS. The two issues of *livraison* 14 agree except in pagination and signatures and appear to have been printed from the same type-set.

The above evidence indicates that *livraison* 14 was first published as part of the *Iconographie*.

Livraison 15

Iconographie. *Livraison* 15 comprises pages [145]-187 ([188] blank) and plates 67-70. *Livraison* 15 was submitted to the Society on 11 December, 1865. Page 184 (Explication des Planches) and the plates are dated 1865. This issue of *livraison* 15 is therefore assumed to have been published not earlier than 12 December and not later than 31 December, 1865.

This issue of *livraison* 15 was recorded in *Zool. Rec.* (1866) 3 : 439, issued (not earlier than November) 1867.

Annales. *Livraison* 15 was published in (N.S.) volume 13 : [44]-86, plates 67-70, for the year 1866. We have not seen an original wrapper of volume 13 but the title page is dated 30 June, 1866, which is therefore accepted as the correct date of publication of this issue.

Volume 13 was recorded in *Bibliographie Fr.* (2) 10 : 469, issued on 13 October, 1866.

This issue of *livraison* 15 was recorded in *Zool. Rec.* (1866) 3 : 439, issued (not earlier than November) 1867.

REMARKS. The two issues of *livraison* 15 agree except in pagination and signatures and appear to have been printed from the same type-set.

The above evidence indicates that *livraison* 15 was first published as part of the *Iconographie*.

Livraison 16

Iconographie. *Livraison* 16 comprises pages [189]-246 and plates 71-76. *Livraison* 16 was submitted to the Society on 12 March, 1866. Page 241 (Explication des Planches) and the plates are dated 1866. This issue of *livraison* 16 is

therefore assumed to have been published not earlier than 13 March and not later than 31 December, 1866.

This issue of *livraison* 16 was not recorded in *Zool. Rec.*

Annales. *Livraison* 16 was published in (N.S.) volume 14: [297]-354, plates 71-76, for the year 1866. We have not seen an original wrapper of volume 14 but the title page is dated 15 January, 1867, which is therefore accepted as the correct date of publication of this issue.

Volume 14 was not recorded in *Bibliographie Fr.*

This issue of *livraison* 16 was recorded in *Zool. Rec.* (1867) 4: 338, issued (not earlier than November) 1868.

REMARKS. The two issues of *livraison* 16 agree except in pagination and signatures and appear to have been printed from the same type-set.

The above evidence indicates that *livraison* 16 was first published as part of the *Iconographie*.

Livraison 17

Iconographie. *Livraison* 17 comprises pages [247]-280 and plates 77-80. *Livraison* 17 was submitted to the Society on 12 July, 1866. Page 277 (Explication des Planches) and the plates are dated 1866. This issue of *livraison* 17 is therefore assumed to have been published not earlier than 13 July and not later than 31 December, 1866.

This issue of *livraison* 17 was not recorded in *Zool. Rec.*

Plate 80 is marked *livraison* 18, which is erroneous as shown by the date on the plate and reference to the Explication des Planches of *livraisons* 17 and 18.

Annales. *Livraison* 17 was published in (N.S.) volume 14: [355]-388, plates 77-80, for the year 1866. We have not seen an original wrapper of volume 14 but the title page is dated 15 January, 1867, which is therefore accepted as the correct date of publication of this issue.

Volume 14 was not recorded in *Bibliographie Fr.*

This issue of *livraison* 17 was recorded in *Zool. Rec.* (1867) 4: 338, issued (not earlier than November) 1868.

REMARKS. The two issues of *livraison* 17 agree except in pagination and signatures and appear to have been printed from the same type-set.

The above evidence indicates that *livraison* 17 was first published as part of the *Iconographie*.

Livraison 18

Iconographie. *Livraison* 18 comprises pages [281]-327 ([328] blank) and plates 81-84. *Livraison* 18 was submitted to the Society on 14 January, 1867. Page 324 (Explication des Planches) and the plates are dated 1867. This issue of *livraison* 18 is therefore assumed to have been published not earlier than 15 January and not later than 31 December, 1867.

This issue of *livraison* 18 was not recorded in *Zool. Rec.*

Annales. *Livraison* 18 was published in (N.S.) volume 15: [189]-235, plates 81-84, for the year 1867. We have not seen an original wrapper of volume 15 but

the title page is dated 15 January, 1868, which is therefore accepted as the correct date of publication of this issue.

Volume 15 was recorded in *Biblioph Fr.* (2) 12 : 489, issued on 17 October, 1868.

This issue of *livraison* 18 was recorded in *Zool. Rec.* (1868) 5 : 309, issued (not earlier than December) 1869.

REMARKS. The two issues of *livraison* 18 agree except in pagination and signatures and appear to have been printed from the same type-set.

Plate 80 (*livraison* 17) is marked *livraison* 18, which is erroneous as shown by the date on the plate and reference to the Explication des Planches of *livraisons* 17 and 18.

The above evidence indicates that *livraison* 18 was first published as part of the *Iconographie*.

Livraison 19

Iconographie. *Livraison* 19 comprises pages [329]-364 and plates 85-88. *Livraison* 19 was submitted to the Society on 10 June, 1867. Page 361 (Explication des Planches) and the plates are dated 1867. This issue of *livraison* 19 is therefore assumed to have been published not earlier than 11 June and not later than 31 December, 1867.

This issue of *livraison* 19 was recorded in *Zool. Rec.* (1869) 6 : 342, issued 1870.

Annales. *Livraison* 19 was published in (N.S.) volume 16 : [1]-36, plates 85-88, for the year 1868. The original wrapper and the title page of volume 16 are dated 28 December, 1868, which is therefore accepted as the correct date of publication of this issue.

Volume 16 was recorded in *Biblioph Fr.* (2) 14 : 173, issued on 16 April, 1870.

This issue of *livraison* 19 was recorded in *Zool. Rec.* (1869) 6 : 342, issued 1870.

REMARKS. The Explication des Planches (*Iconographie*, pages 362, 363; *Annales*, pages 34, 35) for plates 86 and 87 are transposed.

The two issues of *livraison* 19 agree except in pagination and signatures and appear to have been printed from the same type-set with minor modifications.

The above evidence indicates that *livraison* 19 was first published as part of the *Iconographie*.

Livraison 20

Iconographie. *Livraison* 20 comprises pages [365]-410 and plates 89-92. *Livraison* 20 was submitted to the Society on 11 November, 1867. Page 407 (Explication des Planches) and the plates are dated 1867. This issue of *livraison* 20 is therefore assumed to have been published not earlier than 12 November and not later than 31 December, 1867.

This issue of *livraison* 20 was recorded in *Zool. Rec.* (1869) 6 : 342, issued 1870.

Annales. *Livraison* 20 was published in (N.S.) volume 16 : [37]-82, plates 89-92, for the year 1868. The original wrapper and the title page of volume 16 are dated 28 December, 1868, which is therefore accepted as the correct date of publication of this issue.

Volume 16 was recorded in *Bibliophic Fr.* (2) 14 : 173, issued on 16 April, 1870.

This issue of *livraison* 20 was recorded in *Zool. Rec.* (1869) 6 : 342, issued 1870.

In the *Explication des Planches*, the plate number is erroneously cited as 85, but should be 89, and some of the legends are out of place.

REMARKS. The two issues of *livraison* 20 agree except in pagination, signatures and the above noted discrepancies, and could have been printed from the same type-set.

The above evidence indicates that *livraison* 20 was first published in the *Iconographie*.

Livraison 21

Iconographie. *Livraison* 21 comprises pages [411]-449 ([450] blank) and plates 93-96. *Livraison* 21 was submitted to the Society on 10 February, 1868. Page 446 (*Explication des Planches*) and the plates are dated 1868. This issue of *livraison* 21 is therefore assumed to have been published not earlier than 11 February and not later than 31 December, 1868.

This issue of *livraison* 21 was recorded in *Zool. Rec.* (1869) 6 : 342, issued 1870.

Annales. *Livraison* 21 was published in (N.S.) volume 17 : [1]-39, plates 93-96, for the year 1869. We have not seen an original wrapper of volume 17 but the title page is dated 28 December, 1869, which is therefore accepted as the correct date of publication of this issue.

Volume 17 was recorded in *Bibliophic Fr.* (2) 14 : 173, issued on 16 April, 1870.

This issue of *livraison* 21 was recorded in *Zool. Rec.* (1869) 6 : 342, issued 1870.

REMARKS. The two issues of *livraison* 21 agree except in pagination and signatures and appear to have been printed from the same type-set.

The above evidence indicates that *livraison* 21 was first published as part of the *Iconographie*.

Livraison 22

Iconographie. *Livraison* 22 comprises pages [451]-506 and plates 97-100. *Livraison* 22 was submitted to the Society on 9 March, 1868. Page 495 (*Explication des Planches*) and the plates are dated 1868. This issue of *livraison* 22 is therefore assumed to have been published not earlier than 10 March and not later than 31 December, 1868.

This issue of *livraison* 22 was recorded in *Zool. Rec.* (1869) 6 : 342, issued 1870.

An index (*Table alphabétique des matières contenues dans le second volume*) to *livraisons* 11-22 is included in *livraison* 22 (pages [497]-506) and forms part of the *Iconographie*. No index to *livraisons* 11-22 was issued in the *Annales*.

Annales. *Livraison* 22 was published in (N.S.) volume 17 : [41]-88, plates 97-100, for the year 1869. We have not seen an original wrapper of volume 17 but the title page is dated 28 December, 1869, which is therefore accepted as the correct date of publication of this issue.

Volume 17 was recorded in *Bibliophic Fr.* (2) 14 : 173, issued on 16 April, 1870.

This issue of *livraison* 22 was recorded in *Zool. Rec.* (1869) 6 : 342, issued 1870.

REMARKS. The two issues of *livraison 22* agree except in pagination and signatures, and in the presence or absence of an index, and appear to have been printed from the same type-set.

The above evidence indicates that *livraison 22* was first published as part of the *Iconographie*.

TABLE 2

Iconogr. Descr. Chenilles Lépid. inédits
Volume 2

<i>Iconogr. Descr. Chenilles Lépid. inédits</i>				<i>Annls Soc. linn. Lyon</i>		
liv.	pages	plates	date	vol.	pages	date
11	[1]-36	51-54	5. XI.] 1864	—	—	—
12	[37]-67	55-58	[31. XII.] 1864	11	[258]-288	[28.] II. 186[5]
13	[69]-100	59-62	[31. XII.] 1865	12	[413]-444	6. I. 1866
14	[101]-143	63-66	[31. XII.] 1865	13	[1]-43	30. VI. 1866
15	[145]-187	67-70	[31. XII.] 1865	13	[44]-86	30. VI. 1866
16	[189]-246	71-76	[31. XII.] 1866	14	[297]-354	15. I. 1867
17	[247]-280	77-80	[31. XII.] 1866	14	[355]-388	15. I. 1867
18	[281]-327	81-84	[31. XII.] 1867	15	[189]-235	15. I. 1868
19	[329]-364	85-88	[31. XII.] 1867	16	[1]-36	28. XII. 1868
20	[365]-410	89-92	[31. XII.] 1867	16	[37]-82	28. XII. 1868
21	[411]-449	93-96	[31. XII.] 1868	17	[1]-39	28. XII. 1869
22	[451]-506	97-100	[31. XII.] 1868	17	[41]-88	28. XII. 1869

Volume 3

Livraison 23

Iconographie. *Livraison 23* comprises a title page, pages [1]-40, and plates 101-104. *Livraison 23* was submitted to the Society on 9 August, 1868. The title page, which also is the title page of volume 3, is dated 1869. Page 37 (Explication des Planches) is dated 1868. The plates are dated 1869. This issue of *livraison 23* is therefore assumed to have been published not earlier than 10 August, 1868, and not later than 31 December, 1869.

This issue of *livraison 23* was recorded in *Petites Nouv. cnt.* 1: 51, issued 1 January, 1870, but was not recorded in *Zool. Rec.*

Annales. *Livraison 23* was published in (N.S.) volume 18: [1]-40, plates 101-104, for the year 1870-71. We have not seen an original wrapper of volume 18 but the title page is dated 31 January, 1872, which is therefore accepted as the correct date of publication of this issue.

Volume 18 was recorded in *Biblioph. Fr.* (2) 16: 325, issued on 20 July, 1872.

This issue of *livraison 23* was recorded in *Zool. Rec.* (1871) 8: 350, issued (not earlier than May) 1873.

REMARKS. The two issues of *livraison 23* agree except in pagination and signatures and appear to have been printed from the same type-set.

The above evidence indicates that *livraison 23* was first published as part of the *Iconographie*.

Livraison 24

Iconographie. *Livraison* 24 comprises pages [41]–80 and plates 105–108. *Livraison* 24 was submitted to the Society on 12 April, 1869. Page 77 (Explication des Planches) and the plates are dated 1869. This issue of *livraison* 24 is therefore assumed to have been published not earlier than 13 April and not later than 31 December, 1869.

This issue of *livraison* 24 was recorded in *Petites Nouv. ent.* 1 : 75, issued 1 April, 1870, but was not recorded in *Zool. Rec.*

Annales. *Livraison* 24 was published in (N.S.) volume 18 : [41]–80, plates 105–108, for the year 1870–71. We have not seen an original wrapper of volume 18 but the title page is dated 31 January, 1872, which is therefore accepted as the correct date of publication of this issue.

Volume 18 was recorded in *Biblphie Fr.* (2) 16 : 325, issued 20 July, 1872.

This issue of *livraison* 24 was recorded in *Zool. Rec.* (1871) 8 : 350, issued (not earlier than May) 1873.

REMARKS. The two issues of *livraison* 24 agree except in pagination and signatures and appear to have been printed from the same type-set.

The above evidence indicates that *livraison* 24 was first published as part of the *Iconographie*.

Livraison 25

Iconographie. *Livraison* 25 comprises pages [81]–130 and plates 109–112. *Livraison* 25 was submitted to the Society on 10 January, 1870. Page 127 (Explication des Planches) and the plates are dated 1870. This issue of *livraison* 25 is therefore assumed to have been published not earlier than 11 January and not later than 31 December, 1870.

This issue was recorded in *Petites Nouv. ent.* 1 : 128, issued 15 July, 1871, but was not recorded in *Zool. Rec.* It was also recorded as having been received for the library of the Société des Sciences naturelles et historiques . . . de Cannes . . . at the meeting held on 10 May, 1871 (1874, *Mém. Soc. Sci. nat. hist. Cannes* 3 : 12).

Annales. *Livraison* 25 was published in (N.S.) volume 19 : [1]–48, [49], [50], plates 109–112, for the year 1872. The original wrapper and the title page are dated 31 December, 1872, which is therefore accepted as the correct date of publication of this issue.

Volume 19 was recorded in *Biblphie Fr.* (2) 17 : 361, issued 19 July, 1873.

This issue of *livraison* 25 was recorded in *Zool. Rec.* (1873) 10 : 370, issued (not earlier than April) 1875.

Pages 49 and 50 are erroneously numbered 129 and 140 respectively, the latter pagination being that of the *Iconographie*. This is an indication that the *Iconographie* was printed before the *Annales*.

REMARKS. The two issues of *livraison* 25 agree except in pagination and signatures and appear to have been printed from the same type-set.

The above evidence indicates that *livraison* 25 was first published as part of the *Iconographie*.

Livraison 26

Iconographie. *Livraison* 26 comprises pages [131]-170 and plates 113-116. *Livraison* 26 was submitted to the Society on 14 February, 1870. Page 167 (Explication des Planches) and the plates are dated 1870. This issue of *livraison* 26 is therefore assumed to have been published not earlier than 15 February and not later than 31 December, 1870.

This issue was recorded in *Petites Nouv. ent.* **1**: 185, issued 15 February, 1872, but was not recorded in *Zool. Rec.* It was also recorded as having been received for the library of the Société des Sciences naturelles et historiques... de Cannes... at the meeting held on 10 April, 1872 (1874, *Mém. Soc. Sci. nat. hist. Cannes* **4**: 5).

Annales. *Livraison* 26 was published in (N.S.) volume **19**: [51]-90, plates 113-116, for the year 1872. The original wrapper and the title page are dated 31 December, 1872, which is therefore accepted as the correct date of publication of this issue.

Volume **19** was recorded in *Biblioph. Fr.* (2) **17**: 361, issued 19 July, 1873.

This issue of *livraison* 26 was recorded in *Zool. Rec.* (1873) **10**: 370, issued (not earlier than April) 1975.

REMARKS. The two issues of *livraison* 26 agree except in pagination and signatures and appear to have been printed from the same type-set.

The above evidence indicates that *livraison* 26 was first published as part of the *Iconographie*.

The following *livraisons* (27-35) were issued only as part of the *Iconographie* and were never published in the *Annales*. All of these *livraisons* and the completion of this work were recorded in *Zool. Rec.* (1877) **14** (Insecta): 117, where 32 is erroneously cited for *livraison* 35.

Livraison 27

Iconographie. *Livraison* 27 comprises pages [171]-194 and plates 117-120. *Livraison* 27 was submitted to the Society on 6 February, 1871. Page 193 (Explication des Planches) is not dated but the plates are dated 1871. This *livraison* is therefore assumed to have been published not earlier than 7 February and not later than 31 December, 1871.

The plates are marked 'Annales de la Société Linnéenne de Lyon' although, as stated above, this *livraison* was not published in the *Annales*.

This *livraison* was recorded in *Petites Nouv. ent.* **1**: 196, issued 1 April, 1872; it was also recorded as having been received for the library of the Société des Sciences naturelles et historiques... de Cannes... at the meeting held on 10 April, 1872 (1874, *Mém. Soc. Sci. nat. hist. Cannes* **4**: 5).

Livraison 28

Iconographie. *Livraison* 28 comprises pages [195]-226 and plates 121-124. *Livraison* 28 was submitted to the Society on 6 February, 1871. Page 224 (Explication des Planches) and the plates are dated 1871. This *livraison* is therefore

assumed to have been published not earlier than 7 February and not later than 31 December, 1871.

This *livraison* was recorded in *Petites Nouv. ent.* 1 : 241 (erroneously cited as 23rd *livraison* but corrected to 28th on page 245), issued 15 September, 1872; it was also recorded as having been received for the library of the Société des Sciences naturelles et historiques... de Cannes... at the meeting held on 13 November, 1872 (1874, *Mém. Soc. Sci. nat. hist. Cannes* 4 : 19).

The legends to plates 123 and 124 (the latter erroneously cited as 120) are transposed. The plates are marked 'Annales de la Société Linnéenne de Lyon' although, as stated above, this *livraison* was not published in the *Annales*.

The text of this *livraison* was printed twice from different type-set, as can be seen from minor typographical errors and damaged type. The format appears to be identical, the text was apparently not revised, and errors such as transposed legends were not corrected; therefore the two impressions are not regarded as different editions.

The following *livraisons* (29-35) were not submitted to the Society and the plates (125-154) are not marked 'Annales de la Société Linnéenne de Lyon'.

Livraison 29

Iconographie. *Livraison* 29 comprises pages [227]-251 ([252] blank) and plates 125-128. Page 248 is signed by Millière and dated January, 1872. Page 249 (Explication des Planches) and the plates are dated 1872. This *livraison* was not recorded in *Petites Nouv. ent.*; however, it was recorded as having been received for the library of the Société des Sciences naturelles et historiques... de Cannes... at the meeting held on 13 November, 1872 (1874, *Mém. Soc. Sci. nat. hist. Cannes* 4 : 19). This *livraison* was therefore published not earlier than 1 January and not later than 13 November, 1872.

Livraison 30

Iconographie. *Livraison* 30 comprises pages [253]-274 and plates 129-132. Page 271 is signed by Millière and dated April, 1872. Page 272 (Explication des Planches) and the plates are dated 1872. This *livraison* is therefore assumed to have been published not earlier than April and not later than 31 December, 1872.

This *livraison* was recorded in *Petites Nouv. ent.* 1 : 297, issued 15 April, 1873; it was also recorded as having been received for the library of the Société des Sciences naturelles et historiques... de Cannes... at the meeting held on 26 February, 1873 (1874, *Mém. Soc. Sci. nat. hist. Cannes* 4 : 35).

Livraison 31

Iconographie. *Livraison* 31 comprises pages [275]-298 and plates 133-136. Page 296 is signed by Millière and dated November, 1872. Page 297 (Explication des Planches) is dated 1872 but the plates are dated 1873.

This *livraison* was not recorded in *Petites Nouv. ent.*; however, it was recorded as having been received (together with *livraison* 32) for the library of the Société

des Sciences naturelles et historiques... de Cannes... at the meeting held on 24 December, 1873 (1874, *Mém. Soc. Sci. nat. hist. Cannes* 4: 56). There is no evidence that any of the *livraisons* were published out of sequence; consecutive pagination would otherwise have been difficult to maintain. Therefore it seems unlikely that this *livraison* was published later than *livraison* 32. As *livraison* 32 was published not later than 30 September, 1873 (*see below*), we consider that *livraison* 31 was published not earlier than November, 1872, and not later than 30 September, 1873.

Livraison 32

Iconographie. *Livraison* 32 comprises pages [299]–324 and plates 137–140. Page 320 is signed by Millière and dated January, 1873. Page 321 (Explication des Planches) and the plates are dated 1873. This *livraison* was recorded in *Petites Nouv. ent.* 1: 341, issued 1 October, 1873, and was therefore published not earlier than January and not later than 30 September, 1873.

This *livraison* was also recorded as having been received for the library of the Société des Sciences naturelles et historiques... de Cannes... at the meeting held on 24 December, 1873 (1874, *Mém. Soc. Sci. nat. hist. Cannes* 4: 56).

Livraison 33

Iconographie. *Livraison* 33 comprises pages [325]–360 and plates 141–144. Page 356 is signed by Millière and dated April, 1873. Page 357 (Explication des Planches) and the plates are dated 1873. This *livraison* is therefore assumed to have been published not earlier than April and not later than 31 December, 1873.

This *livraison* was recorded in *Petites Nouv. ent.* 1: 381, issued 1 March, 1874.

Livraison 34

Iconographie. *Livraison* 34 comprises pages [361]–388 and plates 145–148. Page 384 is signed by Millière and dated February, 1874. Page 385 (Explication des Planches) and two of the plates (145, 146) are dated 1874. This *livraison* was recorded in *Petites Nouv. ent.* 1: 422, issued 1 August, 1874, and was therefore published not earlier than February and not later than 31 July, 1874.

This *livraison* was also recorded as having been received for the library of the Société des Sciences naturelles et historiques... de Cannes... at the meeting held on 28 October, 1874 (1876, *Mém. Soc. Sci. nat. hist. Cannes* 6: [111]).

Two of the plates (147, 148) are dated 1873. However, this date is assumed to be erroneous as there is no evidence to suggest that these plates were published prior to the text and plates 145, 146.

Livraison 35

Iconographie. *Livraison* 35 comprises pages [389]–488 and plates 149–154. Page 454 is signed by Millière and dated May, 1874. Page 467 of the 'Addenda et Corrigena' is signed by Millière and dated June, 1874. Page 445 (Explication des Planches) and the plates are dated 1874. This *livraison* is therefore assumed to have been published not earlier than June and not later than 31 December, 1874.

An index (Table générale des matières contenues dans les trois volumes) to volumes 1-3 is included in *livraison* 35 (pages 469-488) and forms part of the *Iconographie*.

This *livraison* was recorded in *Petites Nouv. ent.* 1 : 489, issued 15 April, 1875.

TABLE 3

Iconogr. Descr. Chenilles Lépid. inédits
Volume 3

<i>Iconogr. Descr. Chenilles Lépid. inédits</i>				<i>Annls Soc. linn. Lyon</i>		
liv.	pages	plates	date	vol.	pages	date
23	[1]-40	101-104	[31. XII.] 1869	18	[1]-40	31. I. 1872
24	[41]-80	105-108	[31. XII.] 1869	18	[41]-80	31. I. 1872
25	[81]-130	109-112	[31. XII.] 1870	19	[1]-48, [49], [50]	31. XII. 1872
26	[131]-170	113-116	[31. XII.] 1870	19	[51]-90	31. XII. 1872
27	[171]-194	117-120	[31. XII.] 1871	—	—	—
28	[195]-226	121-124	[31. XII.] 1871	—	—	—
29	[227]-251	125-128	[13. XI.] 1872	—	—	—
30	[253]-274	129-132	[31. XII.] 1872	—	—	—
31	[275]-298	133-136	[30. IX.] 1873	—	—	—
32	[299]-324	137-140	[30. IX.] 1873	—	—	—
33	[325]-360	141-144	[31. XII.] 1873	—	—	—
34	[361]-388	145-148	[31. VII.] 1874	—	—	—
35	[389]-488	149-154	[31. XII.] 1874	—	—	—

PART II

Catalogue raisonné des Lépidoptères (du Département) des Alpes-Maritimes

Between 1871 and 1876 Millière published under the above title a work in three *parties*. These *parties* were also published in *Mém. Soc. Sci. nat. hist. Cannes* (1872-76). Details of each *partie* and the established dates of publication are tabulated below (Table 4). The tables contain the pagination of each issue of every *partie*. As the plates in the *Mém. Soc. Sci. nat. hist. Cannes* do not differ from those in the *Cat. raisonné Lépid. Alpes-Maritimes*, details are given only once. The established dates for each issue are included; the earliest date is given in bold type. The tables are followed by a detailed discussion of all available evidence. All taxa described by Millière in the *Cat. raisonné Lépid. Alpes-Maritimes* are included in the catalogue which forms part V of the present paper.

Throughout part II of our work the term 'issue' is used to distinguish the publication of a *partie* in the *Cat. raisonné Lépid. Alpes-Maritimes* from that in the *Mém. Soc. Sci. nat. hist. Cannes*.

We have examined five complete sets of the *Cat. raisonné Lépid. Alpes-Maritimes*, one separate copy of *partie* 2, and two separate copies of *partie* 3. One of the sets originated from the library of P. Millière, another is personally signed by Millière and was presented to R. Galichon.

A complete run of the *Mém. Soc. Sci. nat. hist. Cannes* in the British Museum (Natural History) and a run lacking volume 7 in the Muséum national d'Histoire

naturelle have been examined. The relevant volumes have their original wrappers preserved. From unbound copies in Paris it can be seen that each volume was published complete and not in parts.

In establishing the dates of publication of the three *parties* the following evidence was taken into consideration: dates on the original wrappers (when present) and title pages, the date on which Millière signed a *partie*, any further dates cited in the text, and the dates on the plates. Reference was made to *Lépidoptérologie*, *Bibliophilie Fr.*, *Mém. Soc. Sci. nat. hist. Cannes*, *Petites Nouv. ent.*, and *Zool. Rec.* for any additional evidence.

Original wrappers exist for *partie 2*, *partie 3*, and jointly for *parties 1* and *2*. No separate wrapper was found for *partie 1* although it seems likely that one was issued in 1871. The dates on the wrappers agree with those on the corresponding title pages, except for *partie 3*.

A title page was issued with each of the three *parties*. In addition, a joint title page was issued for *parties 1* and *2*.

Pages [384]-413 of *partie 3* form a supplement to *parties 1* and *2*. A second supplement was published in *Naturalista sicil.*, volumes *4* and *5* (1885-86); it also forms part of a separate work published under the title *Catalogue raisonné des Lépidoptères des Alpes-Maritimes, 2^e Supplément et Notes entomologiques diverses*, which is discussed in part IV of the present paper (*see* page 261).

Derksen & Scheiding-Göllner (1968:105) erroneously recorded as the first supplement a paper by Millière (1880) entitled 'Lépidoptères des Alpes-Maritimes'.

The *Mém. Soc. Sci. nat. hist. Cannes*, volumes *2* and *5*, were recorded in *Bibliophilie Fr.*; volume *3* and the *Cat. raisonné Lépid. Alpes-Maritimes, parties 1-3*, were not recorded.

In *Zool. Rec.* the publication of *parties 1* and *2* was recorded; *partie 3* was not recorded.

Partie 1

Cat. raisonné Lépid. Alpes-Maritimes. Partie 1 comprises a fly-leaf (page [1]), a title page (page [3]), and pages [5]-135. We have not seen an original wrapper although such wrappers exist for *parties 2* and *3*. The title page is dated Cannes 1871. *Partie 1* was dated 1871 and recorded as 'extr. Mém. Soc. Cannes. Jan. 1871' in *Zool. Rec.* (1873) **10**:373, issued (not earlier than April) 1875. The date for *partie 2*, which is recorded in the same place, refers to a meeting of the Society at which *partie 2* was announced. In our opinion 'Jan. 1871' does not constitute the date of publication but refers to a similar meeting; however, no such meeting was recorded in *Mém. Soc. Sci. nat. hist. Cannes*. This issue of *partie 1* is therefore assumed to have been published not earlier than 1 January and not later than 31 December, 1871.

The title reads 'Catalogue raisonné des Lépidoptères du Département des Alpes-Maritimes'. The title page is not marked 'Première Partie' or 'Extrait des Mémoires...'.
 .

Partie 1 was also issued in 1873, together with *partie 2*. The two *parties* have a joint original wrapper and a joint title page. The original wrapper and the title

page are dated Cannes 1873, and marked 'Extrait des Mémoires de la Société des Sciences naturelles, des Lettres et des Beaux-Arts de Cannes et de l'arrondissement de Grasse. (*Séance de mars 1873.*). Première & Seconde Parties'. The title differs from that of 1871 in that 'du Département' has been omitted.

Mém. Soc. Sci. nat. hist. Cannes. *Partie 1* was published in volume 2: [89]–219. The title page of volume 2 is dated 1870; however, the original wrapper is dated 1872. Volume 2 was recorded in *Biblioph. Fr.* (2) 16: 390, issued 24 August, 1872. This issue of *partie 1* was therefore published not earlier than 1 January and not later than 23 August, 1872.

Although not seen by the recorder this issue was recorded in *Zool. Rec.* (1871) 8: 350, issued (not earlier than 1 June) 1873, where it was erroneously referred to 'Bull. Soc. Yonne, 1871'.

Page [89] is headed 'Catalogue raisonné des Lépidoptères du Département des Alpes-Maritimes . . .'; the corresponding page [5] of the *Cat. raisonné Lépid. Alpes-Maritimes* lacks this heading. On page 91 the final E in 'MILLIÈRE' is inverted; it is not inverted on the corresponding page 7 of the *Cat. raisonné Lépid. Alpes-Maritimes*. The family Cymatophoridae (pages 164–165) precedes the Caradrinidae (pages 165–166); in the *Cat. raisonné Lépid. Alpes-Maritimes* (pages 80–82) this order is reversed.

REMARKS. The two issues agree except in pagination, signatures, and the above noted discrepancies; they appear to have been printed from the same type-set.

The above evidence indicates that *partie 1* was first published as part of the *Cat. raisonné Lépid. Alpes-Maritimes*.

Partie 2

Cat. raisonné Lépid. Alpes-Maritimes. *Partie 2* comprises an original wrapper, a fly-leaf (page [137]), a title page (page [139]), and pages [141]–247. The original wrapper and the title page are dated Cannes 1873. The original wrapper (but not the title page) is marked 'Extrait des Mémoires de la Société des Sciences naturelles, des Lettres et des Beaux-Arts de Cannes et de l'arrondissement de Grasse. (*Séance de mars 1873.*)'. Page 247 is dated 25 October, 1873. The donation of the *Cat. raisonné Lépid. Alpes-Maritimes* to the Société des Sciences naturelles . . . Cannes . . . was recorded in the minutes of the meeting held on 24 December, 1873 (1874, *Mém. Soc. Sci. nat. hist. Cannes* 4: 56). In our opinion this can only refer to *partie 2*. This issue of *partie 2* was therefore published not earlier than 26 October and not later than 24 December, 1873.

Partie 2 was dated 1873 and recorded as 'extr. Mém. Soc. Cannes. March, 1873' in *Zool. Rec.* (1873) 10: 373, issued (not earlier than April) 1875. The date 'March, 1873' refers to a meeting of the Society held on 26 March, 1873, at which *partie 2* was mentioned in 'Rapport sur les Travaux de la Société' (1874, *Mém. Soc. Sci. nat. hist. Cannes* 3: 297). In our opinion this announcement indicates that the manuscript had either been submitted to the Society or was near to completion. Subsequently, Millière added further notes, the last on 25 October, 1873.

Partie 2 was also issued together with *partie 1*. The two *parties* have a joint original wrapper and a joint title page. The original wrapper and the title page

are dated Cannes 1873, and marked 'Extrait des Mémoires de la Société des Sciences naturelles, des Lettres et des Beaux-Arts de Cannes et de l'arrondissement de Grasse. (Séance de mars 1873.). Première & Seconde Parties'.

Mém. Soc. Sci. nat. hist. Cannes. Partie 2 was published in volume 3: [161]-267. The title page of volume 3 is dated 1873; however, the original wrapper is dated 1874. This issue of *partie 2* is therefore assumed to have been published not earlier than 1 January and not later than 31 December, 1874.

Volume 3 was not recorded in *Bibliophic Fr.*

REMARKS. The two issues agree except in pagination, signatures, and some minor discrepancies; they appear to have been printed from the same type-set.

The above evidence indicates that *partie 2* was first published as part of the *Cat. raisonné Lépid. Alpes-Maritimes*.

Partie 3

Cat. raisonné Lépid. Alpes-Maritimes. Partie 3 comprises an original wrapper, a title page (page [249]), pages [251]-455, and plates I, II. The original wrapper is dated Paris 1876; the title page is dated Cannes 1875; the plates are dated 1876. The wrapper is marked 'Extrait des Mémoires de la Société des Sciences Naturelles, des Lettres et des Beaux-Arts de Cannes et de l'arrondissement de Grasse. (Séance du 10 novembre 1875).'. Page 252 is signed by Millière and dated October, 1875.

Millière completed the manuscript in October, and it was probably submitted to the Society on 10 November, 1875, although this was not recorded in the minutes of the meeting held on that date (1876, *Mém. Soc. Sci. nat. hist. Cannes 6*: xxxi-xxxiv). Reference to this issue of *partie 3* was made throughout *fascicule 1* of the *Lépidoptérologie*. That *fascicule* is signed by Millière and dated May, 1876. This issue of *partie 3* is therefore assumed to have been published not earlier than 1 January and not later than 31 May, 1876.

Stainton's copy of *partie 3* bears the inscription in his handwriting 'recd. 28.9.76. H.T.S[tainton]'. This issue of *partie 3* was recorded in *Petites Nouv. ent. 2*: 79, 80, issued 15 October, 1876. The donation of *partie 3* of the *Cat. raisonné Lépid. Alpes-Maritimes* to the Société des Sciences naturelles... Cannes... was recorded in the minutes of the meeting held on 23 January, 1877 (1879, *Mém. Soc. Sci. nat. hist. Cannes 8*: 25).

Mém. Soc. Sci. nat. hist. Cannes. Partie 3 was published in volume 5: [51]-216, pls I, II. The original wrapper and the title page of volume 5 are dated 1875. All plates in that volume other than those which accompany Millière's paper are dated 1876, and a footnote on page 223 refers to periodicals published from 1860-76. This issue of *partie 3* is therefore assumed to have been published not earlier than 1 January and not later than 31 December, 1876.

Volume 5 was recorded in *Bibliophic Fr. (2) 21*: 418, issued 28 July, 1877.

REMARKS. The plates are marked 'Annales des Sciences naturelles de Cannes' [*recte*: *Mém. Soc. Sci. nat. hist. Cannes*]. Subsequently the plates were used to illustrate *fascicule 1* of the *Lépidoptérologie*, which was published in 1881 (*see* page 253).

The two issues agree except in pagination and signatures, and appear to have been printed from the same type-set.

The above evidence indicates that *partie* 3 was first published as part of the *Cat. raisonné Lépid. Alpes-Maritimes*.

TABLE 4

Cat. raisonné Lépid. Alpes-Maritimes

<i>Cat. raisonné Lépid. Alpes-Maritimes</i>				<i>Mém. Soc. Sci. nat. hist. Cannes</i>			
partie	pages	pls	date	vol.	pages	pls	date
1	[1]-135	—	[31. XII.] 1871	2	[89]-219	—	[23. VIII.] 1872
2	[137]-247	—	[24. XII.] 1873	3	[161]-267	—	[31. XII.] 1874
1, 2	[1]-247	—	[31. XII.] 1873	—	—	—	—
3	[249]-455	I, II	[31. V.] 1876	5	[51]-216	I, II	[31. XII.] 1876

PART III

Lépidoptérologie

In 1881 and 1882 Millière published under the above title a work in two unnumbered volumes, here termed [1] and [2], comprising 8 *fascicules*. With the exception of numbers 1, 6 and 7 the *fascicules* were also published between 1877 and 1883 in the *Annls Soc. ent. Belg.*, *Mém. Soc. Sci. nat. hist. Cannes*, or *Annls Soc. linn. Lyon*.

As the exact date of publication of each *fascicule* was unknown, incorrect dates have sometimes been cited in the literature. Therefore it was necessary to establish as accurately as possible from all available evidence the date of publication of each *fascicule*. Details of each *fascicule* and the established dates of publication are tabulated below (Table 5), the tables containing the pagination of each issue of every *fascicule*. As the plates in the above journals do not differ from those in the *Lépidoptérologie* details are given only once. The tables are followed by a detailed discussion of all available evidence. All taxa described as new by Millière in the *Lépidoptérologie* are included in the catalogue which forms part V of the present paper.

Throughout part III of our work the term 'issue' is used to distinguish the publication of a *fascicule* in the *Lépidoptérologie* from that in a periodical.

We have examined five complete sets of the *Lépidoptérologie*, incomplete copies of *fascicules* 5 and 7, and a reprint from *Annls Soc. ent. Belg.* of the paper which also forms *fascicule* 2 of the *Lépidoptérologie*, as well as runs of the above-mentioned journals.

In establishing the dates of publication of the individual *fascicules* the following evidence was taken into consideration: dates on the original wrappers and title pages (when present), the date on which Millière signed some of the *fascicules*, any further dates cited in the text, and the dates on the plates. Reference was made to *Biblioph. Fr.*, *Naturaliste*, *Petites Nouv. ent.*, and *Zool. Rec.* for any additional evidence.

All examined copies are bound in one of two different types of binding. Both types are found in London as well as in Paris and in addition were used for presentation copies of other works of Millière; it must therefore be assumed that such binding is original.

All copies which have come to our notice are bound and were issued by Millière as complete volumes. There is evidence that, prior to the publication of these volumes, *fascicules* [3] and [4] were also issued separately; no such evidence was found for the remaining *fascicules*.

It is apparent that only a limited number of copies was produced. These were privately distributed and we have never found the work advertised for sale by Millière.

Four of the above-mentioned sets of the *Lépidoptérologie* are personally signed by Millière, a set having been presented to each of the following: E. Blanchard, the Société entomologique de France, H. T. Stainton, and Lord Walsingham. The fifth set is signed by Charles Millière, brother of Pierre Millière, and was presented to A. Laboulbène. A further set of the *Lépidoptérologie*, which was dedicated by Millière to Baron Huene, is found in the Zoologische Sammlung des Bayerischen Staates, Munich, and was not examined by us.

No original wrappers were found for the two volumes or any of their parts, except for *fascicule* [3] which has an original wrapper but no title page. A title page was issued with each of the two volumes and with *fascicule* [4].

Original wrappers, which are preserved for the relevant volumes of the *Annls Soc. ent. Belg.*, *Mém. Soc. Sci. nat. hist. Cannes*, and *Annls Soc. linn. Lyon*, indicate that each volume was issued complete in one part. In each case the date on the wrapper agrees with that on the title page.

Neither volume [1] nor volume [2] nor any of their *fascicules* were recorded in *Biblioph. Fr.* Of the relevant journals only *Mém. Soc. Sci. nat. hist. Cannes*, volume 7 was recorded in *Biblioph. Fr.*

In *Zool. Rec.* the publication of *fascicules* 1-7 as a complete volume of the *Lépidoptérologie* was recorded. The contents of *fascicules* 2, [4], and 5 were recorded in *Zool. Rec.*, either with or without reference to the *Lépidoptérologie*.

In *Petites Nouv. ent.*, which ceased publication on 15 March, 1879, when it was followed by *Naturaliste*, only *fascicules* [3] and [4] of the *Lépidoptérologie* were recorded. In *Naturaliste* the publication of *fascicules* 1-7 as a complete volume was recorded.

Volume [1]

Volume [1] comprises a fly-leaf marked 'Lépidoptérologie, Sept Fascicules', a lithograph depicting Millière, a title page to *fascicules* 1-7, dated Cannes, 1881, and *fascicules* 1-7 with twelve coloured plates. Each *fascicule* has independent pagination. The plates are all bound together at the end of the volume and their numbering is not consecutive.

The latest date mentioned in volume [1] is 14 May, 1881 (*fascicule* 7:3). Stainton's copy of that volume bears the inscription in his handwriting 'recd.

14.II.81. H.T.S[tainton].'. Volume [1] was therefore published not earlier than 15 May and not later than 13 November, 1881.

Fascicules [3] and [4] are not marked as such in print; however, at the time of issue '3^e fasc.' or '4^e fasc.' as appropriate had generally been inserted in pencil or ink above the title. The appropriate *fascicule* number is likewise indicated at the top of each of the plates of *fascicules* 1-7. In each case the handwriting is identical.

A few inconsistencies are found in the numbering of the plates, although it appears that some attempt was made to number them consecutively. The reasons for these inconsistencies are unknown and no satisfactory explanation can be given.

Fascicule 1

Lépidoptérologie. Fascicule 1 comprises pages [1]-16 and plates I, II. We have not seen an original wrapper or a title page and it is probable that none were issued. Page [1] is headed 'Lépidoptérologie. Premier fascicule. Mémoire extrait des Annales de la Société des Sciences naturelles, Arts et Belles-Lettres de Cannes. (Année 1875.)'. Page 14 is signed by Millière and dated May, 1876. The plates are marked 'Annales des Sciences naturelles de Cannes. Année 1875'.

The text is a compilation of species which had been described or dealt with previously by Millière in *Cat. raisonné Lépid. Alpes-Maritimes* (see part II) or *Revue Mag. Zool.* (1874), and which were illustrated on the two plates. The statement that *fascicule 1* is extracted from the *Mém. Soc. Sci. nat. hist. Cannes* (erroneously cited as *Annales*) is incorrect.

The two plates were originally used to illustrate the third and last part of the *Cat. raisonné Lépid. Alpes-Maritimes*, which was first published in 1876. The *Cat. raisonné Lépid. Alpes-Maritimes*, including the two plates, was also published in *Mém. Soc. Sci. nat. hist. Cannes* with different pagination (see part II).

Fascicule 1 was not recorded in *Bibliographie Fr.* and *Petites Nouv. ent.*; however, the publication in 1881 of *fascicules 1-7* as a complete volume was recorded in *Naturaliste* 4: 32, issued 15 February, 1882, and in *Zool. Rec.* (1881) 18 (Insecta): 141, issued (not earlier than December) 1882.

The legend to plate 2, figure 12 (page 16) is erroneous and should read '*Ergatis staticella*'.

The above evidence indicates that only one issue of *fascicule 1* was ever published. Although Millière completed the manuscript in May, 1876, there is no evidence that *fascicule 1* was published before 1881, the date on the title page of volume [1]. Volume [1] was received by Stainton on 14 November, 1881 (see page 252). *Fascicule 1* was therefore published not earlier than 15 May, 1876, and not later than 13 November, 1881. We consider that it was published in 1881 as part of volume [1].

Fascicule 2

Lépidoptérologie. Fascicule 2 comprises pages [1]-14, and plate I. We have not seen an original wrapper or title page and it is probable that none were issued. Page [1] is headed 'Lépidoptérologie. Deuxième Fascicule. Six Espèces de

Chenilles inédites des Environs de Cannes (Alpes-Maritimes). Extrait des Annales de la Société Entomologique de Belgique (Année 1877)'. Page 13 (= 06 of the *Annls Soc. ent. Belg.*) is signed by Millière and dated March, 1877; however, page 12 (= 65 of the *Annls Soc. ent. Belg.*) has a footnote (on *Eupithecia mnemosynata* Millière) written on 14 August, 1877, in which Millière states that he had a number of pupae from which he did not expect moths to emerge until September. In an additional note (which is not found in the *Annls Soc. ent. Belg.*) on page 13 Millière confirms that the moths emerge in the autumn. The plate is marked 'Annales de la Société entomologique de Belgique. Tome XX'.

This issue of *fascicule 2* was reprinted from *Annls Soc. ent. Belg.* from different type-set, with a slightly different title, some changes in format, and the addition of a short note on page 13. Some of the legends in the 'Explication des Figures' (page 66) are out of sequence in *Annls Soc. ent. Belg.*; this has not been corrected in the resetting of the *Lépidoptérologie*.

This issue of *fascicule 2* was not recorded in *Biblioph. Fr.* and *Petites Nouv. ent.*; however, the publication in 1881 of *fascicules 1-7* as a complete volume was recorded in *Naturaliste* 4: 32, issued 15 February, 1882, and in *Zool. Rec.* (1881) 18 (Insecta): 141, issued (not earlier than December) 1882.

Millière dated the manuscript March, 1877, and added further notes on 14 August, 1877, and in autumn, 1877. There is no evidence that *fascicule 2* was published before 1881, the date on the title page of volume [1]. Volume [1] was received by Stainton on 14 November, 1881 (*see* page 252). This issue of *fascicule 2* was therefore published not earlier than autumn, 1877 and not later than 13 November, 1881. We consider that it was published in 1881 as part of volume [1].

Annls Soc. ent. Belg. Fascicule 2 was published in volume 20: [58]-66, pl. I. The original wrapper and title page of volume 20 are dated 1877. The volume includes the minutes of the meeting of the Society held on 26 December, 1877. It is therefore assumed to have been published not earlier than 27 December and not later than 31 December, 1877.

It is possible that volume 20 was not issued until early in the year 1878; however, its contents were recorded in *Zool. Rec.* (1877) 14 (Insecta), issued (not earlier than July) 1879. Subsequently the date 1877 has generally been accepted for the references to the species included in Millière's paper.

Millière's manuscript was submitted to the Société entomologique de Belgique on 3 March, 1877; this was also recorded in the minutes of the meeting held on that date (1877, *Annls Soc. ent. Belg.* 20: XVI). Page 66 is dated (but not signed by Millière) 26 February, 1877.

In the 'Explication des Figures' (page 66) some of the legends are out of sequence. In the plate of this issue deterioration of the pigments has occurred.

This issue of *fascicule 2* was also reprinted with different pagination, odd-numbered pages becoming even-numbered and vice versa. The reprint has a grey, unmarked wrapper and comprises pages [1]-11, plate I. Page [1] is a title page which bears the full title and the name of the author, is marked 'Extrait des Annales de la Société Entomologique de Belgique' and is dated 1877. Page [3] (= page 58 of the *Annls Soc. ent. Belg.*) has a slightly modified heading. Apart

from these differences the reprint agrees with the issue in the *Annls Soc. ent. Belg.* and appears to have been printed from the same type-set.

REMARKS. The above evidence indicates that *fascicule* 2 was first published in *Annls Soc. ent. Belg.*

Fascicule [3]

Lépidoptérologie. Fascicule [3] comprises an original wrapper, pages [1]–24, and plates III, IV. We have not seen a title page and it is possible that none was issued. The original wrapper is marked 'Extrait des Mémoires de la Société des Sciences Naturelles et Historiques des Lettres et des Beaux-Arts de Cannes (Alpes-Maritimes). Tome VII, Année 1878. Cannes. Imprimerie et Lithographie H. Vidal, Rue Bossu. 1879.', and differs from the original wrapper of the *Mém. Soc. Sci. nat. hist. Cannes* in colour, contents, format and type-face as well as in the date. Page [1] is headed 'Lépidoptérologie'. This part is not marked *fascicule* 3 in print; however, at the time of issue '3^e fasc.' had generally been inserted in pencil or ink above the title. Page 22 is initialled by Millière and dated 30 September, 1878. The plates are marked 'Annales des Sciences Naturelles de Cannes. Année 1878'.

In the *Mém. Soc. Sci. nat. hist. Cannes* (page 41), *fascicule* [3] is dated (but not signed by Millière) May, 1878. The 'Explication des Figures' (pages 42, 43) is followed on page 43 by a postscript which is initialled by Millière and dated 30 September, 1878. In the *Lépidoptérologie, fascicule* [3] is initialled by Millière and dated only once (on page 22), 30 September, 1878. The postscript is placed before the 'Explication des Figures' (pages 23, 24) and has been enlarged by additional paragraphs. The plates in the *Mém. Soc. Sci. nat. hist. Cannes* are uncoloured.

This issue of *fascicule* [3] was recorded in *Petites Nouv. ent.* 2 : 308, issued 1 March, 1879, and was therefore published not earlier than 1 January, 1879, and not later than 28 February, 1879.

This issue was not recorded in *Biblioph. Fr.*; however, the publication in 1881 of *fascicules* 1–7 as a complete volume was recorded in *Naturaliste* 4 : 32, issued 15 February, 1882, and in *Zool. Rec.* (1881) 18 (Insecta) : 141, issued (not earlier than December) 1882.

Mém. Soc. Sci. nat. hist. Cannes. Fascicule [3] was published in volume 7 : [20]–43, plates III, IV. The original wrapper and title page of volume 7 are dated 1878. Pages [151]–155 contain a eulogy which was delivered to the Société des Sciences naturelles . . . Cannes . . . on 3 April, 1879. Volume 7 was recorded in *Biblioph. Fr.* (2) 23 : 384, issued 21 June, 1879. It was therefore published not earlier than 4 April and not later than 20 June, 1879. The plates of this issue are uncoloured.

REMARKS. The two issues of *fascicule* [3] agree except in pagination, signatures, and the above-noted differences and appear to have been printed from the same type-set. As the postscript contains two additional paragraphs, and as the earlier date was omitted, it must be assumed that the issue in the *Lépidoptérologie* was printed after that in the *Mém. Soc. Sci. nat. hist. Cannes*, although it was published earlier.

The above evidence indicates that the article which forms *fascicule* [3] of the *Lépidoptérologie* was first published as an independent paper.

Fascicule [4]

Lépidoptérologie. *Fascicule* [4] comprises pages [1] (title page)–14, [15] (Explication de la Planche), and plate 155. We have not seen an original wrapper and it is possible that none was issued. The title page (page [1]) is marked 'Iconographie et Description de Chenilles et Lépidoptères inédits par P. Millière, Lauréat de la Sorbonne (Médaille d'Or). Extrait des Annales de la Société Linnéenne. Lyon. Imprimerie Pitrat Ainé, 4, Rue Gentil. 1878'. The plate is marked 'Annales de la Société Linnéenne de Lyon. Année 1878. Pl. 155.'. This part is not signed or dated by Millière. It is not marked *fascicule* 4 in print; however, at the time of issue '4^e fasc.' had generally been inserted in pencil or ink above the title or on the plate.

As the title page is dated 1878 and the latest date mentioned in the *fascicule* is 11 June, 1878, this issue of *fascicule* [4] is assumed to have been published not earlier than 12 June, and not later than 31 December, 1878.

This issue of *fascicule* [4] was recorded in *Petites Nouv. ent.* 2: 308, issued 1 March, 1879, but was not recorded in *Bibliographie Fr.* The publication in 1881 of *fascicules* 1–7 as a complete volume was recorded in *Naturaliste* 4: 32, issued 15 February, 1882, and in *Zool. Rec.* (1881) 18 (Insecta): 141, issued (not earlier than December) 1882.

Annls Soc. linn. Lyon. *Fascicule* [4] was published in (N.S.) 25: [1]–12, Explication de la Planche, plate 155. The original wrapper and title page of volume 25 are dated October, 1878; however, the manuscript of a paper by Mulsant & Rey (*Annls Soc. linn. Lyon* (N.S.) 25: [323]–325) was submitted to the Société Linnéenne de Lyon on 11 November, 1878 (see page [323]). Volume 25 containing this issue of *fascicule* [4] is therefore assumed to have been published not earlier than 12 November and not later than 31 December, 1878. Volume 25 was not recorded in *Bibliographie Fr.*

It is possible that volume 25 was not issued until 1879, as this issue of *fascicule* [4] was recorded in *Zool. Rec.* (1879) 16 (Insecta): 124, issued (not earlier than April) 1881.

REMARKS. The title of this article suggests that it was originally intended as a continuation of the *Iconogr. Descr. Chenilles Lépid. inédits*, which is discussed in part I of the present paper. This opinion is further supported by the plate number which is 155; the last plate of the *Iconogr. Descr. Chenilles Lépid. inédits* is numbered 154.

The two issues of *fascicule* [4] agree except in pagination and signatures and appear to have been printed from the same type-set, that in *Annls Soc. linn. Lyon* having been printed first. Page 13 of the issue in the *Lépidoptérologie* was not repaginated and thus still bears the original pagination (page 11) of the *Annls Soc. linn. Lyon*. In the *Annls Soc. linn. Lyon* the plate and the 'Explication de la Planche' precede the text. The 'Explication de la Planche' is not included

in the pagination of volume 25 and lacks the printer's signature which is found at the bottom of the corresponding page of the issue in the *Lépidoptérologie*.

We assume that the article which forms *fascicule* [4] of the *Lépidoptérologie* was first published in the *Annls Soc. linn. Lyon*.

Fascicule 5

Lépidoptérologie. Fascicule 5 comprises pages [1]–31, and plates V–VII. We have not seen a title page or an original wrapper and it is probable that none were issued. Page [1] is marked 'Lépidoptérologie. Cinquième Fascicule. Mémoire présenté à la Société des Sciences naturelles, des Lettres et des Beaux-Arts de Cannes. (Séance du 26 Mars 1879)'. Page 17 is signed by Millière and dated March, 1879; page 29 is signed and dated November, 1879. The plates are marked 'Annales des Sciences Naturelles de Cannes. Année 1879.'

This issue of *fascicule 5* was not recorded in *Biblioph Fr.*; however, the publication in 1881 of *fascicules 1–7* as a complete volume was recorded in *Naturaliste* 4: 32, issued 15 February, 1882, and in *Zool. Rec.* (1881) 18 (Insecta): 141, issued (not earlier than December) 1882. Although Millière completed the manuscript in November, 1879, there is no evidence that this issue of *fascicule 5* was published before 1881, the date on the title page of volume [1]. Volume [1] was received by Stainton on 14 November, 1881 (see page 252). This issue of *fascicule 5* was therefore published not earlier than November, 1879 and not later than 13 November, 1881. We consider that it was published in 1881 as part of volume [1].

An incomplete copy of *fascicule 5*, comprising pages [1]–16 (no plates), exists in the Walsingham reprint library (British Museum (Natural History)).

Mém. Soc. Sci. nat. hist. Cannes. Fascicule 5 was published in volume 8: [109]–139, plates V–VII. The original wrapper and title page of volume 8 are dated 1879. Page 152 is dated December, 1879. Volume 8, which includes this issue of *fascicule 5*, is therefore assumed to have been published not earlier than 2 December and not later than 31 December, 1879.

It is possible that volume 8 was not issued until 1880 as this issue of *fascicule 5*, although not seen by the recorder, was recorded in *Zool. Rec.* (1880) 17 (Insecta): 125, issued (not earlier than December) 1881. Subsequently, however, the date 1879 has been generally accepted for the references to the species included in Millière's paper. Volume 8 was not recorded in *Biblioph Fr.*

The plates of this issue of *fascicule 5* are uncoloured.

REMARKS. The two issues of *fascicule 5* agree except in pagination and signatures and appear to have been printed from the same type-set.

Fascicule 5 consists of two parts both of which are signed and dated. The first part deals with the species illustrated on plates V and VI, the second with those illustrated on plate VII.

The above evidence indicates that *fascicule 5* was first published in *Mém. Soc. Sci. nat. hist. Cannes*.

Fascicule 6

Lépidoptérologie. Fascicule 6 comprises pages [1]–20, and plates VIII, IX. We have not seen a title page or an original wrapper and it is probable that none were

issued. Page [1] is headed 'Lépidoptérologie. Sixième Fascicule'. Page 19 is signed by Millière and dated April, 1880. The plates are marked 'Annales des Sciences Naturelles de Cannes. Année 1880.'

Fascicule 6 was not recorded in *Biblioph. Fr.*; however, the publication in 1881 of *fascicules 1-7* as a complete volume was recorded in *Naturaliste* 4: 32, issued 15 February, 1882, and in *Zool. Rec.* (1881) 18 (Insecta): 141, issued (not earlier than December) 1882.

The only species described as new by Millière in *fascicule 6* has generally been dated 1880 and cited as published in *Mém. Soc. Sci. nat. hist. Cannes* (erroneously referred to as *Annales*).

The available evidence indicates that only one issue of *fascicule 6* was ever published. Millière completed the manuscript in April, 1880, and on page 5 records an observation made on 21 August, 1880, but there is no evidence that *fascicule 6* was published before 1881, the date on the title page of volume [1]. Volume [1] was received by Stainton on 14 November, 1881 (see page 252). *Fascicule 6* was therefore published not earlier than 22 August, 1880, and not later than 13 November, 1881. We consider that it was published in 1881 as part of volume [1].

Mém. Soc. Sci. nat. hist. Cannes. As stated above the plates are marked 'Annales...' (recte *Mémoires*). This indicates that *fascicule 6* was to have formed part of *Mém. Soc. Sci. nat. hist. Cannes*, volume 9 (1880), which volume was never published (British Museum (Natural History), 1910: 1316). For the same reason references to the species dealt with in *fascicule 6* have been erroneously cited as 'Ann. Sc. Cannes'.

Fascicule 7

Lépidoptérologie. Fascicule 7 comprises pages [1]-22, and plate X. We have not seen a title page or an original wrapper and it is probable that none were issued. Page [1] is headed 'Lépidoptérologie. Septième Fascicule'. Page 21 is signed by Millière and dated April, 1881. The plate is marked 'Annales des Sciences Naturelles de Cannes. Année 1880.'

Fascicule 7 was not recorded in *Biblioph. Fr.*; however, the publication in 1881 of *fascicules 1-7* as a complete volume was recorded in *Naturaliste* 4: 32, issued 15 February, 1882, and in *Zool. Rec.* (1881) 18 (Insecta): 141, issued (not earlier than December) 1882.

The species described as new by Millière in *fascicule 7* have generally been dated 1880 and cited as published in *Mém. Soc. Sci. nat. hist. Cannes* (erroneously referred to as *Annales*).

The available evidence indicates that only one issue of *fascicule 7* was ever published. Millière completed the manuscript in April, 1881, and on page 3 refers to 14 May, 1881. Volume [1] was received by Stainton on 14 November, 1881 (see page 252). *Fascicule 7* was therefore published not earlier than 15 May and not later than 13 November, 1881.

An incomplete copy of *fascicule 7*, comprising pages [1]-16, and an uncoloured plate X, exists in the Walsingham reprint library (British Museum (Natural History)).

Mém. Soc. Sci. nat. hist. Cannes. As stated above the plate is marked 'Annales...' (recte *Mémoires*). This indicates that *fascicule 7* was to have formed part of *Mém. Soc. Sci. nat. hist. Cannes*, volume 9 (1880), which volume was never published (British Museum (Natural History), 1910: 1316). For the same reason references to the species dealt with in *fascicule 7* have been erroneously cited as 'Ann. Sc. Cannes'.

Volume [2]

Volume [2] comprises a fly-leaf marked 'Lépidoptérologie, Huitième Fascicule', a title page to *fascicule 8* dated Lyon, 1882, and *fascicule 8* with four coloured plates.

Stainton's copy of volume [2] bears the inscription in his handwriting 'reçu le 3 Mars. 1884 H. T. S[tainton]'.

Fascicule 8

Lépidoptérologie. Fascicule 8 comprises a fly-leaf, a title page, pages [1]-27, [29]-[36] (Explication des Planches), and plates I-IV. The fly-leaf is marked 'Lépidoptérologie. Huitième Fascicule'. The title page is marked 'Lépidoptérologie. Huitième fascicule. Par Pierre Millière, Membre correspondant de l'Académie de Lyon. Lyon, Imprimerie Pitrat Aîné, 4, Rue Gentil, 4. 1882'. Page [1] is headed 'Lépidoptérologie. Huitième Fascicule'. Page 27 is signed by Millière and dated September, 1882. The plates are marked 'Annales de la Société Linnéenne de Lyon. 8^e Fascicule. 1882'. This issue of *fascicule 8* is therefore assumed to have been published not earlier than 1 October and not later than 31 December, 1882.

Although not seen by the recorder this issue of *fascicule 8* was recorded in *Zool. Rec.* (1884) 21 (Insecta): 164, issued (not earlier than 18 December) 1885; it was not recorded in *Biblioph. Fr.* and *Naturaliste*.

Annls Soc. linn. Lyon. Fascicule 8 was published in (N.S.) 29: [153]-179, [181]-[188], plates I-IV. The original wrapper and title page of volume 29 are dated 1883. This issue of *fascicule 8* is therefore assumed to have been published not earlier than 1 January and not later than 31 December, 1883.

This issue of *fascicule 8* has generally been considered as having been published in 1883; it was recorded in *Zool. Rec.* (1883) 20 (Insecta): 157, issued (not earlier than January) 1885.

Volume 29 was not recorded in *Biblioph. Fr.*

According to a note on page 388 the four plates of *fascicule 8* were to be issued at the end of volume 30 published in 1884. The plates of this issue of *fascicule 8* are uncoloured.

The heading of page [153] differs from that of the *Lépidoptérologie* (page [1]).

A separate of the paper which also forms *fascicule 8* of the *Lépidoptérologie* is found in the Lepidoptera Section of the Naturhistorisches Museum, Vienna. It is bound in a stiff paper cover which is not original and comprises a title page of *Annls Soc. linn. Lyon* (N.S.) volume 29, pages [153]-179, Explication des Planches I-IV, and plates I-IV [uncoloured]. This separate agrees completely with the

issue in *Annls Soc. linn. Lyon*, and we find it impossible to decide whether it is a genuine reprint or a tear-out.

REMARKS. On page 3 of the issue in the *Lépidoptérologie* the species heading reads as follows: 'THERA ULICATA, RB.'. In the *Annls Soc. linn. Lyon* (page 155) the 'RB' is missing although the full stop is found in its place. We consider this as an indication that the issue of the *Lépidoptérologie* was printed first.

The two issues agree except in pagination, signatures and the above noted discrepancies, and appear to have been printed from the same type-set.

The above evidence indicates that *fascicule* 8 was first published as volume [2] of the *Lépidoptérologie*; however, in subsequent literature the later issue (*Annls Soc. linn. Lyon*, 1883) has generally been cited.

TABLE 5

Lépidoptérologie
Volumes [1] and [2]

fasc.	<i>Lépidoptérologie</i> , volume [1]			vol.	Periodical	
	pages	plates	date		pages	date
1	[1]-16	I, II	[13. XI.] 1881	—	—	—
2	[1]-14	I	[13. XI.] 1881	20	[58]- 66	[31. XII.] 1877 <i>(Annls Soc. ent. Belg.)</i>
				reprint	[1]- 11	[31. XII.] 1877
[3]	[1]-24	III, IV	[28. II.] 1879	7	[20]- 43	[20. VI.] 1879 <i>(Mém. Soc. Sci. nat. hist. Cannes)</i>
[4]	[1]-14, [15]	155	[31. XII.] 1878	25	[1]- 12	[31. XII.] 1878 <i>(Annls Soc. linn. Lyon)</i>
5	[1]-31	V-VII	[13. XI.] 1881	8	[109]-139	[31.] (XII.) 1879 <i>(Mém. Soc. Sci. nat. hist. Cannes)</i>
6	[1]-20	VIII, IX	[13. XI.] 1881	—	—	—
7	[1]-22	X	[13. XI.] 1881	—	—	—
	<i>Lépidoptérologie</i> , volume [2]				Periodical	
8	[1]- 27, [29]-[36]	I-IV	[31. XII.] 1882	29	[153]- 179, [181]-[188]	[31. XII.] 1883 <i>(Annls Soc. linn. Lyon)</i>

PART IV

Catalogue raisonné des Lépidoptères des Alpes-Maritimes,
2° Supplément et Notes entomologiques diverses

The work comprises a fly-leaf, a photograph showing Millière's house and garden at Cannes, and eight parts ([1]-[8]), which are not bound in chronological order, and which are reprints or different issues of papers published previously in various journals. Details of each part and the established dates of publication are tabulated below (Tables 6, 7).

We have examined four identical copies, each with original binding which is similar to that of the *Cat. raisonné Lépid. Alpes-Maritimes* and the *Lépidoptérologie*.

We have also examined two runs of *Naturalista sicil.*, one of them with original wrappers, and the relevant volumes of *Annls Soc. ent. Fr.* and *Revue Ent.*

The work lacks a title page and date of publication; however, various dates are cited throughout the volume, the latest being September, 1886. Stainton's copy bears the inscription in his handwriting 'recd. 26.3.87'. The work was therefore published not earlier than September, 1886, and not later than 25 March, 1887.

The work as a whole does not appear to have been recorded and it could be argued that the binding together of a number of reprints does not constitute the publication of a separate work. However, as Millière distributed at least four identical copies under a special title and as some of the included papers are not straight-forward reprints but were reset with modified format or with minor revisions, we consider it to be an independent publication.

[1]. Catalogue raisonné des Lépidoptères des Alpes-Maritimes (2^e Supplément)

This paper comprises pages [3]–87 and was first published in 17 parts in *Naturalista sicil.*, volumes 4–5 (1885–86). It has been reprinted from the same type-set, but with its own consecutive pagination. The text which originally was split into 17 parts runs on in the reprint, therefore the contents of a given page do not necessarily agree with those of the corresponding page in *Naturalista sicil.* (See Table 6.)

TABLE 6

Cat. raisonné Lépid. Alpes-Maritimes, 2^e Suppl., Notes ent. diverses
Part [1]

<i>Cat. raisonné . . . Notes ent. . . .</i>		<i>Naturalista sicil.</i>		
pages	date	vol.	pages	date
[3]–6	[25. III. 1887]	4	147–150	1. III. 1885
7–13			170–176	1. IV. 1885
13–18			195–199	1. V. 1885
18–23			218–223	1. VI. 1885
23–27			[233]–237	1. VII. 1885
27–33			275–280	1. VIII. 1885
33–36			301–304	1. IX. 1885
36–42		5	16–21	1. X. 1885
42–46			44–48	1. XI. 1885
46–52			67–72	1. XII. 1885
52–54			102–104	1. I. 1886
54–59			127–132	1. II. 1886
59–63			152–156	1. III. 1886
63–67			176–180	1. IV. 1886
67–76			195–204	1. V. 1886
76–80			220–224	1. VI. 1886
[81]–87			[225]–231	1. VII. 1886

[2]. Chenilles européennes inédites ou imparfaitement connues et Notes lépidoptérologiques

This paper comprises pages [1]–10 and is a revised issue of the paper published under the same title in *Naturalista sicil.* 4: 7–16, pl. I (1884). It differs in

pagination, signatures and format, was printed from a different type-set, and lacks the plate. The name 'Cidaria Capitata, HS.' (*Naturalista sicil.* 4: 11) was changed to 'Cidaria Silacata, Hb.' (page 5) and the accompanying text was revised. (See Table 7.)

[3]. Notes lépidoptérologiques

This paper comprises pages [1]-6 and is another issue of the paper published under the same title in *Naturalista sicil.* 3: [33]-37 (1883). It differs in pagination, signatures and format, and was printed from a different type-set. (See Table 7.)

[4]. Lépidoptères inédits et Notes entomologiques

This paper comprises a wrapper (page [1]) and pages [3]-9 and is another issue of the paper published under the same title in *Revue Ent.* 3: [1]-7, pl. I [uncoloured] (1884). It agrees in contents but lacks the plate and differs in pagination, signatures, format and type-face, and was therefore printed from a different type-set. (See Table 7.)

[5]. Acidalie nouvelle. Lépidoptères nouveaux et Chenilles inédites pour la Faune française

This paper comprises a wrapper marked 'Extrait des Annales . . .', pages [113]-120, and pl. 2, and is a reprint of the paper published under the same title in *Annls Soc. ent. Fr.* (6) 5: [113]-120, pl. 2 (1885). It completely agrees with the latter and appears to have been printed from the same type-set. (See Table 7.)

[6]. Chenilles nouvelles. Lépidoptères nouveaux ou peu connus

This paper comprises a wrapper marked 'Extrait des Annales . . .', pages [5]-10, and pl. 1, and is a reprint of the paper published under the same title in *Annls Soc. ent. Fr.* (6) 6: [5]-10, pl. 1 (1886). It completely agrees with the latter and appears to have been printed from the same type-set. (See Table 7.)

The copy in the British Museum (Natural History) comprises the wrapper and plate only, while the text has erroneously been replaced by the first six pages of the paper which immediately follows that of Millière in *Annls Soc. ent. Fr.*

[7]. Notes entomologiques (N.3)

This paper comprises pages [1]-4 and is a reprint of the paper published under the same title in *Naturalista sicil.* 5: [241]-245 (1886). It differs in pagination, signatures, and format but appears to have been printed from the same type-set. (See Table 7.)

[8]. Chenilles inédites et Lépidoptères nouveaux pour la Faune européenne

This paper comprises pages [1]-9, Explication des figures de la planche I, and pl. I, and is a reprint of the paper published under the same title in *Naturalista sicil.* 6: [1]-9, Explication des figures de la planche I, pl. I (1886). It appears to have been printed from the same type-set. The plate in *Naturalista sicil.* is uncoloured while that in the reprint is coloured. (See Table 7.)

TABLE 7

Cat. raisonné Lépid. Alpes-Maritimes, 2^e Suppl., Notes ent. diverses
Parts [2]-[8]

part	<i>Cat. raisonné . . . Notes ent. . . .</i>			vol.	Periodical		
	pages	pls	date		pages	pls	date
[2]	[1]- 10	—	[25. III. 1887]	4	7- 16	I	[30.] XI. 1884 (<i>Naturalista sicil.</i>)
[3]	[1]- 6	—		3	[33]- 37	—	1. XI. 1883 (<i>Naturalista sicil.</i>)
[4]	[1]- 9	—		3	[1]- 7	I	[31.] I. 1884 (<i>Revue Ent.</i>)
[5]	[113]-120	2		(6) 5	[113]-120	2	14. X. 1885 (<i>Annls Soc. ent. Fr.</i>)
[6]	[5]- 10	1		(6) 6	[5]- 10	1	15. VII. 1886 (<i>Annls Soc. ent. Fr.</i>)
[7]	[1]- 4	—		5	[241]-245	—	1. VIII. 1886 (<i>Naturalista sicil.</i>)
[8]	[1]- 9	I		6	[1]- 9	I	1. X. 1886 (<i>Naturalista sicil.</i>)

PART V

Catalogue of the taxa described by Millière

The following catalogue comprises all the taxa described by Millière regardless of their status; unavailable names are marked by an asterisk (*). It should be noted that Millière was not always consistent in designating taxa as aberrations, varieties, or races, the term 'var.' having been used to denote both aberrations and subspecies. Some names were attributed by Millière to wrong authors. As we cannot decide whether this was intentional or unintentional no corrections are made. The generic assignments are as cited by Millière.

When a paper was published in two different places, both references are cited for the included new taxa. References are included to any subsequent publication by Millière where the taxa are again cited as new.

The 35 *livraisons* of *Iconogr. Descr. Chenilles Lépid. inédits* are accompanied by 154 plates. It should be noted that the plates of *livraisons* 1-6 are numbered independently, each *livraison* beginning with plate 1. When citing these plates it is necessary to add the appropriate *livraison* number in order to distinguish, for example, (liv. 1) pl. 3 from (liv. 4) pl. 3. The plates of *livraisons* 7-35 are numbered 33-154.

LEPIDOPTERA

- abencerragella** Millière, *Psyche*, 1869, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 11, 38, pl. 102, figs 4, 5; 1872, *Annls Soc. linn. Lyon* (N.S.) 18: 11, 38, pl. 102, figs 4, 5.
- acquiaria** Millière, *Thamnonoma (Halia)*, 1875, *Bull. Soc. ent. Fr.* 1875: 166; 1876, *Cat. raisonné Lépid. Alpes-Maritimes*: 407, 414, pl. 1, figs 14, 15; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5: 207, 214, pl. 1, figs 14, 15; 1881, *Lépidoptérologie* [1] (1): 6, 15, pl. 1, figs 14, 15.

- acrisella* Millière, *Coleophora*, 1872, *Petites Nouv. ent.* **1** : 172.
- aeginalis* Millière, *Metasia olbienalis* Guenée var., 1885, *Naturalista sicil.* **5** : 20; 1886, *Annls Soc. ent. Fr.* (6) **6** : 10; [1887], *Cat. raisonné Lépid. Alpes-Maritimes*, 2^e Suppl., *Notes ent. diverses* ([1]) : 40; [1887], *ibidem* ([6]) : 10.
- aereinitidella* Millière, *Cephalispheira*, 1854, *Annls Soc. ent. Fr.* (3) **2** : 60, pl. 3, fig. (11) 2.
- albarinata* Millière, *Gnophos pullata* Denis & Schiffermüller [cited as 'W.-V.'] var. an bona sp., 1859, *Iconogr. Descr. Chenilles Lépid. inédits* **1** : 64, (liv. 2) pl. 1, figs 12-15; 1860, *Annls Soc. linn. Lyon* (N.S.) **6** : 398, pl. 1, figs 12-15.
- albiguttella* Millière, *Bucculatrix*, 1886, *Naturalista sicil.* **5** : 204; 1886, *Bull. Soc. ent. Fr.* **1886** : 23; [1887], *Cat. raisonné Lépid. Alpes-Maritimes*, 2^e Suppl., *Notes ent. diverses* ([1]) : 75; 1887, *Annls Soc. ent. Fr.* (6) **7** : 221, pl. 5, fig. 1.
- albipunctella* Millière, *Psyche febreuta* Boyer de Fonscolombe var., 1871, *Iconogr. Descr. Chenilles Lépid. inédits* **3** : 210, 225, pl. 122, figs 14-16.
- alyssumata* Millière, *Acidalia*, 1871, *Iconogr. Descr. Chenilles Lépid. inédits* **3** : 197, 224, pl. 121, figs 6-11.
- amaryllana* Millière, *Eudemis*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 282; [1876], *Mém. Soc. Sci. nat. hist. Cannes* **5** : 82.
- amissella* Millière, *Scoparia*, 1864, *Iconogr. Descr. Chenilles Lépid. inédits* **1** : 401, 417, pl. 50, fig. 1; 1865, *Annls Soc. linn. Lyon* (N.S.) **11** : 29, 45, pl. 50, fig. 1.
- **andalusiaria* Millière, *Nychiodes lividaria* Hübner ab., 1865, *Iconogr. Descr. Chenilles Lépid. inédits* **2** : 77, 98, pl. 60, fig. 2; 1866, *Annls Soc. linn. Lyon* (N.S.) **12** : 421, 442, pl. 60, fig. 2 [infrasubspecific name].
- andorrana* Millière, *Conchylis*, 1865, *Iconogr. Descr. Chenilles Lépid. inédits* **2** : 167, 186, pl. 69, figs 4, 5; 1866, *Annls Soc. linn. Lyon* (N.S.) **13** : 66, 85, pl. 69, figs 4, 5.
- andryaladactylus* Millière, *Oxyptilus*, 1863, *Iconogr. Descr. Chenilles Lépid. inédits* [edn a] **1** : 335 [unnecessary (objective) replacement name for *Oxyptilus laetus* Zeller]; 1864, *Annls Soc. linn. Lyon* (N.S.) **10** : 207; 1864, *Iconogr. Descr. Chenilles Lépid. inédits* [edn b] **1** : 333.
- andryalae* Millière, *Oxyptilus*, 1863, *Iconogr. Descr. Chenilles Lépid. inédits* [edn a] **1** : 335 [unnecessary (objective) replacement name for *Oxyptilus laetus* Zeller]; 1864, *Annls Soc. linn. Lyon* (N.S.) **10** : 207; 1864, *Iconogr. Descr. Chenilles Lépid. inédits* [edn b] **1** : 333.
- anglicata* Millière, *Eupithecia helveticaria* Boisduval var., 1870, *Iconogr. Descr. Chenilles Lépid. inédits* **3** : 102, 128, pl. 110, fig. 21; 1872, *Annls Soc. linn. Lyon* (N.S.) **19** : 22, 48, pl. 110, fig. 21.
- antirrhinella* Millière, *Gelechia*, 1866, *Iconogr. Descr. Chenilles Lépid. inédits* **2** : 274, 280, pl. 80, figs 6-8; 1867, *Annls Soc. linn. Lyon* (N.S.) **14** : 382, 388, pl. 80, figs 6-8.
- apollina* Millière, *Acipitilia*, 1882, *Lépidoptérologie* [2] (8) : 25, 36, pl. 4, fig. 9; 1883, *Annls Soc. linn. Lyon* (N.S.) **29** : 177, 188, pl. 4, fig. 9.
- APTERONA* Millière, 1857, *Annls Soc. linn. Lyon* (N.S.) **4** : 181, 192.
- arcanaria* Millière, *Chondrosoma*, 1884, *Revue Ent.* **3** : 6, pl. 1, fig. 5; [1887], *Cat. raisonné Lépid. Alpes-Maritimes*, 2^e Suppl., *Notes ent. diverses* ([4]) : 8.
- argentilimbella* Millière, *Coleophora*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 355; [1876], *Mém. Soc. Sci. nat. hist. Cannes* **5** : 155.
- aristotelis* Millière, *Gelechia*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 324, 414, pl. 1, figs 1, 2; [1876], *Mém. Soc. Sci. nat. hist. Cannes* **5** : 124, 214, pl. 1, figs 1, 2; 1881, *Lépidoptérologie* [1] (1) : 1, 15, pl. 1, figs 1, 2.
- askoldella* Millière, *Adela*, 1879, *Naturaliste* **1** : 139.
- asmodella* Millière, *Butalis*, 1873, *Petites Nouv. ent.* **1** : 310.
- asteriscella* Millière, *Myelois*, 1873, *Revue Mag. Zool.* (3) **1** : 9.
- asteroidella* Millière, *Coleophora*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 354; [1876], *Mém. Soc. Sci. nat. hist. Cannes* **5** : 154 [in error for *acrisella* Millière, 1872, see Millière, 1886, *Naturalista sicil.* **5** : 198].
- aureliaria* Millière, *Nemoria*, 1864, *Iconogr. Descr. Chenilles Lépid. inédits* **2** : 37, 64, pl. 55, figs 1, 2; 1865, *Annls Soc. linn. Lyon* (N.S.) **11** : 258, 285, pl. 55, figs 1, 2.

- aureocapitella** Millière, *Nepticula*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes*: 374 [as *aureocaputella*, incorrect original spelling]; 416 [as *aureocapitella*, justified emendation]; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5: 174 [as *aureocaputella*]; 216.
- ***aureocaputella** Millière, *Nepticula*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes*: 374 [incorrect original spelling of *aureocapitella* Millière].
- barcionella** Millière, *Epidola*, 1867, *Iconogr. Descr. Chenilles Lépid. inédits* 2: 313, 326, pl. 83, figs 13-15; 1868, *Annls Soc. linn. Lyon (N.S.)* 15: 221, 234, pl. 83, figs 13-15.
- barcionensis** Millière, *Micra*, 1870, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 136, 167, pl. 113, figs 10, 11; 1872, *Annls Soc. linn. Lyon (N.S.)* 19: 56, 87, pl. 113, figs 10, 11.
- belemiata** Millière, *Acidalia*, 1868, *Iconogr. Descr. Chenilles Lépid. inédits* 2: 486, 498, pl. 100, figs 8, 9; 1869, *Annls Soc. linn. Lyon (N.S.)* 17: 76, 88, pl. 100, figs 8, 9.
- bimaculata** Millière, *Agrotis flammatra* Denis & Schiffermüller [cited as 'S.V.'] var., 1885, *Naturalista sicil.* 4: 197; [1887], *Cat. raisonné Lépid. Alpes-Maritimes, 2^e Suppl., Notes ent. diverses* ([1]): 15.
- bitaminella** Millière, *Myelois*, 1873, *Revue Mag. Zool.* (3) 1: 8.
- blactieri** Millière, *Lycaena cyllarus* Rottenburg var., 1887, *Annls Soc. ent. Fr.* (6) 7: 215, pl. 5, figs 8, 9.
- borreonella** Millière, *Guenea*, 1874, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 436, 451, pl. 153, figs 20, 21; 1874, *Revue Mag. Zool.* (3) 2: 245.
- braudaria** Millière, *Nemoria*, 1860, *Iconogr. Descr. Chenilles Lépid. inédits* 1: 163, 190, (liv. 3) pl. 8, figs 10-12; 1861, *Annls Soc. linn. Lyon (N.S.)* 7: 243, 270, pl. 8, figs 10-12.
- brunneodactyla** Millière, *Pterophorus*, 1854, *Annls Soc. ent. Fr.* (3) 2: 65, pl. 3, figs (11) 6, 6a.
- buffonaria** Millière, *Tephрина*, 1867, *Iconogr. Descr. Chenilles Lépid. inédits* 2: 368, 407, pl. 89, fig. 2; 1868, *Annls Soc. linn. Lyon (N.S.)* 16: 40, 79, pl. 89, fig. 2.
- buffonella** Millière, *Butalis*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes*: 361; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5: 161.
- bulgariata** Millière, *Melanippe*, 1868, *Iconogr. Descr. Chenilles Lépid. inédits* 2: 433, 448, pl. 95, figs 17, 18; 1869, *Annls Soc. linn. Lyon (N.S.)* 17: 23, 38, pl. 95, figs 17, 18.
- canensis** Millière, *Bombyx*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes*: 393; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5: 193.
- canusalis** Millière, *Stenia*, 1868, *Iconogr. Descr. Chenilles Lépid. inédits* 2: 426, 448, pl. 95, figs 5-7; 1869, *Annls Soc. linn. Lyon (N.S.)* 17: 16, 38, pl. 95, figs 5-7.
- canisana** Millière, *Sciaphila*, 1874, *Revue Mag. Zool.* (3) 2: 247; 1881, *Lépidoptérologie* [1] (1): 3, 15, pl. 1, fig. 6.
- canisella** Millière, *Pseudicia funerella* Fabricius var., 1867, *Iconogr. Descr. Chenilles Lépid. inédits* 2: 291, 324, pl. 81, fig. 13; 1868, *Annls Soc. linn. Lyon (N.S.)* 15: 199, 232, pl. 81, fig. 13.
- capucina** Millière, *Miselia oxyacanthae* Albin var., 1870, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 165, 170, pl. 116, fig. 6; 1872, *Annls Soc. linn. Lyon (N.S.)* 19: 85, 90, pl. 116, fig. 6.
- cassandrata** Millière, *Acidalia*, 1874, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 382, 387, pl. 148, fig. 1.
- catalaunensis** Millière, *Aporophyla*, 1873, *Revue Mag. Zool.* (3) 1: 4.
- cervantaria** Millière, *Acidalia*, 1869, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 21, 39, pl. 103, figs 1-3; 1872, *Annls Soc. linn. Lyon (N.S.)* 18: 21, 39, pl. 103, figs 1-3.
- chimaeraria** Millière, *Acidalia circuitaria* Hübner var. et ab., 1869, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 47, 77, pl. 105, figs 23-27; 1872, *Annls Soc. linn. Lyon (N.S.)* 18: 47, 77, pl. 105, figs 23-27.
- chloris** Millière, *Apamea*, 1882, *Lépidoptérologie* [2] (8): 20, 36, pl. 4, figs 1, 2; 1883, *Naturalista sicil.* 3: 37; 1883, *Annls Soc. linn. Lyon (N.S.)* 29: 172, 188, pl. 4, figs 1, 2; [1887], *Cat. raisonné Lépid. Alpes-Maritimes, 2^e Suppl., Notes ent. diverses* ([3]): 5.

- cincrerariae* Millière, *Leioptilus*, 1874, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 418, 448, pl. 152, fig. 1.
- cistella* Millière, *Phycis*, 1859, *Iconogr. Descr. Chenilles Lépid. inédits* 1: 97, 112, (liv. 2) pl. 6, figs 6-12; 1860, *Annls Soc. linn. Lyon (N.S.)* 6: 431, 446, pl. 6, figs 6-12.
- cistorum* Millière, *Butalis*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes*: 360, 414, pl. 1, figs 7, 8; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5: 100, 214, pl. 1, figs 7, 8; 1881, *Lépidoptérologie* [1] (1): 3, 15, pl. 1, figs 7, 8.
- citri* Millière, *Acrolepia*, 1873, *Petites Nouv. ent.* 1: 310.
- clothella* Millière, *Myelois*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes*: 202; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5: 62.
- cocciferata* Millière, *Eupithecia*, 1864, *Iconogr. Descr. Chenilles Lépid. inédits* 2: 45, 65, pl. 56, figs 1-4; 1865, *Annls Soc. linn. Lyon (N.S.)* 11: 266, 286, pl. 56, figs 1-4.
- constantii* Millière, *Agrotis*, 1860, *Iconogr. Descr. Chenilles Lépid. inédits* 1: 165, 191, (liv. 3) pl. 9, figs 1, 2; 1861, *Annls Soc. linn. Lyon (N.S.)* 7: 245, 271, pl. 9, figs 1, 2.
- corneliata* Millière, *Gnophos variegata* Duponchel var. *ab bona* sp., 1873, *Cat. raisonné Lépid. Alpes-Maritimes*: 156; 1874, *Mém. Soc. Sci. nat. hist. Cannes* 3: 176.
- cossurata* Millière, *Eupithecia*, 1875, in Ragusa, *Boll. Soc. ent. ital.* 7: 254.
- cryptogamarum* Millière, *Oecophora*, 1872, *Petites Nouv. ent.* 1: 172.
- cyaneimarmorella* Millière, *Argyresthia*, 1854, *Annls Soc. ent. Fr.* (3) 2: 64, pl. 3, fig. (II) 5.
- cymbalaria* Millière, *Gnophos variegata* Duponchel var., 1869, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 57, 78, pl. 106, figs 12-15; 1872, *Annls Soc. linn. Lyon (N.S.)* 18: 57, 78, pl. 106, figs 12-15.
- damonella* Millière, *Bryotropha*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes*: 328; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5: 128.
- dardoïnella* Millière, *Psyche*, 1863, *Iconogr. Descr. Chenilles Lépid. inédits* [edn a] 1: 318, 341, pl. 37, figs 8-11; 1864, *Annls Soc. linn. Lyon (N.S.)* 10: 192, 213, pl. 37, figs 8-11; 1864, *Iconogr. Descr. Chenilles Lépid. inédits* [edn b] 1: 318, 339, pl. 37, figs 8-11.
- dardoïnella* Millière, *Typhonia*, 1864, *Iconogr. Descr. Chenilles Lépid. inédits* 2: 27, 36, pl. 54, figs 3-5.
- dardoïnula* Millière, *Nola*, 1871, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 172; 173 [as *darduïnula*, incorrect (multiple) original spelling]; 193, pl. 117, figs 1, 2.
- **darduïnula* Millière, *Nola*, 1871, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 173 [incorrect (multiple) original spelling of *dardoïnula* Millière].
- decemberella* Millière, *Depressaria feruliphila* Millière var. et ab., 1876, *Cat. raisonné Lépid. Alpes-Maritimes*: 322; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5: 122.
- dorynciella* Millière, *Butalis*, 1861, *Iconogr. Descr. Chenilles Lépid. inédits* 1, (liv. 5) pl. 1, figs 1-6; 1861, *ibidem* 1: 225; 1862, *Annls Soc. linn. Lyon (N.S.)* 8: 209, pl. 1, figs 1-6.
- doryncii* Millière, *Bombyx*, 1864, *Annls Soc. linn. Lyon (N.S.)* 10: 229, pl. 43, figs 1-7; 1864, *Iconogr. Descr. Chenilles Lépid. inédits* 1: 357, pl. 43, figs 1-7.
- doubledayaria* Millière, *Amphidusys betularia* Albin var., 1870, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 117, 129, pl. 111, fig. 1; 1872, *Annls Soc. linn. Lyon (N.S.)* 19: 37, 129 [recte 49], pl. 111, fig. 1.
- doubledayi* Millière, *Dianthoccia caesia* Borkhausen ab. et var., 1886, *Naturalista sicil.* 6: 2, pl. 1, fig. 4.
- egeriella* Millière, *Ephestia*, 1873, *Petites Nouv. ent.* 1: 310; 1873, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 328, 357, pl. 141, figs 4, 5.
- engadinensis* Millière, *Agrotis*, 1873, *Revue Mag. Zool.* (3) 1: 3.
- eryngiella* Millière, *Depressaria*, 1881, *Lépidoptérologie* [1] (6): 7, 20, pl. 8, figs 8, 9.
- esterelata* Millière, *Acidalia*, 1879, *Naturaliste* 1: 138.
- esterella* Millière, *Depressaria peucedanella* Millière var., 1881, *Lépidoptérologie* [1] (7): 15, 22, pl. 10, fig. 15.
- euvoica* Millière, *Acontia moldavicala* Herrich-Schäffer var., 1874, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 437, 451, pl. 154, fig. 1.

- eugeniata** Millière, *Acidalia*, 1870, *Iconogr. Descr. Chenilles Lépid. inédits* **3** : 118, 129, pl. 111, figs 4-6; 1872, *Annls Soc. linn. Lyon (N.S.)* **19** : 38, 129 [recte 49], pl. 111, figs 4-6.
- euphrasiata** Millière, *Emmelesia unifasciata* Haworth var., 1870, *Iconogr. Descr. Chenilles Lépid. inédits* **3** : 148, 168, pl. 114, fig. 13 [as *odontata*]; 1872, *Annls Soc. linn. Lyon (N.S.)* **19** : 68, 88, pl. 114, fig. 13 [as *odontata*]. [Millière names this form *euphrasiata* in the text and *odontata* on the plate.]
- fadella** Millière, *Elachista*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 364; [1876], *Mém. Soc. Sci. nat. hist. Cannes* **5** : 164.
- fauna** Millière, *Mimaeseoptilus*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 380; [1876], *Mém. Soc. Sci. nat. hist. Cannes* **5** : 180.
- faustinata** Millière, *Nemoria*, 1868, *Iconogr. Descr. Chenilles Lépid. inédits* **2** : 436, 449, pl. 96, figs 2-8; 1869, *Annls Soc. linn. Lyon (N.S.)* **17** : 26, 39, pl. 96, figs 2-8.
- fenestrata** Millière, *Eupithecia*, 1874, *Iconogr. Descr. Chenilles Lépid. inédits* **3** : 431, 450, pl. 153, figs 14, 15; 1874, *Revue Mag. Zool.* (3) **2** : 243.
- feruliphila** Millière, *Depressaria*, 1866, *Iconogr. Descr. Chenilles Lépid. inédits* **2** : 209, 243, pl. 73, figs 1-3; 1867, *Annls Soc. linn. Lyon (N.S.)* **14** : 317, 351, pl. 73, figs 1-3.
- fingalana** Millière, *Oliodia*, 1884, *Revue Ent.* **3** : 3; 1885, *Naturalista sicil.* **5** : 71 (*Cochylis*); [1887], *Cat. raisonné Lépid. Alpes-Maritimes*, 2^e Suppl., *Notes ent. diverses* ([I]) : 50 (*Cochylis*); [1887], *ibidem* ([4]) : 5.
- ***fingalaria** Millière, *Tephronia*, 1874, *Iconogr. Descr. Chenilles Lépid. inédits* **3** : 389, 445, pl. 149, fig. 1 [incorrect subsequent spelling of *fingalata* Millière].
- fingalata** Millière, *Mniophila*, 1873, *Cat. raisonné Lépid. Alpes-Maritimes* : 159; 1874, *Mém. Soc. Sci. nat. hist. Cannes* **3** : 179; 1874, *Iconogr. Descr. Chenilles Lépid. inédits* **3** : 389, 445, pl. 149, fig. 1 [as *fingalaria*, incorrect subsequent spelling of *fingalata*] (*Tephronia*).
- fulminella** Millière, *Gelechia*, 1882, *Lépidoptérologie* [2] (8) : 9, 32, pl. 2, fig. 4; 1883, *Annls Soc. linn. Lyon (N.S.)* **29** : 161, 184, pl. 2, fig. 4.
- fulminella** Millière, *Psyche*, 1865, *Iconogr. Descr. Chenilles Lépid. inédits* **2** : 127, 142, pl. 65, figs 6-8; 1866, *Annls Soc. linn. Lyon (N.S.)* **13** : 27, 42, pl. 65, figs 6-8.
- galathea** Millière, *Bryophila*, 1874, *Revue Mag. Zool.* (3) **2** : 241.
- genevensis** Millière, *Zygaena*, 1861, *Iconogr. Descr. Chenilles Lépid. inédits* **1** : 237, 255, (liv. 5) pl. 3, figs 1, 2; 1862, *Annls Soc. linn. Lyon (N.S.)* **8** : 221, 239, pl. 3, figs 1, 2.
- gentianata** Millière, *Melanippe*, 1873, *Revue Mag. Zool.* (3) **1** : 1.
- gigantea** Millière, *Geometra smaragdaria* Fabricius var., 1874, *Iconogr. Descr. Chenilles Lépid. inédits* **3** : 423, 449, pl. 152, figs 16-18.
- GLACIES** Millière, 1874, *Iconogr. Descr. Chenilles Lépid. inédits* **3** : 420, 450, pl. 153 [legends to figs 6-9].
- globulariata** Millière, *Eupithecia*, 1861, *Iconogr. Descr. Chenilles Lépid. inédits* **1** : 206, 220, (liv. 4) pl. 3, figs 1-7; 1862, *Annls Soc. linn. Lyon (N.S.)* **8** : 190, 204, pl. 3, figs 1-7.
- gnidiella** Millière, *Ephestia*, 1867, *Iconogr. Descr. Chenilles Lépid. inédits* **2** : 308, 326, pl. 83, figs 4-9; 1868, *Annls Soc. linn. Lyon (N.S.)* **15** : 216, 234, pl. 83, figs 4-9.
- gondebautella** Millière, *Psyche*, 1863, *Annls Soc. linn. Lyon (N.S.)* **9** : 30, 54, pl. 34, figs 1-8; 1863, *Iconogr. Descr. Chenilles Lépid. inédits* **1** : 286, 310, pl. 34, figs 1-8.
- graccella** Millière, *Fumea*, 1866, *Iconogr. Descr. Chenilles Lépid. inédits* **2** : 252, 277, pl. 77, figs 8, 9; 1867, *Annls Soc. linn. Lyon (N.S.)* **14** : 360, 385, pl. 77, figs 8, 9.
- gueneata** Millière, *Eupithecia*, 1862, *Iconogr. Descr. Chenilles Lépid. inédits* **1** : 257, 279, (liv. 6) pl. 1, figs 1, 2; 1863, *Annls Soc. linn. Lyon (N.S.)* **9** : 1, 23, pl. 1, figs 1, 2.
- halimi** Millière, *Mamestra immunda* Eversmann var., 1877, *Annls Soc. ent. Belg.* **20** : 58, pl. 1, figs 17-19; 1881, *Lépidoptérologie* [1] (2) : 4, pl. 1, figs 17-19.
- halymella** Millière, *Gelechia*, 1864, *Annls Soc. linn. Lyon (N.S.)* **10** : 224, 242, pl. 42, figs 4-8; 1864, *Iconogr. Descr. Chenilles Lépid. inédits* **1** : 352, 370, pl. 42, figs 4-8.
- HASTULA** Millière, 1858, *Annls Soc. ent. Fr.* (3) **5** : 799, 802.

- hederarum* Millière, *Ochsenheimeria*, 1874, *Revue Mag. Zool.* (3) 2: 249; 1881, *Lépidoptérologie* [1] (1): 5, 15, pl. 1, figs 12, 13.
- helenella* Millière, *Butalis*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes*: 361; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5: 161.
- helianthemata* Millière, *Acidalio*, 1870, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 134, 167, pl. 113, figs 6-9; 1872, *Anns Soc. linn. Lyon* (N.S.) 19: 34, 87, pl. 113, figs 6-9.
- helianthemella* Millière, *Coleophora*, 1870, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 131, 167, pl. 113, figs 1-5; 1872, *Anns Soc. linn. Lyon* (N.S.) 19: 51, 87, pl. 113, figs 1-5.
- heylaertsii* Millière, *Psyche*, 1881, *Lépidoptérologie* [1] (7): 18, 22, pl. 10, figs 16-19.
- himmighoffeni* Millière, *Micra*, 1867, *Iconogr. Descr. Chenilles Lépid. inédits* 2: 292, 325, pl. 82, figs 1, 2; 1868, *Anns Soc. linn. Lyon* (N.S.) 15: 200, 233, pl. 82, figs 1, 2.
- hispanaria* Millière, *Scodiona*, 1866, *Iconogr. Descr. Chenilles Lépid. inédits* 2: 265, 279, pl. 79, figs 5-9; 1867, *Anns Soc. linn. Lyon* (N.S.) 14: 373, 387, pl. 79, figs 5-9.
- huguenini* Millière, *Trichosoma*, 1878, *Anns Soc. linn. Lyon* (N.S.) 25: 10, pl. 155, fig. 10; 1881, *Lépidoptérologie* [1] ([4]): 12, pl. 155, fig. 10.
- hyrana* Millière, *Hastula*, 1858, *Anns Soc. ent. Fr.* (3) 5: 799, 801, pl. 14, figs (III) 1-6.
- immunita* Millière, *Euclidia munita* Hübner var., 1867, *Iconogr. Descr. Chenilles Lépid. inédits* 2: 406, 410, pl. 92, fig. 11; 1868, *Anns Soc. linn. Lyon* (N.S.) 16: 78, 82, pl. 92, fig. 11.
- incana* Millière, *Mamestra leucophaea* Denis & Schiffermüller [cited as 'W.P.'] var., 1885, *Naturalista sicil.* 4: 198; [1887] *Cat. raisonné Lépid. Alpes-Maritimes, 2^e Suppl., Notes ent. diverses* ([1]): 17.
- incerta* Millière, *Psilothrix*, 1886, *Bull. Soc. ent. Fr.* 1886: 53; 1886, *Naturalista sicil.* 6: 3, pl. 1, figs 5, 6; [1887], *Cat. raisonné Lépid. Alpes-Maritimes, 2^e Suppl., Notes ent. diverses* ([8]): 3, pl. 1, figs 5, 6.
- incertata* Millière, *Eupithecia*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes*: 410; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5: 210.
- inesata* Millière, *Acidalia*, 1868, *Iconogr. Descr. Chenilles Lépid. inédits* 2: 482, 498, pl. 100, figs 3-5; 1869, *Anns Soc. linn. Lyon* (N.S.) 17: 72, 88, pl. 100, figs 3-5.
- intermedia* Millière, *Bombyx*, 1871, *Cat. raisonné Lépid. Alpes-Maritimes*: 58; 1872, *Mém. Soc. Sci. nat. hist. Cannes* 2: 142.
- isabellaria* Millière, *Acidalia*, 1868, *Iconogr. Descr. Chenilles Lépid. inédits* 2: 453, 495, pl. 97, figs 3, 4; 1869, *Anns Soc. linn. Lyon* (N.S.) 17: 43, 85, pl. 97, figs 3, 4.
- islandiae* Millière, *Hadena*, 1874, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 459.
- **italica* Millière, *Acidalia*, 1885, *Anns Soc. ent. Fr.* (6) 5, pl. 2, fig. 1 [incorrect (multiple) original spelling of *italicata* Millière].
- italicata* Millière, *Acidalia*, 1885, *Anns Soc. ent. Fr.* (6) 5: 113, 120; pl. 2, fig. 1 [as *italica*, incorrect (multiple) original spelling]; [1887], *Cat. raisonné Lépid. Alpes-Maritimes, 2^e Suppl., Notes ent. diverses* ([5]): 113, 120; pl. 2, fig. 1 [as *italica*, incorrect subsequent spelling].
- italogallica* Millière, *Leucania albipuncta* Fabricius ab. et var., 1885, *Naturalista sicil.* 4: 222; [1887], *Cat. raisonné Lépid. Alpes-Maritimes, 2^e Suppl., Notes ent. diverses* ([1]): 21.
- italogallicella* Millière, *Pempelia*, 1882, *Lépidoptérologie* [2] (8): 8, pl. 2, fig. 3; 1883, *Anns Soc. linn. Lyon* (N.S.) 29: 160, pl. 2, fig. 3.
- jankowskaria* Millière, *Phorodesma*, 1879, in Oberthür, *Diagnoses d'Espèces nouv. Lépid. de l'Île Askold*: 8.
- juanella* Millière, *Argyresthia*, 1886, *Naturalista sicil.* 5: 132; [1887], *Cat. raisonné Lépid. Alpes-Maritimes, 2^e Suppl., Notes ent. diverses* ([1]): 58.
- juniperana* Millière, *Coccyx*, 1858, *Anns Soc. linn. Lyon* (N.S.) 5: 17, 47, pl. 1, figs (I) 1-5; 1859, *Iconogr. Descr. Chenilles Lépid. inédits* [edn a] 1: 3, 33, (liv. 1) pl. 1, figs (I) 1-5; 1859, *ibidem* [edn b] 1: 3, 31, (liv. 1) pl. 1, figs (I) 1-5.
- lantoscanus* Millière, *Oxyptilus*, 1882, *Lépidoptérologie* [2] (8): 24, 36, pl. 4, fig. 8; 1883, *Anns Soc. linn. Lyon* (N.S.) 29: 176, 188, pl. 4, fig. 8.

- lantoscata* Millière, *Eupithecia*, 1873, *Cat. raisonné Lépid. Alpes-Maritimes* : 201 ; 1874, *Mém. Soc. Sci. nat. hist. Cannes* 3 : 221.
- lantosquella* Millière, *Coleophora*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 352 ; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5 : 152.
- lasthenia* Millière, *Anthocaris* [sic!] *cardamines* Linnaeus ab., an hybr. ?, an var. ?, an bona sp. ?, 1860, *Iconogr. Descr. Chenilles Lépid. inédits* 1 : 174, 192, (liv. 3) pl. 10, figs 1, 2 ; 1861, *Annls Soc. linn. Lyon (N.S.)* 7 : 254, 272, pl. 10, figs 1, 2.
- lathonialis* Millière, *Nola chlamydulalis* Hübner var., 1870, *Iconogr. Descr. Chenilles Lépid. inédits* 3 : 142 ; 168, pl. 114, fig. 4 [as *latonialis*, incorrect (multiple) original spelling] ; 1872, *Annls Soc. linn. Lyon (N.S.)* 19 : 42 ; 88, pl. 114, fig. 4 [as *latonialis*, incorrect subsequent spelling].
- latifoliata* Millière, *Larentia incutaria* Herrich-Schäffer var., 1874, *Iconogr. Descr. Chenilles Lépid. inédits* 3 : 432, 450, pl. 153, figs 16-19.
- latifoliella* Millière, *Nepticula*, 1886, *Naturalista sicil.* 5 : 220 ; [1887], *Cat. raisonné Lépid. Alpes-Maritimes*, 2^e Suppl., *Notes ent. diverses* ([1]) : 76 ; 1887, *Annls Soc. ent. Fr.* (6) 7 : 219, pl. 5, figs 10-13 (*Gracilaria*).
- **latonialis* Millière, *Nola chlamydulalis* Hübner var., 1870, *Iconogr. Descr. Chenilles Lépid. inédits* 3 : 168, pl. 114, fig. 4 [incorrect (multiple) original spelling of *lathonialis* Millière].
- latoniata* Millière, *Eupithecia*, 1882, *Lépidoptérologie* [2] (8) : 13, 32, pl. 2, fig. 10 ; 1883, *Annls Soc. linn. Lyon (N.S.)* 29 : 165, 184, pl. 2, fig. 10.
- latoniella* Millière, *Oecophara augustella* Hübner var. et ab., 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 345 ; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5 : 145.
- lavaterana* Millière, *Paedisca*, 1863, *Annls Soc. linn. Lyon (N.S.)* 9 : 34, 54, pl. 34, figs 9-13 ; 1863, *Iconogr. Descr. Chenilles Lépid. inédits* 1 : 290, 310, pl. 34, figs 9-13.
- lavaterella* Millière, *Bucculatrix*, 1865, *Iconogr. Descr. Chenilles Lépid. inédits* 2 : 69, 97, pl. 59, figs 1-5 ; 1866, *Annls Soc. linn. Lyon (N.S.)* 12 : 413, 441, pl. 59, figs 1-5.
- ledereri* Millière, *Orgyia*, 1868, *Iconogr. Descr. Chenilles Lépid. inédits* 2 : 451, 495, pl. 97, figs 1, 2 ; 1869, *Annls Soc. linn. Lyon (N.S.)* 17 : 41, 85, pl. 97, figs 1, 2.
- lerinis* Millière, *Agdistis*, 1876, *Bull. Soc. ent. Fr.* 1875 : 168 ; 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 376, 415, pl. 2, figs 10, 11 ; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5 : 176, 215, pl. 2, figs 10, 11 ; 1881, *Lépidoptérologie* [1] (1) : 11, 16, pl. 2, figs 10, 11.
- leucochrySELLa* Millière, *Chrysia*, 1854, *Annls Soc. ent. Fr.* (3) 2 : 61, pl. 3, fig. (11) 3.
- liguriata* Millière, *Eupithecia*, 1884, *Revue Ent.* 3 : 3 ; [1887], *Cat. raisonné Lépid. Alpes-Maritimes*, 2^e Suppl., *Notes ent. diverses* ([4]) : 5.
- liguriella* Millière, *Tinea*, 1879, *Mém. Soc. Sci. nat. hist. Cannes* 8 : 124, 138, pl. 6, fig. 11 ; 1881, *Lépidoptérologie* [1] (5) : 16, 30, pl. 6, fig. 11.
- liguris* Millière, *Bryophila glandifera* Denis & Schiffermüller [cited as 'S.V.'] var. et ab., [1879], *Mém. Soc. Sci. nat. hist. Cannes* 7 : 27, 42, pl. 3, fig. 8 ; 1881, *Lépidoptérologie* [1] ([3]) : 8, pl. 3, fig. 8.
- limonisa* Millière, *Sciaphila* [*Sericoris*, pl. 4], 1860, *Iconogr. Descr. Chenilles Lépid. inédits* 1 : 132, 186, (liv. 3) pl. 4, figs 4-8 ; 1861, *Annls Soc. linn. Lyon (N.S.)* 7 : 212, 266, pl. 4, figs 4-8.
- litigiosella* Millière, *Parasia*, 1879, *Naturaliste* 1 : 139.
- ludovicata* Millière, *Cidaria nigrofasciaria* Goeze var. et ab., 1887, *Annls Soc. ent. Fr.* (6) 7 : 218, pl. 5, fig. 14.
- lugdunella* Millière, *Ephestia*, 1874, *Revue Mag. Zool.* (3) 2 : 250.
- lugdunellus* Millière, *Crambus*, 1867, *Iconogr. Descr. Chenilles Lépid. inédits* 2 : 305, 326, pl. 83, fig. 2 ; 1868, *Annls Soc. linn. Lyon (N.S.)* 15 : 213, 234, pl. 83, fig. 2.
- lugdunensis* Millière, *Catocala electa* Guenée, Boisduval, Godart var., 1855, *Annls Soc. ent. Fr.* (3) 3 : 208, pl. 11, fig. 1.
- **lugdunensis* Millière, *Zygaena fausta* Linnaeus ab., 1859, *Iconogr. Descr. Chenilles Lépid. inédits* 1 : 85, 110, (liv. 2) pl. 4, fig. 4 ; 1860, *Annls Soc. linn. Lyon (N.S.)* 6 : 419, 444, pl. 4, fig. 4 [infrasubspecific name].

- magnata* Millière, *Eupithecia*, 1873, *Revue Mag. Zool.* (3) **1** : 2.
- malvinella* Millière, *Psyche*, 1858, *Annls Soc. linn. Lyon* (N.S.) **5** : 44, 50, pl. 4, figs (III) 1-3 ; 1859, *Iconogr. Descr. Chenilles Lépid. inédits* [edn a] **1** : 30, 36, (liv. 1) pl. 4, figs (III) 1-3 ; 1859, *ibidem* [edn b] **1** : 29, 34, (liv. 1) pl. 4, figs (III) 1-3.
- mantonella* Millière, *Epichnopteryx*, 1877, *Annls Soc. ent. Belg.* **20**, pl. 1, fig. 8 [incorrect (multiple) original spelling of *mentonella* Millière].
- maritanella* Millière, *Euzophera*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 264, 415, pl. 2, fig. 15 ; [1876], *Mém. Soc. Sci. nat. hist. Cannes* **5** : 64, 215, pl. 2, fig. 15 ; 1881, *Lépidoptérologie* [1] (1) : 13, 16, pl. 2, fig. 15.
- massiliata* Millière, *Eupithecia*, 1865, *Iconogr. Descr. Chenilles Lépid. inédits* **2** : 145, 184, pl. 67, figs 1, 2 ; 1866, *Annls Soc. linn. Lyon* (N.S.) **13** : 44, 83, pl. 67, figs 1, 2.
- massiliensis* Millière, *Nudaria*, 1864, *Annls Soc. linn. Lyon* (N.S.) **10** : 222, 242, pl. 42, figs 1-3 ; 1864, *Iconogr. Descr. Chenilles Lépid. inédits* **1** : 350, 370, pl. 42, figs 1-3.
- mediterranea* Millière, *Zophodia*, 1874, *Revue Mag. Zool.* (3) **2** : 248 ; 1881, *Lépidoptérologie* [1] (1) : 14, 16, pl. 2, fig. 16 (*Euzophera*).
- medusalis* Millière, *Hypsopygia egregialis* Herrich-Schäffer var., 1872, *Iconogr. Descr. Chenilles Lépid. inédits* **3** : 242, 250, pl. 127, figs 4, 5.
- mentonella* Millière, *Epichnopteryx*, 1877, *Annls Soc. ent. Belg.* **20** : 64, 66 ; pl. 1, fig. 8 [as *mantonella*, incorrect (multiple) original spelling] ; 1881, *Lépidoptérologie* [1] (2) : 10, 14 ; pl. 1, fig. 8 [as *mantonella*, incorrect subsequent spelling].
- meridiaria* Millière, *Acidalia degeneraria* Hübner var., 1868, *Iconogr. Descr. Chenilles Lépid. inédits* **2** : 491, 498, pl. 100, figs 13-15 ; 1869, *Annls Soc. linn. Lyon* (N.S.) **17** : 81, 88, pl. 100, figs 13-15.
- meridionalis* Millière, *Platypteryx binaria* Hufnagel var., 1871, *Iconogr. Descr. Chenilles Lépid. inédits* **3** : 212, pl. 123, figs 1-5.
- mistralella* Millière, *Euzophera*, 1874, *Revue Mag. Zool.* (3) **2** : 250 ; 1881, *Lépidoptérologie* [1] (1) : 2, 15, pl. 1, fig. 3.
- mnemosynata* Millière, *Eupithecia*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 409 ; [1876], *Mém. Soc. Sci. nat. hist. Cannes* **5** : 209.
- mnemosynella* Millière, *Blastobasis*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 346 ; [1876], *Mém. Soc. Sci. nat. hist. Cannes* **5** : 146.
- mulsantana* Millière, *Argyrolepia*, 1860, *Iconogr. Descr. Chenilles Lépid. inédits* **1** : 156, 190, (liv. 3) pl. 8, figs 1-5 ; 1861, *Annls Soc. linn. Lyon* (N.S.) **7** : 236, 270, pl. 8, figs 1-5.
- multiflorata* Millière, *Eupithecia*, 1866, *Iconogr. Descr. Chenilles Lépid. inédits* **2** : 194, 241, pl. 71, figs 8-13 ; 1867, *Annls Soc. linn. Lyon* (N.S.) **14** : 302, 349, pl. 71, figs 8-13.
- myricariella* Millière, *Trachonitis*, 1864, *Iconogr. Descr. Chenilles Lépid. inédits* **1** : 376, 412, pl. 45, figs 3-7 ; 1865, *Annls Soc. linn. Lyon* (N.S.) **11** : 4, 40, pl. 45, figs 3-7.
- napolitais* Millière, *Scoparia coarctalis* Zeller var., 1870, *Iconogr. Descr. Chenilles Lépid. inédits* **3** : 90, 127, pl. 109, fig. 17 ; 1872, *Annls Soc. linn. Lyon* (N.S.) **19** : 10, 47, pl. 109, fig. 17.
- neapolisata* Millière, *Melanippe fluctuata* Linnaeus var., 1872, *Iconogr. Descr. Chenilles Lépid. inédits* **3** : 267, 273, pl. 131, fig. 7.
- nigricantella* Millière, *Tinea*, 1872, *Petites Nouv. ent.* **1** : 172.
- nigromaculella* Millière, *Gelechia*, 1872, *Petites Nouv. ent.* **1** : 172.
- nodiforella* Millière, *Depressaria*, 1866, *Iconogr. Descr. Chenilles Lépid. inédits* **2** : 214, 243, pl. 73, figs 8-11 ; 1867, *Annls Soc. linn. Lyon* (N.S.) **14** : 322, 351, pl. 73, figs 8-11.
- notckenella* Millière, *Chimabacche*, 1881, *Lépidoptérologie* [1] (7) : 5, 22, pl. 10, fig. 7.
- oberthurella* Millière, *Tinea*, 1879, *Mém. Soc. Sci. nat. hist. Cannes* **8** : 121, 138, pl. 6, figs 5, 6 ; 1881, *Lépidoptérologie* [1] (5) : 13, 30, pl. 6, figs 5, 6.
- obscura* Millière, *Acidalia incanaria* Hübner var., 1882, *Lépidoptérologie* [2] (8) : 16, pl. 3, fig. 3.
- obscura* Millière, *Libythea celtis* Esper var. et ab., 1879, *Mém. Soc. Sci. nat. hist. Cannes* **8** : 123, 138, pl. 6, fig. 10 ; 1881, *Lépidoptérologie* [1] (5) : 15, 30, pl. 6, fig. 10.

- ochrea* Millière, *Naclia punctata* Fabricius var., 1876, *Cat. raisonné Lépid. Alpes-Maritimes*: 391; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5: 191.
- ochreomaculella* Millière, *Chauliodus*, 1854, *Annls Soc. ent. Fr.* (3) 2: 63, pl. 3, fig. (II) 4.
- odontata* Millière, *Emmelesia unifasciata* Haworth var., 1870, *Iconogr. Descr. Chenilles Lépid. inédits* 3, pl. 114, fig. 13 [3: 148, 168, as *euphrasiata*]; 1872, *Annls Soc. linn. Lyon* (N.S.) 19, pl. 114, fig. 13 [19: 68, 88, as *euphrasiata*]. [Millière names this form *euphrasiata* in the text and *odontata* on the plate.]
- olbiadactylus* Millière, *Pterophorus*, 1859, *Iconogr. Descr. Chenilles Lépid. inédits* 1: 89, 111, (liv. 2) pl. 5, figs 1-3; 1860, *Annls Soc. linn. Lyon* (N.S.) 6: 423, 445, pl. 5, figs 1-3.
- olbiaella* Millière, *Alucita*, 1861, *Iconogr. Descr. Chenilles Lépid. inédits* 1: 193, 218, (liv. 4) pl. 1, figs 1-6; 1862, *Annls Soc. linn. Lyon* (N.S.) 8: 177, 202, pl. 1, figs 1-6.
- olbiaria* Millière, *Larentia multistrigaria* Haworth ab. et var., 1865, *Iconogr. Descr. Chenilles Lépid. inédits* 2: 157, 185, pl. 68, figs 5-8; 1866, *Annls Soc. linn. Lyon* (N.S.) 13: 56, 84, pl. 68, figs 5-8.
- oleastrella* Millière, *Tinea*, 1864, *Iconogr. Descr. Chenilles Lépid. inédits* 2: 42, 64, pl. 55, figs 7-9; 1865, *Annls Soc. linn. Lyon* (N.S.) 11: 263, 285, pl. 55, figs 7-9.
- ononidella* Millière, *Coleophora*, 1879, *Mém. Soc. Sci. nat. hist. Cannes* 8: 111, 138, pl. 5, figs 4, 5; 1881, *Lépidoptérologie* [I] (5): 3, 30, pl. 5, figs 4, 5.
- ononidis* Millière, *Zygaena hilaris* Ochseneheimer var., 1878, *Petites Nouv. ent.* 2: 249.
- opulentana* Millière, *Grapholitha*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes*: 287, 415, pl. 2, fig. 14; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5: 87, 215, pl. 2, fig. 14; 1881, *Lépidoptérologie* [I] (1): 12, 16, pl. 2, fig. 14.
- ossianella* Millière, *Butalis*, 1874, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 397, 446, pl. 150, fig. 1.
- osyridellus* Stainton, *Paradoxus*, July 1869, *Entomologist's mon. Mag.* 6: 42; Millière, [31 December] 1869, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 42, 77, pl. 105, figs 12-22; Stainton, [31 December] 1869, *Tineina sth. Europe*: 167, fig.
- [The name *osyridellus* has been erroneously attributed to Millière by several authors. *P. osyridellus* originated from Millière but was used and unintentionally made nomenclaturally available by Stainton prior to its proposal and description by Millière.]
- **oxybialis* Millière, *Crambus*, 1874, *Iconogr. Descr. Chenilles Lépid. inédits* 3, pl. 135, fig. 1 [incorrect subsequent spelling of *C. oxybiellus* Millière, 1872].
- oxybialis* Millière, *Ebulea crocealis* Treitschke var., 1872, *Revue Mag. Zool.* (2) 23: 62.
- oxybiana* Millière, *Penthina sellana* Hübner var., 1874, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 449, pl. 152, figs 14, 15.
- oxybiaria* Millière, *Melanippe*, 1874, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 414, 448, pl. 151, fig. 9 [unjustified emendation of *M. oxybiata* Millière, 1872].
- oxybiata* Millière, *Melanippe*, 1872, *Revue Mag. Zool.* (2) 23: 61 [see also *M. oxybiaria* Millière, 1874].
- oxybiella* Millière, *Symmoca*, 1872, *Petites Nouv. ent.* 1: 172.
- oxybiellus* Millière, *Crambus*, 1872, *Revue Mag. Zool.* (2) 23: 62; 1874, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 284, 298; pl. 135, fig. 1 [as *oxybialis*, incorrect subsequent spelling].
- oxybiensis* Millière, *Bryophila*, 1874, *Revue Mag. Zool.* (3) 2: 242.
- oxycedrana* Millière, *Grapholitha juniperana* Millière var. et ab., 1876, *Cat. raisonné Lépid. Alpes-Maritimes*: 286; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5: 86.
- oxycedrella* Millière, *Gelechia*, 1871, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 177, 193, pl. 118, figs 1-6.
- pallens* Millière, *Setina ramosa* Godart var., 1870, *Iconogr. Descr. Chenilles Lépid. inédits* 3: 86, 127, pl. 109, figs 10, 11; 1872, *Annls Soc. linn. Lyon* (N.S.) 19: 6, 47, pl. 109, figs 10, 11.
- pandorella* Millière, *Guenea*, 1881, *Lépidoptérologie* [I] (7): 16, 22, pl. 10, fig. 20.
- **pantellaria* Millière, *Eupithecia*, 1877, *Annls Soc. ent. Fr.* (5) 7: 9, 12 [incorrect subsequent spelling of *pantellata* Millière].
- pantellata* Millière, *Eupithecia*, 1875, in Ragusa, *Boll. Soc. ent. ital.* 7: 253 [see also *E. pantellaria* Millière, 1877].

- PARADOXUS** Stainton, July 1869, *Entomologist's mon. Mag.* **6** : 42; Millière, [31 December] 1869, *Iconogr. Descr. Chenilles Lépid. inédits* **3** : 42, 77, pl. 105, figs 12-22; Stainton, [31 December] 1869, *Tineina sth. Europe* : 167.
- [The name *Paradoxus* has been erroneously attributed to Millière by Friese (1960 : 62). *Paradoxus* originated from Millière but was used and unintentionally made nomenclaturally available by Stainton prior to its proposal and generic description by Millière.]
- peucedanella** Millière, *Depressaria*, 1881, *Lépidoptérologie* [1] (7) : 13, 22, pl. 10, figs 14, 15.
- peyerimhoffata** Millière, *Eupithecia*, 1870, *Petites Nouv. ent.* **1** : 88.
- phalenarum** Millière, *Erastria scitula* Rambur var., 1884, *Revue Ent.* **3** : 2, pl. 1, fig. 4.
- philemonella** Millière, *Myelois*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 263; [1876], *Mém. Soc. Sci. nat. hist. Cannes* **5** : 63.
- philyrella** Millière, *Zelleria*, 1867, *Iconogr. Descr. Chenilles Lépid. inédits* **2** : 286, 324, pl. 81, figs 6-8; 1868, *Annls Soc. linn. Lyon (N.S.)* **15** : 194, 232, pl. 81, figs 6-8.
- phoebusella** Millière, *Bryotropha*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 328; [1876], *Mém. Soc. Sci. nat. hist. Cannes* **5** : 128.
- pinastrella** Millière, *Apterona*, 1857, *Annls Soc. linn. Lyon (N.S.)* **4** : 199, 202, pl. 2, figs 3-5.
- pollinis** Millière, *Retinia*, 1874, *Revue Mag. Zool.* (3) **2** : 251.
- polymnia** Millière, *Thais polyxena* Denis & Schiffermüller [cited as 'Schiff.'] var., 1874, *Iconogr. Descr. Chenilles Lépid. inédits* **3** : 438, 451, pl. 154, fig. 2.
- polyxanella** Millière, *Ephestia*, 1872, *Revue Mag. Zool.* (2) **23** : 63.
- primulata** Millière, *Eupithecia*, 1874, *Revue Mag. Zool.* (3) **2** : 244.
- provinciaria** Millière, *Eupithecia*, 1872, *Revue Mag. Zool.* (2) **23** : 61.
- psoralata** Millière, *Boarmia*, 1885, *Naturalista sicil.* **4** : 278; [1887], *Cat. raisonné Lépid. Alpes-Maritimes*, 2^e Suppl., *Notes ent. diverses* ([1]) : 30.
- psoraletta** Millière, *Gelechia*, 1865, *Iconogr. Descr. Chenilles Lépid. inédits* **2** : 83, 99, pl. 61, figs 1-6; 1866, *Annls Soc. linn. Lyon (N.S.)* **12** : 427, 443, pl. 61, figs 1-6.
- psychidella** Millière, *Incurvaria*, 1854, *Annls Soc. ent. Fr.* (3) **2** : 59, pl. 3, fig. (II) 1.
- putchellois** Millière, *Pyralis*, 1873, *Cat. raisonné Lépid. Alpes-Maritimes* : 221; 1874, *Mém. Soc. Sci. nat. hist. Cannes* **3** : 241.
- *punctata** Millière, *Acadalia*, 1866, *Iconogr. Descr. Chenilles Lépid. inédits* **2** : 206, 208; 1867, *Annls Soc. linn. Lyon (N.S.)* **14** : 314, 316 [published in synonymy, not nomenclaturally available, see *Int. Code zool. Nom.*, Article 11 (d)].
- purpurana** Millière, *Carcina quercana* Fabricius var. et ab., 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 343; [1876], *Mém. Soc. Sci. nat. hist. Cannes* **5** : 143.
- pythonissa** Millière, *Papillio* [sic!] [*Limnitis*, : 110, pl. 4] *camilla* Fabricius ab. et var., 1859, *Iconogr. Descr. Chenilles Lépid. inédits* **1** : 82, 110, (liv. 2) pl. 4, fig. 1; 1860, *Annls Soc. linn. Lyon (N.S.)* **6** : 416, 444, pl. 4, fig. 1.
- pythonissata** Millière, *Cidaria immanata* Haworth var., 1870, *Iconogr. Descr. Chenilles Lépid. inédits* **3** : 120, 129, pl. 111, fig. 9; 1872, *Annls Soc. linn. Lyon (N.S.)* **19** : 40, 129 [recte 49], pl. 111, fig. 9.
- ragonotella** Millière, *Ephestia*, 1881, *Lépidoptérologie* [1] (7) : 4, 22, pl. 10, fig. 6.
- ragusario** Millière, *Nychiodes lividaria* Hübner var., 1884, *Naturalista sicil.* **3** : 196, pl. 3, fig. 1.
- reaumuraria** Millière, *Cleta*, 1864, *Iconogr. Descr. Chenilles Lépid. inédits* **2** : 2, 33, pl. 51, figs 1, 2.
- rhadama** Millière, *Orthosia*, 1882, *Lépidoptérologie* [2] (8) : 1, 30, pl. 1, fig. 1; 1883, *Annls Soc. linn. Lyon (N.S.)* **29** : 153, 182, pl. 1, fig. 1.
- robinella** Millière, *Myelois*, 1865, *Iconogr. Descr. Chenilles Lépid. inédits* **2** : 87, 99, pl. 61, figs 8-11; 1866, *Annls Soc. linn. Lyon (N.S.)* **12** : 431, 443, pl. 61, figs 8-11.
- romanaria** Millière, *Acadalia*, 1869, *Iconogr. Descr. Chenilles Lépid. inédits* **3** : 52, 78, pl. 106, figs 4-11; 1872, *Annls Soc. linn. Lyon (N.S.)* **18** : 52, 78, pl. 106, figs 4-11.
- romanella** Millière, *Rhodophaea*, 1870, *Iconogr. Descr. Chenilles Lépid. inédits* **3** : 150, 169, pl. 115, figs 1-5; 1872, *Annls Soc. linn. Lyon (N.S.)* **19** : 70, 89, pl. 115, figs 1-5.

- **rose* Millière, *Liporis rubea* Denis & Schiffermüller var., 1866, *Iconogr. Descr. Chenilles Lépid. inédits* 2 : 258 [incorrect (multiple) original spelling of *rosea* Millière].
- rosea* Millière, *Liparis rubea* Denis & Schiffermüller [cited as 'S.V.'] var., 1866, *Iconogr. Descr. Chenilles Lépid. inédits* 2 : 258 [as *rose*, incorrect (multiple) original spelling], 278, pl. 78, figs 4-6 ; 1867, *Annls Soc. linn. Lyon* (N.S.) 14 : 366 [as *rose*, incorrect subsequent spelling], 386, pl. 78, figs 4-6.
- rosmarinana* Millière, *Olindia*, 1865, *Iconogr. Descr. Chenilles Lépid. inédits* 2 : 108, 140, pl. 63, figs 9-12 ; 1866, *Annls Soc. linn. Lyon* (N.S.) 13 : 8, 40, pl. 63, figs 9-12.
- rosmarinata* Millière, *Eupithecia*, 1865, *Iconogr. Descr. Chenilles Lépid. inédits* 2 : 104, 140, pl. 63, figs 4-8 ; 1866, *Annls Soc. linn. Lyon* (N.S.) 13 : 4, 40, pl. 63, figs 4-8.
- rubricella* Millière, *Depressaria*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 323 ; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5 : 123.
- ruminata* Millière, *Acidalia osellaria* Herrich-Schäffer ab. et var., 1885, *Annls Soc. ent. Fr.* (6) 5 : 115, 120, pl. 2, figs 4, 5 ; [1887], *Cat. raisonné Lépid. Alpes-Maritimes*, 2^e Suppl., *Notes ent. diverses* ([5]) : 115, pl. 2, figs 4, 5.
- rumicivorella* Millière, *Gelechia*, 1881, *Lépidoptérologie* [1] (7) : 11, 22, pl. 10, fig. 13.
- sapho* Millière, *Fumea*, 1864, *Iconogr. Descr. Chenilles Lépid. inédits* 2 : 25, 36, pl. 54, figs 1, 2.
- satanas* Millière, *Agdistis*, 1876, *Bull. Soc. ent. Fr.* 1875 : 167 ; 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 377, 415, pl. 2, fig. 9 ; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5 : 177, 215, pl. 2, fig. 9 ; 1881, *Lépidoptérologie* [1] (1) : 10, 16, pl. 2, fig. 9.
- satureiella* Millière, *Nephopteryx*, 1873, *Revue Mag. Zool.* (3) 1 : 7.
- scalettaria* Millière, *Dasydia operaria* Hübner var. an bona sp., 1864, *Iconogr. Descr. Chenilles Lépid. inédits* 1 : 404, 417, pl. 50, figs 3-7 ; 1865, *Annls Soc. linn. Lyon* (N.S.) 11 : 32, 45, pl. 50, figs 3-7.
- scopariae* Millière, *Agrotis agathina* Duponchel ab. et var., 1865, *Iconogr. Descr. Chenilles Lépid. inédits* 2 : 151, 184, pl. 67, figs 7-10 ; 1866, *Annls Soc. linn. Lyon* (N.S.) 13 : 50, 83, pl. 67, figs 7-10.
- **semibrunnea* Millière, *Lycaena corydon* [sic!] Fabricius ab., 1859, *Iconogr. Descr. Chenilles Lépid. inédits* 1 : 84, 110, (liv. 2) pl. 4, fig. 3 ; 1860, *Annls Soc. linn. Lyon* (N.S.) 6 : 418, 444, pl. 4, fig. 3 [infrasubspecific name].
- sextiata* Millière, *Eupithecia*, 1867, *Iconogr. Descr. Chenilles Lépid. inédits* 2 : 370, 407, pl. 89, fig. 5 ; 1868, *Annls Soc. linn. Lyon* (N.S.) 16 : 42, 79, pl. 89, fig. 5.
- sibirialis* Millière, *Stenia*, 1879, *Naturaliste* 1 : 139.
- silphana* Millière, *Penthina*, 1874, *Revue Mag. Zool.* (3) 2 : 247 ; 1881, *Lépidoptérologie* [1] (1) : 4, 15, pl. 1, fig. 9.
- silphella* Millière, *Psyche*, 1871, *Iconogr. Descr. Chenilles Lépid. inédits* 3 : 204, 225, pl. 122, figs 1-5.
- smilaxella* Millière, *Acrolepia*, 1864, *Iconogr. Descr. Chenilles Lépid. inédits* 1 : 385, 413, pl. 46, figs 6-11 ; 1865, *Annls Soc. linn. Lyon* (N.S.) 11 : 13, 41, pl. 46, figs 6-11.
- staintonellus* Millière, *Chauliodus*, [31 December] 1869, *Iconogr. Descr. Chenilles Lépid. inédits* 3 : 45, 77, pl. 105, figs 1-11 ; Stainton, [31 December] 1869, *Tineina sth. Europe* : 169 ; Millière, 1872, *Annls Soc. linn. Lyon* (N.S.) 18 : 45, 77, pl. 105, figs 1-11.
- [The name *staintonellus* has been attributed to Stainton by several authors. *C. staintonellus* originated from Millière and was used by Millière and by Stainton in 1869. The exact dates of publication of their works are unknown. Millière's paper was submitted to the Société Linnéenne de Lyon on 12 April, 1869 (see page 243). The introduction to Stainton's book is dated 4 October, 1869 (page iv), and on page 370 Stainton states 'Monsieur Millière's descriptions of these species will probably be published before the appearance of this volume'. There is also evidence in a letter from Stainton to Zeller that on 25 November, 1869, the *Tineina sth. Europe* was not yet published. As Stainton attributed the name *staintonellus* to Millière and as from the above evidence it seems likely that Millière's paper was published first it is here given priority over that by Stainton. This is also in agreement with Friese (1960 : 66).]

- staticeana* Millière, *Lobesia*, 1868, *Iconogr. Descr. Chenilles Lépid. inédits* 2 : 430, 448, pl. 95, figs 9-14 ; 1869, *Annls Soc. linn. Lyon* (N.S.) 17 : 20, 38, pl. 95, figs 9-14.
- staticella* Millière, *Ergatis* (*Gelechia*), 1876, *Bull. Soc. ent. Fr.* 1875 : 167 ; 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 334 ; 415 [erroneously as *lerinsis*], pl. 2, figs 12, 13 ; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5 : 134 ; 215 [erroneously as *lerinsis*], pl. 2, figs 12, 13 ; 1881, *Lépidoptérologie* [1] (1) : 12 ; 16 [erroneously as *lerinsis*], pl. 2, figs 12, 13.
- staticis* Millière, *Agdistis*, 1876, *Bull. Soc. ent. Fr.* 1875 : 167 ; 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 375, 415, pl. 2, figs 4-8 ; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5 : 175, 215, pl. 2, figs 4-8 ; 1881, *Lépidoptérologie* [1] (1) : 8, 16, pl. 2, figs 4-8.
- stelviana* Millière, *Tortrix steineriana* Hübner var., 1874, *Iconogr. Descr. Chenilles Lépid. inédits* 3 : 434, 450, pl. 153, figs 11-13.
- subcaerulea* Millière, *Zygaena wagneri* Millière var. et ab., 1886, *Annls Soc. ent. Fr.* (6) 6 : 7 ; [1887], *Cat. raisonné Lépid. Alpes-Maritimes, 2^e Suppl., Notes ent. diverses* ([6]) : 7.
- subflavaria* Millière, *Boarmia*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 404 ; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5 : 204.
- subfaveola* Millière, *Fumea*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 305 ; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5 : 105.
- submundalis* Millière, *Orobena*, 1882, *Lépidoptérologie* [2] (8) : 8, 32, pl. 2, fig. 2 ; 1883, *Annls Soc. linn. Lyon* (N.S.) 29 : 160, 184, pl. 2, fig. 2.
- subnigra* Millière, *Spilosoma* [sic!] *fuliginosa* Linnaeus var., 1881, *Lépidoptérologie* [1] (6) : 4, 6, 20, pl. 8, fig. 7.
- subtriquetrella* Millière, *Apteronia*, 1857, *Annls Soc. linn. Lyon* (N.S.) 4 : 193, 202, pl. 1, figs 1-5.
- suriens* Millière, *Fumea*, 1865, *Iconogr. Descr. Chenilles Lépid. inédits* 2 : 126, 142, pl. 65, figs 4, 5 ; 1866, *Annls Soc. linn. Lyon* (N.S.) 13 : 26, 42, pl. 65, figs 4, 5 [unjustified emendation of *Psyche surientella* Bruand, 1858, *Annls Soc. ent. Fr.* (3) 6 : 465. Bruand first published the name *suriens* but did not make it nomenclaturally available as he placed it in synonymy].
- thorencella* Millière, *Oecophora*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 346 ; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5 : 146.
- thymula* Millière, *Nola*, 1867, *Iconogr. Descr. Chenilles Lépid. inédits* 2 : 337, 361, pl. 85, figs 11-16 ; 1868, *Annls Soc. linn. Lyon* (N.S.) 16 : 9, 33, pl. 85, figs 11-16.
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- typhonia* Millière, *Polia dubia* Duponchel var., 1882, *Lépidoptérologie* [2] (8) : 26, 36, pl. 4, figs 10, 11 ; 1883, *Annls Soc. linn. Lyon* (N.S.) 29 : 178, 188, pl. 4, figs 10, 11.
- unedella* Millière, *Teleia*, 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 331 ; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5 : 131.
- unicolorella* Millière, *Tinagma transversellum* Zeller var., 1876, *Cat. raisonné Lépid. Alpes-Maritimes* : 358 ; [1876], *Mém. Soc. Sci. nat. hist. Cannes* 5 : 158.
- valesiella* Millière, *Psyche*, 1866, *Iconogr. Descr. Chenilles Lépid. inédits* 2 : 250, 277 ; pl. 77, figs 6, 7 [as *vulesiella*, incorrect (multiple) original spelling] ; 1867, *Annls Soc. linn. Lyon* (N.S.) 14 : 358, 385 ; pl. 77, figs 6, 7 [as *vulestiella*, incorrect subsequent spelling].
- vandalicia* Millière, *Bombyx*, 1865, *Iconogr. Descr. Chenilles Lépid. inédits* 2 : 93, 100, pl. 62, figs 6, 7 ; 1866, *Annls Soc. linn. Lyon* (N.S.) 12 : 437, 444, pl. 62, figs 6, 7.
- vesubiata* Millière, *Acidalia*, 1873, *Revue Mag. Zool.* (3) 1 : 6.
- vesubiella* Millière, *Psyche*, 1872, *Petites Nouv. ent.* 1 : 255.
- **vulesiella* Millière, *Psyche*, 1866, *Iconogr. Descr. Chenilles Lépid. inédits* 2, pl. 77, figs 6, 7 [incorrect (multiple) original spelling of *valesiella* Millière].

- wagneri** Millière, *Zygaena*, 1885, *Bull. Soc. ent. Fr.* **1885**: 92; 1886, *Annls Soc. ent. Fr.* (6) **6**: 6, pl. 1, figs 3-7; [1887], *Cat. raisonné Lépid. Alpes-Maritimes, 2^e Suppl., Notes ent. diverses* ([6]): 6, pl. 1, figs 3-7.
- walsinghamella** Millière, *Argyrestia* [sic!], 1881, *Lépidoptérologie* [1] (7): 21.
- zephyrata** Millière, *Acidalia*, 1872, *Iconogr. Descr. Chenilles Lépid. inédits* **3**: 268, 274, pl. 132, figs 1-8.

DIPTERA

- bigoti** Millière, *Morinia*, 1864, *Iconogr. Descr. Chenilles Lépid. inédits* **1**: 385, 413, pl. 46, figs 4, 5; 1865, *Annls Soc. linn. Lyon* (N.S.) **11**: 13, 41, pl. 46, figs 4, 5.

HEMIPTERA

- †**longicaudatus** Millière, *Aphis*, 1853, *Annls Soc. ent. Fr.* (3) **1**: 9, pl. 3, fig. II. [Fossil]

HYMENOPTERA

- hirtae** Millière, *Cryptus*, 1862, *Iconogr. Descr. Chenilles Lépid. inédits* **1**: 277, 280, (liv. 6) pl. 4, fig. 10; 1863, *Annls Soc. linn. Lyon* (N.S.) **9**: 21, 24, pl. 4, fig. 10.
- vesubiellae** Millière, *Eulophus*, [1879], *Mém. Soc. Sci. nat. hist. Cannes* **7**: 33, 43, pl. 4, figs 5-7; 1881, *Lépidoptérologie* [1] ([3]): 14, 24, pl. 4, figs 5-7.

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* The words ' du Département ' are omitted from the title of parts (2) and (3).
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PLATE 1

Title page of *Icon. Descr. Chenilles Lépid. inédits*, volume **1**, livraison 1, édition 'a'.

ICONOGRAPHIE ET DESCRIPTION
DE
CHENILLES ET LÉPIDOPTÈRES

INÉDITS,

PAR
P. MILLIÈRE.

EXTRAIT DES ANNALES DE LA SOCIÉTÉ LINNÉENNE DE LYON,
NOUVELLE SÉRIE, TOME V.

LYON,
IMPRIMERIE DE **F. DUMOULIN**, LIBRAIRE,
rue St-Pierre, 20.

1859.

PLATE 2

Title page of *Icon. Descr. Chenilles Lépid. inédits*, volume **1**, livraison 1, édition 'b'.

ICONOGRAPHIE ET DESCRIPTION
DE
CHENILLES ET LÉPIDOPTÈRES

INÉDITS

PAR

P. MILLIÈRE.

NOUVELLE SÉRIE, TOME V

(PREMIÈRE LIVRAISON)

TOME PREMIER

Extrait des Annales de la Société Linnéenne de Lyon

PARIS

F. SAVY

LIBRAIRE DE LA SOCIÉTÉ GÉOLOGIQUE DE FRANCE

RUE HAUTEFEUILLE, 24

—
1859

PLATE 3

Title page of *Icon. Descr. Chenilles Lépid. inédits* in which the volume number and date of publication can be inserted as appropriate.

ICONOGRAPHIE ET DESCRIPTION
DE
CHENILLES ET LÉPIDOPTÈRES

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PAR

P. MILLIERE

TOME

PARIS

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LIBRAIRE DE LA SOCIÉTÉ GÉOLOGIQUE DE FRANCE

RUE HAUTEFEUILLE, 24

18

BRITISH
NAT. F.
13 AUG 1944



SIR JOSEPH BANKS AND THE PLANT
COLLECTION FROM KEW SENT TO
THE EMPRESS CATHERINE II
OF RUSSIA 1795

H. B. CARTER



BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
HISTORICAL SERIES

Vol. 4 No. 5

LONDON: 1974



32 Soho Square The study and the library

SIR JOSEPH BANKS AND THE PLANT
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BY
HAROLD B. CARTER

Pp 281-385 ; 4 Plates



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THE BULLETIN OF THE BRITISH MUSEUM (NATURAL HISTORY), *instituted in 1949, is issued in five series, corresponding to the Departments of the Museum, and an Historical series.*

Parts will appear at irregular intervals as they become ready. Volumes will contain about three or four hundred pages, and will not necessarily be completed within one calendar year.

In 1965 a separate supplementary series of longer papers was instituted, numbered serially for each Department.

This paper is Vol. 4, No. 5, of the Historical series. The abbreviated titles of periodicals cited follow those of the World List of Scientific Periodicals.

*World List abbreviation :
Bull. Br. Mus. nat. Hist. (hist. Ser.)*

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TRUSTEES OF
THE BRITISH MUSEUM (NATURAL HISTORY)

Issued 9 May, 1974

Price £5.45

SIR JOSEPH BANKS AND THE PLANT COLLECTION FROM KEW SENT TO THE EMPRESS CATHERINE II OF RUSSIA 1795

By HAROLD B. CARTER

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INTRODUCTION

IT HAS long been the author's belief, in spite of the growing list of scholarly studies, that nothing less than a complete gathering and collation of his surviving widely scattered papers will place Sir Joseph Banks in his right place among the hierarchy of great Englishmen. Even a short acquaintance with accessible samples of his correspondence is enough to emphasise the formidable nature of such a task. This has effectively discouraged any practical attempt ever since the range and size of the originally well-organised mass of manuscripts was for the first time realised after his death in 1820.

The vicissitudes of these papers and their final dispersal after 1886 have been reported in sufficient detail elsewhere within recent years¹. There is no need for repetition here. It is enough to note that the episode recorded in the present sequence of documents is a small example of what can be restored on a much greater scale if a systematic attack is made on the problem. There is in fact no good reason why the surviving Banksian papers, despite their world-wide scatter, should not now be brought together in a grouping and continuity somewhat similar to their original good order. The disrupting hand of the dealer in manuscripts and the capricious taste and attitudes of the market itself within the past century have created some gaps that probably cannot now be filled. Enough remains, however, to ensure that at last something like justice can be done to a man whose life was an extraordinary example of public service in its best form and broadest sense.

Traces of the present episode were first seen by the author in September 1964 at the Alexander Turnbull Library, Wellington, New Zealand, in the isolated item

¹ The most informative account is that by Miss Phyllis Mander-Jones, 'A History of the Papers of Sir Joseph Banks' (1949, rev. 1951 and 1953), Mitchell Library, Ab 67-9/7, in typescript.

ATL No. 112 [Banks to Burges, 6 May 1795]. Soon after in the same month the draft paper B.21 was read in the Auckland Institute and Museum [Banks to Burges, 15 June 1795]. Together these more than hinted at the circumstances of an important incident in the history of plant migrations. The framework of the story was, however, not defined until several weeks later in October 1964 during a systematic study of the Banks manuscripts in the Sutro Library at the University of San Francisco. Here, sufficiently complete, was the main body of records from Banks's own files and in a state from which the circumstances of the plant gift from George III to Catherine II of Russia could be deduced. It was not until several years later, however, that this forgotten and unpublicised diplomatic incident could be fitted into its proper historic niche.

This was made possible by the aid of two generous grants from the American Philosophical Society (Penrose Fund No. 3776 and Johnson Fund No. 634) toward the full collation of the Banks papers. In the interim much time was spent in gathering on microfilm and otherwise copies of all the known major collections of the Banks manuscripts and in preparing the foundations of a complete chronological index of the scattered documents. Out of this work the present series emerges as a succinct example of many other operations more extended and significant in which Banks was concerned as a central and indispensable figure during his long presidency of the Royal Society of London.

In 1795 Banks was in his fifty-third year and had been P.R.S. for sixteen years. The 'dissensions' of 1783-4 were long past and there was no immediate threat to what had become for him almost an established position in the public service. In the previous eight years gout had laid an increasingly heavy hand upon him. His fifty-second birthday was passed during one such severe episode, probably in bed, at 32 Soho Square. Another burden had recently been added to his life by the death of his uncle and former guardian, Robert Banks Hodgkinson, F.R.S. (1722-1792) in November 1792. The Overton estate thus reverted to his control with the residual duties as executor of his uncle's will jointly with Sir Henry Hawley, 1st bart. (1745-1826). He was now the only surviving Banks in the direct male line as heir to the entailed estates of his grandfather, Joseph Banks, F.R.S. (1695-1741).

The year 1795 into which by historical chance this episode in botanical diplomacy comes is therefore a suitable period in Banks's life on which to focus a little more closely. By this we can reveal something of that detail of his life and mode of working which is so conspicuously absent from the brief memoirs and short biographies so far to hand. Nor would the episode itself be clear without some background of how it was done by Banks and of the roots of the organisation he was able to command in order to fulfil the bare command received, possibly, direct from the King himself in one of their frequent meetings in the Gardens at Kew.

HISTORICAL BACKGROUND

During the eighteenth century British relations with Russia centred round the maintenance of trade, especially in strategic materials - timber, pitch, tar, hemp,

sailcloth, iron and steel – essential to the growth and upkeep of her naval and mercantile shipping. This relationship had been formulated in a series of commercial treaties after the death of Peter the Great who had already decisively influenced its pattern when he made St. Petersburg the political capital. The commercial treaty of 1734 under the Tsarina Anna ended the period of Anglo-Russian enmity which followed the strong rule of Peter and established the eastern Baltic trade as the axis of their political relations for the rest of the century. Politically Britain needed Russian support against the counterweight of France with her Baltic satellites, Denmark and Sweden. Strategically Britain needed access to Russian sources of naval stores. Commercially she needed the Russian markets for British woollens as a defence against the competing industry of Silesia at a time when woollen exports formed about one-third of the total British export trade.

Although in modern terms the Russians were in the position of the most-favoured nation they made little use of this privilege in the trade with Britain, with whom the mercantile initiative lay almost entirely. In this trade the Russia Company was the effective instrument throughout the eighteenth century even though it was then in the last phase of its own long life as a trading corporation.

The trade was almost entirely conducted in fleets of British merchant vessels in a restricted seasonal movement from England in the spring returning in the autumn. It was a very stable trade and a steady peacetime training of merchant seamen, though providing a rich source for the press-gangs of the Royal Navy in time of war. However, to preserve this system Britain was very dependent on a neutral Russia (at best) and an open Baltic Sea for the maintenance of her merchant and naval marine. It was a precarious life-line always menaced by the vagaries of the climate both of Nature and of international politics.

It is easy to understand therefore why Britain was prepared to sustain a negative trade balance for so long which was in general one-third against her. On the other hand, Russia was almost entirely dependent on British merchants and British shipping for the greater part of her export income, although she gained thereby a steady flow of ready finance. On the whole these circumstances kept the political balance fairly even. However, there is more than a little substance to the view of some recent Soviet historians that without the Baltic trade with Russia in the eighteenth century the first British empire could never have been formed nor Britain ever have become a great power.

With the accession of Catherine II in 1762 and the relaxation of tension between Britain and Russia at the end of the Seven Years' War, the commercial treaty of 1734 which had expired in 1757 was at length renewed in that of 1766 by Sir George (later Lord) Macartney after many attempts by previous envoys since 1755.

The volume of the trade in the half-century since 1700 had increased more than tenfold but the value of British exports had no more than doubled. Thus the imbalance of trade against Britain was stronger than ever. However, the advantages of its maintenance were no less favourable to both sides in spite of shifting political alignments in which alternately Russo-Turkish or Russo-Polish affairs were the central themes. Britain on the whole was insensitive to Polish affairs and aloof to Catherine's successive interventions in that luckless country. On the other

hand, Russia's relations with Turkey elicited more active British responses to the extent that these were due to Catherine's maritime adventures, mercantile or naval. To these Britain certainly could not remain indifferent.

The protracted diplomatic manœuvres of the 1760's and 1770's were sharpened into more precise form by the War of American Independence. Britain's hopes for Russian aid in this war were rebuffed. Worse than this Catherine organised the Armed Neutrality of 1780 in her bid for the role of peacemaker in Europe and as an expression of growing Russian resentment of Britain's stranglehold on her foreign trade.

The twelve years from 1775 to 1787 under the impact of this policy saw the number of British ships in the Russian trade trebled, certainly, but those of other nations including Russia increased sevenfold. Catherine's persistent efforts towards economic freedom from British trading pressures culminated in the events of the Ochakov crisis of 1791.

In this affair relations with Poland and Turkey became entangled with the spectre of Russian expansionism. Russian control of Polish trade through the Black Sea, which the capture of Ochakov from the Turks implied, conveyed a double threat to British trade in that area. As William Pitt and his advisers saw it, this was not only a disruption of the Baltic trade pattern but also the admittance of the French to the naval stores from Poland and the Ukraine. For a time war threatened between Britain and Russia as Pitt vacillated and until Catherine made peace with the Turks, concluded at the Treaty of Jassy in January 1792. In the flurry of diplomatic activity that preceded this pause in the decline of Anglo-Russian relations Sir Charles Whitworth was at the centre as British envoy-extraordinary and minister-plenipotentiary at Warsaw¹, a post he had held since 1785. Well-received as he had been at first in this capacity by Catherine his relations at her Court were severely strained for a brief period during March and April 1791 when his orders to deliver an ultimatum to the Empress were hastily and only at the last moment countermanded. Britain's influence on the Russo-Turkish peace concluded at Jassy was only marginal. Of this little, however, much was due to Whitworth and he obtained some credit at home for his skilful recovery of diplomatic favour with Catherine. No less important perhaps was the restraint exercised from London by Charles James Fox and His Majesty's Opposition skilfully handled by Count Simon Vorontsov, the Russian Ambassador at the Court of St. James's².

The short-lived but dramatic Ochakov crisis with Britain was quickly submerged in Catherine's mind, however, by her rising fears at the course of the French Revolution, the plight of the French monarchy, and the growing excesses of the National Convention with all the threats implied by these events to monarchies everywhere. She renounced the commercial treaty with France made in 1790. Then in 1793 she renewed the old Anglo-Russian agreement of 1766 (lapsed in 1787) with little substantial change in its terms.

¹ Charles Whitworth, 1st Earl Whitworth (1752-1825). Envoy-extraordinary and minister-plenipotentiary at Warsaw, 1785-1793; at St. Petersburg, 1793-1800; ambassador at Paris, 1802-1803. He was the grandson of another Charles Whitworth, Baron Whitworth (1675-1725), also envoy-extraordinary to Russia, 1704-1710, and author of *Account of Russia as it was in the Year 1710*, published by Horace Walpole (Strawberry Hill, 1758).

² Count Simon Vorontsev (1744-1833), Russian Ambassador at the Court of St. James's, 1785-1806.

Through all the events of this *rapprochement* between Britain and Russia Sir Charles Whitworth, fully restored to Catherine's favour, proved himself an able diplomat. Early in 1793 he was recalled to London at a time when Britain's pre-occupation with the recent outbreak of war with revolutionary France obscured the part played by Catherine in the second partition of Poland. Later that year on 17 November 1793, at the Court of St. James's, Whitworth was created a Knight of the Order of the Bath as his just reward. The euphoria of his success, however, did not in any way dull his sensitivity to the minutiae of diplomacy. It was almost certainly at his inspiration that Catherine came to express her wishes for a plant collection from the Royal Gardens at Kew. He would have known well her long-standing admiration of the English garden expressed so fervently to Voltaire in 1772: 'I love to distraction these gardens in the English style - their curving lines, the gentle slopes the ponds like lakes. My Anglomania predominates over my plutomania...'¹ He would have been aware also of the fine landscape about the new Palace of Pavlovsk which had been under construction since 1781 for the Grand Duke Paul, Catherine's son and heir, to the plan and under the supervision of Charles Cameron of whom Catherine had said: 'A présent je me suis emparée de Mister Cameron, écossais de nation, Jacobite de profession, grand dessinateur nourri d'antiquités, connu par un livre sur les bains romains'². Pavlovsk was Cameron's classic success after his earlier work on Catherine's great Palace of Tsarskoe Selo and one of the finest pieces of Neo-Classicism in Russia³. Whitworth could have had no difficulty in developing the notion with the old Empress that plants from the Royal Gardens at Kew would be the final adornment. It was a shrewd point in diplomatic finesse that he conveyed the Imperial wishes to Lord Grenville at the Foreign Office in a letter not long before his investiture with the cross of the K.B.⁴ Through the same channel he received soon after His Majesty's formal assent.⁵

¹ Catherine II to Voltaire, 25 June 1772.

² Catherine to Baron Grimm, 23 August 1779, *Records*, Imperial Historical Society, XXIII, p. 248, and also in *Correspondence artistique de Grimm avec Catherine II. Archives de l'Art français*, Reau, L. (1932). Charles Cameron (1740-1812), certainly a Scot but probably not a Jacobite, was a distinguished contemporary of Robert Adam but has been little studied or known outside Russia. For what we know see the monograph *Charles Cameron*, Loukomski, G. (1943), London, The Commodore Press.

³ These two great palaces were developed under Charles Cameron with lavish finance from Catherine II during the last seventeen years of her reign, 1779-1796. Tsarskoe Selo is about 15-16 miles [c. 25 km] south of Leningrad [St. Petersburg] and Pavlovsk nearby about one or two miles further south. That at Tsarskoe Selo [Tsar's Village] was the usual Imperial residence, a Russian Windsor Castle of the eighteenth century. After the Revolution in 1917 it was re-named Detskoe Selo [Children's Village] and more recently changed to its present name Pushkino after the poet Pushkin. Pavlovsk was designed and decorated primarily by Charles Cameron from 1781-1796 and under his supervision until Paul I replaced him by his assistant Brenna after Catherine's death. It was later the centre of a charming garden city and was regarded as one of the finest examples of park landscaping in the world. The 'Private Garden' was developed from 1784 onwards.

During the siege of Leningrad 1941-1944 in World War II both Palaces were in the front line of the besieging German army and, with their surrounding grounds, almost destroyed. They have since been magnificently restored by the Russians. No traces, however, remain of the original Private Garden or the greenhouses to which the plant collection from Kew was brought in 1795. [Cf. letter dated 19 December 1967 from M. S. Filippov, Director of the Library of the Academy of Sciences, Leningrad, to M. J. Rowlands, Chief Librarian, British Museum (Natural History), London.] Nor does there seem to be any surviving evidence in USSR of the transaction described in this bulletin.

⁴ Grenville to George III, 15 November 1793, *Fortescue MS.*

⁵ George III to Grenville, 16 November 1793, *Fortescue MS.*

However, the fulfilment of such diplomatic gambits, important as they are in the fine structure of international relations, is not always easy. As with so many other things during those fateful years of 1793-4 other preoccupations and dangers intervened to prevent or delay effective action. The emotional shock of the Terror in France on the fabric of European governments and the sequence of military disasters in 1794 obscured for His Majesty's Government the relevance of botanical *douceurs* to ageing Empresses. In February 1795 the initialling of a preliminary defensive treaty between Catherine and the Coalition Powers clearly revived the gesture as a fitting embellishment of Whitworth's success in achieving the new Russian commitment against France¹.

THE CIRCUMSTANCES OF 1795

The interest of the Tsarina Catherine II sustained over two years of war had slowly infiltrated the maze of political events and diplomatic protocol to become a matter of practical urgency for the President of the Royal Society of London. The onset of spring after the deep and severe winter of 1794-5 brought the King and Sir Joseph Banks together on their common meeting ground at Kew as soon as the weather would allow on 4 April 1795. It is very probable that on this particular day Sir Joseph received in person from the King himself the definitive orders to gather and arrange the despatch of the plant collection for the Tsarina. Somehow this task had to find its place suddenly in the intricate and unending activities of a man whose public service never ceased, the full range of his work being known to few, probably to none. This particular Royal command was laid on an ever-willing work-horse in one of the most critical and disturbed years in the long and by no means tranquil reign of George III.

For the nation the year 1795 was to be one of widespread civic unrest and violence. This was compounded of the pressures arising from the extending mobilisation for war and the starvation and want due to the state of the seasons. All this was brought to a frothy ferment by the inoculation of revolutionary thoughts from France. These elements are present as factors influencing the day-to-day activities and correspondence of Sir Joseph Banks, limiting or guiding his operations, occasionally breaking through in a revealing sentence, but never deflecting him from his purposes.

The winter of 1794-5 was one of the most severe ever experienced in Britain since records of any kind have been kept or weather conditions in any way noted systematically. From the beginning of the New Year the evidence of this is to be found in almost every letter to Soho Square, especially in the estate correspondence from Revesby Abbey and Mareham-le-Fen as James Roberts and Benjamin Stephenson reported the depth of the snow and its duration, the hardness of the frost, the force of the wind, or the progress of the thaw and the extent of the floods that followed across the acres of the Revesby estate. This was the year in which Benjamin Stephenson (c. 1720-1795), the old and faithful steward of the Banks family,

¹ For authoritative recent studies of the background to this brief account cf. *Great Britain and Europe in the Eighteenth Century*, Horn, D. B. (1967), pp. 201-235, and *The Younger Pitt*, Ehrmann, J. (1969), pp. 467-515.

wrote his last letter to the master in Soho Square. Fifty-one years of service lay behind – twenty-one years under William Banks (1719–1761) the father and thirty under Joseph Banks the son. Before the summer was over old Benjamin was dead. His place as agent at Revesby was for a time filled by another as steadfast and faithful in James Roberts (1752–1826) who at sixteen in 1768 had become the servant of the young master on the *Endeavour* and so continued until Banks's death in 1820. This was a relationship of fifty-two years' standing rather as trusted friends than as master and man.

There were other echoes of that adventurous past during the bitter January of 1795. Henry Dundas, as President of the Board of Control, and until recently the Home Secretary who had drafted the 'Instructions' to the Macartney Embassy to China, was now anxious for Banks's views on the publication of its results. The Embassy had returned on H.M.S. *Lion* the previous September and already Banks had spent some time on the plant collections brought home by Sir George Leonard Staunton and the botanists and gardeners. In his answer to Dundas, Banks gave a long and detailed account of how, twelve years before, the publication of Cook's third voyage was managed as a guide to the present. He declined the task of formal supervision of the Embassy publication and recommended that all should be left to George Nicols the King's publisher. He would, however, act as an adviser if he should be needed¹. [16 Jan.]

Almost at the same time began that long and, in more senses than one, fruitful correspondence with Thomas Andrew Knight at his Herefordshire retreat near Ludlow². [11 Jan.] There was also the beginning of the applications for the post of Assistant Librarian at the British Museum, following the death of the Reverend Richard Southgate, all demanding some reply or advice from the man who was something more than an *ex-officio* Trustee.

This was the month also of the final stages in the preparations for the departure of Governor John Hunter to the colony at Port Jackson. For Banks, in these preparations, there had been the problem of the plant cabin on the quarter deck of H.M.S. *Reliance*, Captain Henry Waterhouse, suitably modified from that on the ill-fated *Guardian*, Captain Edward Riou, to meet the exigencies of the state of war now prevailing. On board with the plants for New South Wales was the young master's mate, Matthew Flinders. Eighteen months earlier he had returned from a voyage of two years as midshipman under Captain William Bligh on H.M.S. *Providence* in the second and successful bread-fruit expedition. In the interim, not much more than six months previously, he had served as midshipman in his only naval action in H.M.S. *Bellerophon*, Captain Thomas Pasley, off Ushant on 'the Glorious First of June' 1794. In the same battle his former Captain, William Bligh, had commanded H.M.S. *Warrior* and was now on active service again in the North Sea in command of H.M.S. *Calcutta*. Another shipmate from H.M.S.

¹ Banks to Dundas, 16 January 1795, ML Banks MS. in 182. To this was appended a separate statement on the publication of Captain Cook's third voyage and a final draft of this appears to be the manuscript in SL Banks MS., undated, but considered by the present editor to be the one in question. Cf. J. C. Beaglehole, *The Voyage of the Resolution and Discovery 1776–1780*, Hakluyt Society, London 1967, vol. I, cciv n.

² Knight to Banks, 11 January 1795, DTC 9. 182–187.

Providence, Christopher Smith the botanist, was now far away in Calcutta itself just beginning his Indian work under Dr. William Roxburgh. With Smith was Peter Good the gardener from Kew who would five years hence join Flinders in the *Investigator*. Smith and Good had sailed the previous August in 1794 in the *Royal Admiral* Indiaman, Captain Edward Bond, with an outward bound collection of plants from Kew. Whether at sea or ashore on naval or botanical occasions in their endless journeys all these men – so many young men – never ceased to be the care or the correspondents of the man at 32 Soho Square.

At home this month, however, James Roberts and Banks were in jubilant correspondence about the excellent wood sales from Tumbly that year, modified only by the buyers' dissatisfaction with the auctioneer, and the current bids for the oak bark¹. [7 Jan.] Old Benjamin Stephenson, in spite of the viciously cold weather, was honoured still to be Banks's almoner once more distributing money and other aid to the poor of the Revesby and Mareham villages². [20 Jan.] Thomas Coltman, magistrate, of Hagnaby was concerned about the enfeeblement of Benjamin Stephenson but glad to receive from Banks the Reports of the Committee of Waste Lands and to discuss the technique of sowing turnips by drill³. [18 Jan.] John Burcham wished to exchange ten shares in the new Horncastle Canal for some land at Toft Hill held by a Mr. Dyson from Banks as a site for brick kilns⁴. [27 Jan.]

Winter was still fastened hard upon the country as February opened, slightly warmer, but with more snow. On the first of February Banks wrote to Pierre Broussonet exiled in Lisbon, a refugee from the Terror since the previous summer⁵. Separated from his baggage and the gift of forty tortoises for Banks which accompanied it he had missed a passage on one British frigate for London. He now faced a long wait of two months for another ship and Banks's help with money for his immediate needs was extended to Gibraltar on his behalf through General Charles Rainsford, F.R.S., second-in-command of the garrison. All this was reported by Banks to Dr. James Edward Smith⁶ [15 Feb.] who was also in touch with the fugitive and also concerned with the welfare of Adam Afzelius in distant Sierra Leone. Banks had consulted Dryander about Afzelius as a possible candidate for the Library vacancy at the British Museum but both thought him unsuitable as the post was antiquarian not botanical.

African affairs at this period were never far from Banks's thoughts. The news of the French attack on Freetown outraged him and he hastened to assure Afzelius that he would replace his lost equipment and continue to honour all his bills. Nonetheless he thought the danger of fresh attacks was high and he advised him to return to England⁷. [17 Feb.] These fears for Afzelius, however, did not prevent him from writing with warm encouragement to John Gray, accountant in the Sierra Leone Company at Freetown, who proposed a journey from thence across Africa

¹ Roberts to Banks, 7 January 1795, UY Banks MS.

² Stephenson to Banks, 20 January 1795, UY Banks MS.

³ Coltman to Banks, 18 January 1795, UY Banks MS.

⁴ Burcham to Banks, 27 January 1795, UY Banks MS.

⁵ Banks to Broussonet, 1 February 1795, cf. Broussonet to Banks, 23 March 1795, BM.Add.MS. 8498.

⁶ 251–252.

⁷ Banks to Smith, 15 February 1795, *Smith MS.* 1. 89–90.

⁸ Banks to Afzelius, 17 February 1795, *ML Banks MS.* in 182 (orig.); DTC. 9. 197–198 (copy).

with James Wall, surveyor¹. [16 Feb.] Still, he counselled severe limits to their ambitions by suggesting Timbuctu as a first goal. There was to be a consul to Bambouk or, more vaguely, 'Senegambia' with a small armed force. More significant was the news that soon a young man of 23, Mungo Park, surgeon of Peebles, was to set out for the Gambia to explore the interior. With this went all the available publications of the African Association as the strong meat of literary encouragement for ambitious young men. He could not, however, report any news of the unfortunate Major Daniel Houghton who had set out so long ago with the same remit that Mungo Park was so soon to carry. Houghton's widow and young children still remained as a heavy charge on the conscience and the charity of the Association and with Henry Beaufoy's death on 17 May Banks was left with the task of resolving the debt.

It is some measure of a returning balance in the affairs of the nation, after the shocks and depression of the past two years, that Banks could turn again to the experimental wool manufacture of the Royal clip which for good economic reasons he had delayed until now. George Hawker of Lightpill in Gloucestershire was ready and honoured to execute Banks's orders of 14 February² and repeat the excellent work he had done so much to the King's satisfaction two years before³. [22 Feb.] Benjamin Stephenson, however, from Mareham-le-Fen in Lincolnshire wrote⁴ [22 Feb.] with news of the widespread effects of the recent thaw and the floods arising from the blockage of the drains and sewers with the thick ice and hard-packed snow spread out over the low ground of the Lordships of Revesby and Mareham, with water running more than two feet deep through Horncastle. All this fell hard on the labouring poor of the parish prevented from working in the woods of Revesby and Tumbly so that they were flung back again on Banks's charity which Stephenson reported '... I give your money away freely, as I know you wish it sh^d be'. Ahead there seemed to be no relief as Stephenson foresaw '... I think there never was a time in my Memory, that there was so bad a prospect of scarcity as the present'.

Again the war intruded as John Parkinson from Asgarby raised the murmurings from the parishes on the raising of men for the Militia under the proposed Bill and the matter of fees to be paid on the volunteers⁵ [17 Feb.] for the commissions of the officers. All this discontent flowed naturally to Banks's door for he had spent so much time during his term as High Sheriff in 1794 in the successful raising of the Lincolnshire Militia. Here was some unfinished business to be laid at the door of William Windham, the Secretary at War, who eased his worries for the county on this score [19 Feb.] with the assurance that no fees were payable, only the stamp duty⁶. Banks duly expressed his satisfaction⁷ [20 Feb.] but was able to emphasise to Matthew Lewis, Deputy Secretary at War⁸, [21 Feb.] that Windham would never

¹ Banks to Gray, 16 February 1795, DTC 9. 193-196.

² Banks to Hawker, 14 February 1795, SL Banks MS. and BM(SC) I, 10. 8-9.

³ Hawker to Banks, 22 February 1795, SL Banks MS. and BM(SC) I, 10. 9-10.

⁴ Stephenson to Banks, 22 February 1795, UY Banks MS.

⁵ Parkinson to Banks, 17 February 1795, UY Banks MS.

⁶ Windham to Banks, 19 February 1795, *Lindsey*, 11. 3. 2.

⁷ Banks to Windham, 20 February 1795, *Lindsey*, 11. 3. 2A.

⁸ Banks to Lewis, [21 February 1795], *Lindsey*, 11. 3. 1A.

have heard of the problem had not Banks mentioned it to Lord Onslow, the King's Lord-in-waiting, and currently Colonel of the Surrey Regiment of Fencible Cavalry.

Then, after more than a year of freedom from gout, the last weeks of February brought the beginnings of an attack that would last with mounting severity for some weeks to come.

Early in March, however, he was not so crippled nor so low in spirits that he could not write the first letter of a correspondence that would so often test his good nature to its limits. Writing from Manchester, a young Yorkshire stableman had approached Banks for advice on how to change his trade to that of botanical assistant or something similar¹. [7 Mar.] This was well-seasoned with specimens of the sundew *Drosera* and an unknown moss for identification as evidence of his serious intentions. In reply, George Caley was to receive the first of that long series of patient and helpful letters from Banks² [7 Mar.] that was to guide him into and through the unprosperous paths of field botany in New South Wales for the next twenty years. Neither then nor in the years ahead was there a hint to Caley of the physical pain that added its own burden to the problems which that difficult young man so often presented.

On the second and fifth of March Benjamin Stephenson wrote his last letters from Mareham to Banks about the affairs of the estate which he had served so faithfully for fifty years³. Conscientious to the very end he reported the complications in the matter of the late Dr. Thorold's house in Horncastle; the damage and losses of sheep from the late flood; the Revesby low grounds full of water; 'all Engine Grounds very much oppressed, by want of Wind, to make the Engines go'; the persistent hard frost and very slow thaw, so that 'the Plows cannot go'; the 'Common People' so infected with discontent 'I almost dread the putting in execution the Act for raising Men in Parishes'. Finally there was the optimism of his last sentence - 'I keep mending' - a hope unfulfilled for at the end of the month when James Roberts returned from Soho Square to Revesby he found the old man unable to climb the stairs any more, though his gout had certainly eased⁴. [28 Mar.]

With Banks, however, it was quite otherwise for the disease with him had advanced with some speed and for the rest of March he was in no state to attend to the flow of business which never ceased its passage to and from No. 32 Soho Square.

There was the war, for example. For the past year the Privy Council had been occupied with the subject of the French need for saltpetre. Banks had been asked in February 1794 to obtain a scientific opinion on the methods available for producing this substance. The subject now appeared again in a letter from Charles Jenkinson 1st Baron Hawkesbury, President of the Board of Trade⁵. [17 Mar.] This enclosed a letter from the old Field Marshal Henry Seymour Conway whose opinion had also been sought and who now advised a prohibition of the export of nitric acid [12 Mar.] as a strategic blow at French industry⁶. For the past year Banks and Blagden

¹ Caley to Banks, 7 March 1795, DTC. 9. 201-202.

² Banks to Caley, 7 March 1795, DTC. 9. 199-200.

³ Stephenson to Banks, 2 and 5 March 1795, UY Banks MS.

⁴ Roberts to Banks, 28 March 1795, UY Banks MS.

⁵ Lord Hawkesbury to Banks, 17 March 1795, DTC. 9. 156.

⁶ Conway to Lord Hawkesbury, 12 March 1795, DTC. 9. 156-159.

had reviewed the problem in all its details and now Sir Charles Blagden replied for them both [20 Mar.], excusing Banks from the task on account of the severity of his gout¹. Neither of them, however, thought that the French were gaining any benefit from the English nitric acid in their explosives manufacture.

From Windsor Dr. James Lind sought support from Banks [15 Mar.] in Royal circles as a possible custodian of the King's presents, brought back from the Emperor of China by the Macartney Embassy, and with this a possible grace-and-favour house within the precincts of the Castle. Otherwise he found his future prospects disquieting as the middle classes could not now afford physicians owing to the high cost of present living².

From distant Tothill on the Lindsey wolds Mr. J. T. Bell intervened for his friend Dr. Laycock who was in financial distress to the tune of some £6000 and whose 'Heart was too heavy to suffer him to communicate' his worries to Banks or seek his assistance³. [22 Mar.]

In early April the worst severities of the winter had passed and Banks's gout was eased sufficiently for him to return to his correspondence and even more active business. On 2 April he was able to apologise to Henry Shirley of the House of Assembly in Jamaica for the delay caused by his gout in replying to the congratulations from the planters for the success of the new bread-fruit importations⁴. He disclaimed any merit for this beyond the preliminary arrangements. To Captain Bligh was due the highest commendation for his ultimate success in the transport of the plants through the hazards of their voyage from the South Seas. Perhaps there was a hint of spring already in the air but certainly Banks was well enough on the fourth of April to meet the King at Kew to discuss there at Marsh Gate Farm the future of the Spanish flock and the first projected sale of surplus breeding ewes⁵. Here, perhaps, was the right occasion for him to receive also direct commands from the King himself to fulfil the long-delayed promise of plants for Catherine II of Russia. Here also was no doubt the time and the occasion immediately to give the appropriate orders to William Aiton the Younger about the selection of the plants and to Mr. Brown, clerk of works at Kew, to prepare drawings of the hot houses.

At Soho Square again he was able to send a polite disclaimer to Lord Auckland [10 April] of any interest in collecting works on politics, certainly not twenty-one volumes of a particular work, for his library, though large, had no room for other than books on the general subject of natural history⁶. Under this head without question was included the subject of geography for this month was a fruitful one in African affairs. On 17 April that Committee of two – Sir Joseph Banks and Andrew Stuart, M.P. – from the African Association met where it mostly did – in Soho Square⁷. From this came the final sum of fifty-five pounds for the passage and outfit of Mungo Park, effectively releasing him to sail for the River Gambia on his

¹ Blagden to Lord Hawkesbury, 20 March 1795, B.M.A.MS. 33980. 5-8 (orig.); DTC. 9. 160-164 (copy).

² Lind to Banks, 15 March 1795, DTC. 9. 203-204.

³ Bell to Banks, 22 March 1795, UY Banks MS.

⁴ Banks to Shirley, 2 April 1795, DTC. 9. 205-207.

⁵ Ms. diary notes, 4 April 1795, BM(SC), I, 22. 24-26.

⁶ Banks to Lord Auckland, 10 April 1795, B.M.A.MS. 34153. 238-239.

⁷ Minute Books of the African Association, UC MS.Add. 7087. 83-84.

first expedition. His instructions followed on 21 April, identical with those drafted by Henry Beaufoy five years earlier for the late Major Daniel Houghton¹.

Botanically there was some advance too in the acceptance by George Caley [13 Apr.] of Banks's invitation to London² and Banks's confirmation [18 Apr.] of his promise to find an educational employment for him³. Anthropologically, there was also a graceful recognition from Johann Blumenbach [11 Apr.] in his letter of dedication to Banks for the third edition of *De Generis Humani Varietate Nativa*, then in the press at Göttingen⁴. Here is one of those all too rare tributes not only to the extraordinary scientific generosity of Banks to his fellow scientists but also to his influence in the advance of taxonomy beyond the limits set by the Linnaean system. There was a step forward also in Banks's letter of 16 April to Dr. James Edward Smith recording his request to the Mayor of Falmouth for a passport for Joseph Porto, the Abbé Correia de Serra, to come to London⁵. From this would emerge that field excursion to Sutton on the east coast of Lincolnshire by Banks and the Abbé together during the autumn equinox of September 1796 leading to that probe of the evolutionary past on the subject of a 'submarine forest' published three years later⁶.

There was no end to the demands on the plant collections at the Royal Botanic Gardens at Kew. On 20 April Banks took some trouble to dissuade William Wilberforce of the Sierra Leone Company from their urgent request to the King for useful plants for the colony. He was adamant that the conditions were not in the least favourable to a successful future for such a botanical cargo at that time – a reasonable view when the tribulations of Afzelius and the settlement at Freetown so recently at the hands of the French is remembered⁷.

The troubles of the country were well reflected in one of his usually informative letters to John Lloyd of Wigfair in Denbighshire on the same day. [20 Apr.] The connection was mediated by a visit from Thomas Pennant's son, David, a few days previously with news of the disturbances in North Wales arising from the prevailing doubts about the conditions of raising men for the Navy. Lloyd as a magistrate had been somewhat mishandled by a riotous mob and Banks hoped that now the people understood that there was no compulsion they had returned to their ploughs and the sowing of their Lent corn. In spite of the exorbitant price of corn Banks now saw the prospect of a fine harvest as so often followed a severe winter. The floods in Cambridgeshire, he told Lloyd, had done great damage in the three levels to the extent of £750,000 and about one-third as much again next year with no relief from the flood waters expected until 1797. On the other hand, Lincolnshire seemed to have escaped in his opinion fairly well. As to the Royal Society he was able to report that they expected very soon to have the report from Lt.-Colonel Edward Williams on the continuation of the trigonometrical survey begun by General

¹ Minute Books of the African Association, UC MS.Add. 7087, 85–87.

² Caley to Banks, 13 April 1795, DTC. 9. 208.

³ Banks to Caley, 18 April 1795, DTC. 9. 209.

⁴ Blumenbach to Banks, 11 April 1795, introductory letter to *De Generis Humani Varietate Nativa*, Göttingen, 3rd ed.

⁵ Banks to Smith, [16 April 1795], Smith MS. 1. 91.

⁶ *Phil. Trans. Roy. Soc.* 1799, LXXXIX (1) : 145–146.

⁷ Banks to the Sierra Leone Company, 20 April 1795, SL. Banks MS. A 3 : 16.

William Roy, to be printed in the next part of the *Philosophical Transactions*. William Herschel had also promised to present an account of his great forty-foot reflecting telescope, the instrument made possible by Banks's own mediation of Herschel's case with the King and the King's liberal financial support from his own pocket¹.

There still remained, however, Banks's anxiety for artichoke suckers if Lloyd could spare some to replace those lost at Spring Grove from the severity of the winter. On this and similar matters James Roberts wrote frequently towards the end of the month with news of the slow sinking of Benjamin Stephenson; the vacation of the 'Fox and Goose' punch house in Horncastle by Mrs. Smith, a tenant of Banks; the acorns gathered at Revesby for Lord Yarborough; and the final haggling with Connington the tanner over the price for the oak bark that year².

Before the end of April [27 Apr.] came a letter from Broussonet in Gibraltar dated 23 March, in reply to Banks's letter of the first of February³. From this it is clear Banks had recovered Broussonet's lost baggage and received the tortoises sent on board the British frigate from Lisbon. It is clear also that Banks's financial arrangements for Broussonet through General Rainsford at Gibraltar had been made and duly appreciated. Banks replied to this on the first of May. The network of Banks's friendship was extending greatly to the benefit of Broussonet and of natural history.

The spring was now certainly at hand but May proved to be a dull and cloudy month. However, the temperature was rising sufficiently for thoughts of ships for a Baltic voyage to become urgent. A visit to the Foreign Office by Banks on the morning of 4 May set this matter in train with James Bland Burges, Under-secretary of State⁴. But the lengthening days and the first promise of spring warmth had also brought Colonel Robert Fulke Greville to Soho Square in pursuit of breeding ewes from the King's Spanish flock at Kew on behalf of his fair cousin Louisa, Countess of Mansfield. So Banks on 3 May was able to offer him twenty-three at a guinea each, a good bargain, destined after the shearing in July to join the rest of Lady Mansfield's flock at Ken Wood on the hills above the village of Hampstead⁵. The business of the King's sheep and the plants for Russia, both centred at Kew, remained through the spring and summer closely interwoven as Banks, recovered from his gout, set about coping with the problems they set in his duty to the King.

The pace quickened and Banks called soon after on Edward Forster jr., a future President of the Linnaean Society, but then serving in his father's business, Edward Forster and Sons, Russia merchants of Threadneedle Street. Here, on 8 May, Banks consulted him on the whole problem of 'the Present' but especially on ways and means of transport to St. Petersburg⁶. Edward Forster referred him the same day to Thomas Raikes, a director of the Bank of England, but also another merchant in the Russian trade and a member of the Russia Company. Raikes had moreover

¹ Banks to Lloyd, 20 April 1795, NLW MS. 12415. 37.

² Roberts to Banks, 15, 24, and 30 April 1795, UY Banks MS.

³ Broussonet to Banks, 23 March 1795, BM.A.MS. 8098. 251-252.

⁴ Burges to Banks, 4 May 1795, SL Banks MS. Ru 1 : 2.

⁵ Ms. diary notes, 3 May 1795, BM(SC), I, 22. 24-26.

⁶ Ms. diary notes, 8 May 1795, SL Banks MS. Ru 1 : 33-34.

travelled through the Baltic to Russia and could provide Banks with those practical details which he always sought. Through the merchants of the Russia Company in the City he was now able to bring pressure to bear on Bland Burges at the Foreign Office to accept another ship somewhat later in the season than the *Jemima*, Captain Metcalfe, due to sail a mere week hence on 15 May for St. Petersburg – too early if any hot-house or stove plants were to survive the voyage. In his own words, Banks had begun to ‘get matters forward’ on the subject of ‘the Present’ at last. He could not, however, persuade the astute merchants of the Russia Company to share even modestly in the cost as a gamble on possible benefits to their trade from the Royal gesture of conciliation.

Banks now turned to his other time-consuming service to the King. On 12 May he visited the flock at Kew and discussed its affairs with the shepherd. The following day, the thirteenth, he visited it again, inspected the lambs, and marked 11 ram lambs for castration, in spite of the lateness of Ramsay Robinson, the King’s steward, with whose unpunctual habits Banks was just becoming acquainted since their first meeting at Soho Square on 23 March during Banks’s ordeal by gout that year. The matter of Colonel Greville’s impatience for the surplus ewes was quickly settled and Robinson instructed to sell the fat wethers to the butcher immediately. This followed from the emphatic message sent by the King to Banks much earlier [24 Mar.] pleading for less Spanish mutton at the Royal table¹.

Later that same day [13 May] back at Soho Square he promised Lord Auckland to lay the prospectus for a publication by Francis Jarry, the French *émigré*, on his table and to promote subscriptions to it as far as possible. However, he also sent Auckland a card of invitation to one of his Sunday soirées to meet men who are, as he teased, ‘more interested in the Laws of Nature than the Laws of Nations’².

Agriculture not Natural History prompted his letter to Sir John Sinclair a few days later on 16 May in search of a copy of the Report to the Board of Agriculture on the West Riding of Yorkshire for Sir Thomas Frankland, 6th bart., F.R.S., of Thirkleby. He took the opportunity before ending of passing some shrewd comments on the fleece of the Shawl or Kashmir goat received at No. 32 from the 3rd Earl of Egremont and which mistakenly had been shorn instead of combed to separate the fine undercoat from the outer hair. It was, he said, of the red kind resembling what the trade called Carmina and suitable for fine clothing or hatting. It was as fine as Vicuna and of much the same colour. He mentioned this as a reminder to Sinclair ‘to have a Comb put among the Shaggy Hair of Some of those Scotts Gents whom you are informed have [wool] down below it’³.

On the same day [16 May] he sent his advice to Robert Mylne, F.R.S., the architect and engineer who was his fellow-member on the committee of the Smeatonian Club⁴. In September 1793 Banks had bought the manuscripts of John Smeaton, through the mediation of Henry Cavendish, and he was now counselling a selection of the best of the reports for publication. These were the first steps in a long task

¹ Ms. diary notes, 24 March, 3, 12, 13 May 1795, BM(SC), I, 22. 24–26.

² Banks to Lord Auckland, 13 May 1795, BM.A.MS. 34453. 255.

³ Banks to Sinclair, 16 May 1795, *Sinclair MS*.

⁴ Banks to Mylne, 16 May 1795, DTC. 9. 215.

that did not end until 1812 when the three-volume work was published by what had then become the Society of Engineers.

Then from Portsmouth there set sail on 22 May the brig *Endeavour*, Captain Wyatt, bound for the River Gambia with Mungo Park on board setting out at last alone on his first African expedition¹. From the same port by chance on the same day another Scottish medical traveller wrote to Banks from the *Loyalist*, Hospital Ship, fitting out for India. Here was Dr. Hugh Gillan, recently elected an F.R.S. (17 February 1795) asking Banks for collecting instructions². It was just three years to the day on 22 May 1792 since Banks had sent Gillan, letter of introduction in hand, after their breakfast together in Soho Square to Lord Macartney in Curzon Street³. With Banks's commendation Gillan found a place in the Embassy to China under Macartney at £200 a year for 'Salary was no Primary Object with the Dr'. This was quite unlike Dr. James Lind who had refused the position unless £6000 were advanced to him before departure – seduced, Banks feared, by the Doctor's recollections of that Parliamentary vote of £4000 in 1772 which had been offered to him to go on Cook's second voyage⁴.

Meanwhile in Lincolnshire James Roberts was busy about the affairs of the Revesby estate⁵ – attending to small details such as the much needed artichokes for Spring Grove; attending to larger matters such as the supply of acorns to Lord Yarborough; visiting the failing Benjamin Stephenson. [10 May.] Thomas Coltman of Hagnaby [12 May] sought his approval over a submission by the magistrates of Boston to the Court of Admiralty concerning their responsibilities in the matter of wrecks on the coast within their jurisdiction and directing the matter to his management in London⁶. He was further troubled in his capacity of a Lincolnshire Justice of the Peace by Mr. R. Nowell in the matter of a certain troublesome George Parkinson [13 May] even though Banks was out of the county and believed himself entitled to refuse to act⁷. Thomas Coltman [13 May] drew his attention to the vacant place of Governor or Constable of the Castle of Bolingbroke and his plea for Banks's patronage on behalf of his brother⁸. This produced an exchange of notes with Lord Hawkesbury [17 May] in whose gift 'this small Feather' lay and who was if necessary prepared to lay it on Sir Joseph⁹. However, finding that the receivership of the King's rents for the Duchy of Lancaster in his home county no longer went with this sinecure Banks told his Lordship '... that Circumstanced as it now is having lately fallen out of the Cap of the Collector of Rents he does not believe that any Gentleman of the tenantry would chuse to put it into his'. [17 May.] So Thomas Coltman and his brother were disappointed and Banks had to swallow the success of Mr. John Brackenbury of Spilsby in achieving the only part of the position that mattered and to accept, though not without protest, the superior

¹ *Travels in the interior districts of Africa in 1795, 1796, and 1797*, . . . , Mungo Park (London, 1799).

² Gillan to Banks, 22 May 1795, BM.A.MS. 33980. 12-13.

³ Banks to Lord Macartney, 22 May 1792, UY Banks MS.

⁴ Banks to Lord Macartney, 21 March 1792, UY Banks MS.

⁵ Roberts to Banks, 10 May 1795, UY Banks MS.

⁶ Coltman to Banks, 12 May 1795, UY Banks MS.

⁷ Nowell to Banks, 13 May 1795, UY Banks MS.

⁸ Coltman to Banks, 13 May 1795, UY Banks MS.

⁹ Lord Hawkesbury to Banks, 17 May 1795, UY Banks MS., writing in his capacity of Chancellor of the Duchy of Lancaster.

patronage of 'the Bertie family', the Duke of Ancaster, to whom his Lordship had deferred¹.

The affair of young George Parkinson, imprisoned at Lincoln Castle and still seeking sureties for his bond of three years good behaviour toward Miss Frances Hickman, still haunted Banks at Soho Square² in a letter from William Lumby on Parkinson's behalf. [18 May.] So also did the plea of Joseph Dickinson for Banks's intervention on his behalf³ to secure better terms for his leases in Lincolnshire from the Governors of Bethlehem and Bridewell Hospital and in particular some release from the direction of a Mr. Emmet. [20 May.]

The last week of May passed with Dr. James Lind sending Banks 'a Knife for digging up and transplanting Plants' of his own design from Windsor [24 May] and tickets from 'the Frogmore Fair' for Sarah Sophia Banks's collection⁴; some Royal Society correspondence with Mathew Boulton, F.R.S.⁵, conveying the referee's points for the revision of William Chapman's paper for the *Philosophical Transactions* [25 May]; the fears of the Reverend Edward Walls of Spilsby of pirate landings on the vulnerable Lincolnshire coast⁶ [30 May]; in contrast, the deep concern of Thomas Coltman about powers to control the 'barbarous custom' of the Lincolnshire lands men in plundering wrecks⁷ so that '...The Merchants & Sailors (I am informed) Say it is a worse Coast to be in distress upon than that of Africa' [30 May]; and finally the hopes of the future professor Sir John Leslie, F.R.S., from distant Fife for Banks's patronage in seeking a passage to India⁸ and a post under the H.E.I. company to instruct its young men there in the Natural Sciences. [31 May.]

The month of June opened well with sunny skies and the King's approval [2 June] of William Aiton's nomination of George Noe, the Württemberg assistant gardener at Kew⁹, as custodian of the plant collection for Russia with his salary to commence from Sunday 31 May.

At the same time in the drier heat of a Gibraltar summer [2 June] Broussonet was acknowledging Banks's letter of 1 May unable fully to express his gratitude for the help received, cheered by hopes of a safe return to his family under the new French decrees with his new collections from southern Spain and North Africa, but still determined to emigrate to America¹⁰. So too from the more enervating moist heat of the West African coast at Freetown Adam Afzelius¹¹ [3 June] was writing to acknowledge the safe arrival of bottles and collecting materials with funds for his other necessities sent by Banks as far back as 17 February. But their common benefactor in London was more preoccupied then with his committee meetings and explaining to Sir John Sinclair [4 June] his priorities therein setting 'his old and established duty to the British Museum' and its Committee of Expenditure above the

¹ Banks to Lord Hawkesbury, 17 May 1795, UY Banks MS.

² Lumby to Banks, 18 May 1795, UY Banks MS.

³ Dickinson to Banks, 20 May 1795, UY Banks MS.

⁴ Lind to Banks, 24 May 1795, UY Banks MS.

⁵ Banks to Boulton, [25 May 1795], BAO (35).

⁶ Walls to Banks, 30 May 1795, *Hill Coll.* 3. 16.

⁷ Coltman to Banks, 30 May 1795, UY Banks MS.

⁸ Leslie to Banks, 31 May 1795, DTC. 9. 217.

⁹ Ms. diary notes, 2 June 1795, SL Banks MS. Ru 1 : 33-34.

¹⁰ Broussonet to Banks, 2 June 1795, BM.A.MS. 8098. 253-254.

¹¹ Afzelius to Banks, 3 June 1795, BM.A.MS. 33980. 14-15 and DTC. 9. 219-220.

claims of the Board of Agriculture and its Drainage Committee meeting set for the same hour¹. Next day [5 June] he sent to Matthew Boulton the last pieces of wootz which he had received in July 1794 from Dr. Helenus Scott at Bombay and which had been successfully worked into superior steel at Sheffield by Sir Thomas Frankland in England for the first time². Indeed Dr. George Pearson, F.R.S., lecturer in chemistry and materia medica at St. George's Hospital, would on the following Thursday, 11 June, at the Royal Society, read the paper on his careful study of the nature and properties of these very steels, about whose production Frankland had reported to the same body already³.

On 6 June Banks had a few words of encouragement for John Leslie in his Indian aspirations but urged him to publish his work on hygrometers as a measure of self-help to that end for '...when the farmer put his shoulder heartily to his cart wheel he had no occasion for Hercules to help him out of the slough' – infuriating but just advice to any young scientist on the score of publication⁴.

Matthew Boulton meanwhile had come to London delighted with the chance which Banks had offered him to exercise his skills with the new wootz steel⁵. He promised to take charge of William Chapman's paper and secure its revision. He hoped, however, that Banks had not forgotten the matter of the copper coinage for which he had made an offer to William Pitt some four years earlier to make some 1500–2000 tons of half-pence each to weigh half an ounce. [9 June.]

The new copper coinage was a matter for the future. Of more immediate concern was the letter of reminder that same day [9 June] from Colonel Robert Fulke Greville, the King's querry, at the Queen's Lodge, Windsor, prompting him about the shearing of the King's flock – the rams in the Little Park at Windsor Castle and the ewes at Marsh Gate Farm, Kew⁶.

Then, as Banks returned to Soho Square from Spring Grove for the meeting of the Royal Society on Thursday, 11 June, he found a note waiting from Edward Forster jr.⁷ This was the much-needed confirmation of a ship for Russia – the *Venus*, Captain Marmaduke Vickermann, lying in the Thames near Rotherhithe. Banks replied immediately to Forster, proposing to visit the ship on Sunday, 14 June, at 3 p.m. if that was convenient to the Captain and his Mate. In the interim there was time to arrange the washing of the King's flock in the Thames near Richmond on Friday, 12 June – 'opposite Mr. Keane's house'. There was time also for a jocular note to Sir John Sinclair the same day [12 June] deflecting that serious man from what Banks regarded as a work of supererogation under the mantle of the Board of Agriculture – a botanical guide to the recognition of the potato, '... I fear we shall be Laughd at as matters now stand for having publishd so much Common Place & I am loth to add my mite to the Triumph of the Jokers who I fear will some time or other assail our quarters'⁸.

¹ Banks to Sinclair, 4 June 1795, *Sinclair MS.*

² Banks to Boulton, 5 June 1795, BAO (36).

³ *Phil. Trans. Roy. Soc.*, 1795, LXXXV (II): 322–341.

⁴ Banks to Leslie, 6 June 1795, DTC. 9. 218.

⁵ Boulton to Banks, 9 June 1795, BAO (37).

⁶ Greville to Banks, 9 June 1795, BM(SC), I, 17. 28–29.

⁷ Ms. diary notes, 11 June 1795, SL Banks MS. Ru 1: 33–34.

⁸ Banks to Sinclair, 12 June 1795, *Sinclair MS.*

On 13 June, Lieutenant-Colonel Edward Williams was able to assure Banks that the account of the trigonometrical survey begun in 1791 which had been accepted for reading at the Royal Society would be paid for by the Board of Ordnance to the extent of 500 copies and the cost of engraving the plates, a most useful easement¹.

The business of the week, however, was not yet done. There still remained the general meeting of the subscribers to the 'Association for Promoting the Discovery of the interior Parts of Africa' held on that same Saturday at St. Alban's Tavern. Here Banks still bore the burden of the occasion as he announced the recent death of Henry Beaufoy, the Association's diligent Quaker Secretary, and offered his services in that office for the time being additional to his work as Treasurer. He further announced the engagement and departure of Mungo Park as their most recent 'geographical Missionary' on the same task as the late Major Houghton for whose widow he then asked the meeting to affirm the financial provisions made. With all his proposals confirmed by the subscribers he could turn again from African to Russian affairs².

On the morning of Sunday, 14 June Banks, who was beginning to feel the pressure of his diverse appointments, saw fit to send a sharp note to Ramsay Robinson at Kensington about the shearing at Kew on Monday morning³ '... as I have various occupations & am used to Rise Early the Sooner the Shearers attend the more Convenient it will be for me...'. Then punctual to his appointment that same afternoon he went down river to Rotherhithe to inspect the little *Venus* at her moorings 'in Adermann's chains' to assess her capacity for the Russian voyage and the safe accommodation of 'the Present'. Surprised but not discouraged by her small size - much less than half the tonnage of the *Bounty* - he carefully measured her stern cabin and hold and retired to Spring Grove that night to begin his calculations. The next morning he was abroad early to drive the five miles or so from Smallbury Green to Marsh Gate Farm across the Thames over Kew Bridge in good time to set the six shearers to work on the King's Spanish Merino ewes sharp at eight o'clock⁴. He saw the process through to the end in the early afternoon and dispensed a guinea to the shearers on His Majesty's behalf. Then he turned to the matter of the plants for Russia and in the Royal gardens less than two miles from the King's farm he set the gardeners to work selecting and potting the chosen specimens for 'the Present'. Later he retired to the Queen's Lodge at Windsor to ponder his maritime problems.

On reflection he could not forbear to try at least one more alternative to the tiny *Venus*, one which seemed to him more appropriate in every way for this Royal gift. What better custodian and conveyance of the plants for the Grand Duchess than Captain William Bligh of H.M.S. *Calcutta* then conveniently lying at Longreach in the Thames Estuary?⁵ Such was the nice problem which James Bland Burges received in Downing Street next morning and such was the problem he hawked

¹ Williams to Banks, 13 June 1795, *R. S. Misc. MSS.* 3, 50.

² Ms. autograph draft for minutes, 13 June 1795, SL Banks MS. A 3 : 31.

³ Banks to Robinson, 14 June 1795, BM(SC), I, 22. 24-26.

⁴ Ms. diary notes, 15 June 1795, BM(SC), I, 10. 19.

⁵ Banks to Burges, 15 June 1795, Auckland Inst. & Mus. B.21 and SL Banks MS. Ru 1 : 6.

about Whitehall all that day. Late that night after weary hours with the Foreign secretary, Lord Grenville, to say nothing of the Board of Admiralty the only answer Burges could send Banks was a clear 'No!'¹ Fighting ships, even if they were converted Indiamen, at this stage of the war were not to be spared and hard-bitten captains of experience like William Bligh were much needed in the uncertain temper of the Navy's seamen as was made clear enough before the year was out. So the little *Venus* and her captain, Marmaduke Vickermann, had to suffice for the King's botanical service to Russia as Banks was indeed quite prepared to accept². [17 June.]

But while James Bland Burges was busy in and about Downing Street on Tuesday, 16 June, Banks himself was up betimes and busy at the Queen's Lodge, Windsor, where from 8.45 a.m. to 1.45 p.m. four shearers and the shepherd struggled to relieve forty-two rams of their fleeces under the critical eye and remorseless time-keeping of the President of the Royal Society who again rewarded them with the King's guinea³.

On Wednesday, 17 June, Banks relaxed awhile at Spring Grove before returning to Soho Square later in the day. On Thursday, 18 June, he negotiated the final details of the freight for the plants and the passage money for George Noe on the *Venus* with Captain Vickermann. On Friday, 19 June, the bargain was clinched by Banks on board the ship itself. On the same occasion he gave working instructions to Edward Benbrook the carpenter of No. 82 Rotherhithe Street, Rotherhithe. This was the man recommended by Mr. Hamilton of Hamilton and Towry, his advisers in the tricky negotiations with the Captain⁴.

During this week the weather had turned suddenly and severely cold and Banks hurried back to Spring Grove worried about the recently shorn rams on whose care and shelter he had previously given a warning. From the unfrocked rams at Windsor on Saturday, 20 June, he turned to the matter of clothing George Noe at Kew and that day gave him a gratuity of £30 to fit himself out for the Russian voyage in a fashion to meet the standards required by this Royal affair⁵.

On Sunday, 21 June, Banks perhaps relaxed awhile with time to write a gossiping letter as from Soho Square to John Lloyd in Denbighshire. In this he commended Lloyd as an active and intelligent magistrate for his role during the spring in keeping the King's peace in his part of the country which otherwise could so easily have been '...a scene of Riot military execution and bloodshed'. His plans for the summer in Derbyshire and Lincolnshire were now mature and Lloyd was invited to join the family '...at Either or both our Residences...' during the northern vacation⁶. It was on this day too, as it would later appear that just one month after his departure from Portsmouth in that other and less famous *Endeavour* Mungo Park had arrived at Jollipa on the River Gambia to prepare for his journey into the African interior and immortality.

¹ Burges to Banks, 16 June 1795, SL Banks MS. Ru 1 : 7.

² Banks to Robertson, 17 June 1795, SL Banks MS. Ru 1 : 45.

³ Ms. diary notes, 16 June 1795, BM(SC), I, 10. 19.

⁴ Ms. diary notes, 18 June 1795, SL Banks MS. Ru 1 : 33-34.

⁵ Ms. receipt, 20 June 1795, SL Banks MS. Ru 1 : 23.

⁶ Banks to Lloyd, 21 June 1795, NLW MS. 12415. 38.

Then on Monday, 22 June, from Spring Grove Banks visited the Royal Botanic Gardens at Kew, viewed the plant collection for the Tsarina, approved what he saw, and wisely ordered double potting as a suitable precaution against the rigours of the voyage¹.

On Tuesday, 23 June, at the urgent insistence of Colonel Greville he visited the Spanish rams at Windsor, early in the morning as usual, only to find that Ramsay Robinson had been remiss again and had not observed Major William Price's specific orders to have the sheep ready for Banks's inspection and annual review². However, the sheep were gathered as Banks breakfasted with the equerries at the Queen's Lodge and in the end all went well. The animals had come through the recent severe cold weather since shearing in good order and Banks was moderately pleased with those he was able to select for service next autumn in the flock at Kew. The list of numbers of those rams destined to be spread throughout England and Scotland that season he sent to Ramsay Robinson next day on Wednesday, 24 June³. At the same time he again visited the Gardens at Kew to weigh the potted plants for the *Venus* as a step toward checking the validity of the freight charges and assessing the lighterage necessary to bring the collection down river to the ship's side in due time. In all they weighed that day 3 tons 1 cwt. and 22 lb.⁴

On Thursday, 25 June, Banks was back in London for the meeting of the Royal Society at which was read the paper by Williams, Mudge and Dalby on the extension of Roy's trigonometrical survey for the years 1791-1794. During the day, however, Banks was again on board the *Venus* where he found the plant platform partly laid and the work going on well. To Captain Vickerman he paid £30 in advance on George Noe's passage money and from him heard that one Russian convoy had already sailed⁵.

From William Marsden, Second Secretary at the Admiralty, he learned on Saturday, 27 June, that the next convoy was due to sail on 7 July - a useful point to help Banks's planning but not one on which Marsden wished to be quoted, though he presumed that all the Trade knew it⁶. With this date in mind Banks was now able to assess his problems in moving rather more than three tons of potted plants from Kew to the *Venus* near Rotherhithe. This was a tricky conundrum of tides and times whose solution he condensed into a letter to Captain Vickerman at Batson's Coffee House, written from Spring Grove on Sunday, 28 June, and sent by the penny post from Brentford before 8 a.m. on Monday, 29 June⁷.

The next day on Tuesday, 30 June, came a surprise and one of the pleasures of Banks's long life of public service - a peremptory command to attend at St. James's Palace the following day, Wednesday, 1 July, for his investiture with the insignia of Knight of the Order of the Bath⁸. This was the Red Ribbon so long hinted at by the King, so recently discussed by the former Home Secretary Henry Dundas,

¹ MS. diary notes, 22 June 1795, SL Banks MS. Ru 1 : 33-34.

² MS. diary notes, 23 June 1795, BM(SC), I, 22, 24-26.

³ MS. diary notes, 24 June 1795, BM(SC), I, 22, 24-26.

⁴ MS. diary notes, 24 June 1795, SL Banks MS. Ru 1 : 33-34.

⁵ MS. diary notes, 25 June 1795, SL Banks MS. Ru 1 : 33-34.

⁶ Marsden to Banks, 26 June 1795, SL Banks MS. Ru 1 : 46.

⁷ Banks to Vickerman, 28 June 1795, SL Banks MS. Ru 1 : 43.

⁸ Fauquier to Banks, 29 June 1795, B.M.A. MS. 6325. 36.

and now at last so sudden in its descent upon his broad and worthy shoulders. All this was epitomised in a brief letter from William Fauquier, Registrar of the Order, in Clifford Street and dated 29 June. If Banks found the notice somewhat short it was altogether too much so for General Sir Ralph Abercromby who was to have been his fellow Red Ribbon that day and failed to appear. So Banks had the undivided attention of his Sovereign as he knelt on the cushion to receive the accolade and heard the Royal whisper: 'I have many years wished to do this'. This indeed appears to have been so if we may accept Banks's own record in his letter to Henry Dundas more than a year before [5 April 1794] when he had refused the honour during his term as High Sheriff of Lincolnshire¹. By this it would seem that the King himself as far back as 1789 had told him that in his view a Red Ribbon was a proper honour due '...from the manner in which I conducted the business of the station I hold', that is, the Presidency of the Royal Society and all that this implied. This was probably during or soon after the King's convalescence at Kew after the long illness in the winter of 1788-9, when Banks had been a personal comfort to the King in many direct ways. In other words this was to have been an innovation of some note in the pattern of the Order which at that time Banks felt he could receive '...without suffering any diminution of my Pretensions to the Character of an independent Landowner'. But when in April 1794 Dundas as Home Secretary had proposed the honour to him he had felt the situation to be different. During his term as High Sheriff in his successful actions toward the defence of the county he thought he had somehow become too involved in a political sense; that, indeed, he could not accept at that time without risk to his reputation for 'incorruptible independence'. His refusal then, though painful, he felt was unavoidable. But now, as he replied to the congratulations of his cousin Sir Henry Hawley on Monday, 6 July, he felt he could accept the distinction as '...coming in a direct Course from the pure Fountain of honor without any portion of Ministerial Contamination'².

All this high-mindedness, however, could not protect him from what he most wished to avoid - contumely in the public estimation. The Red Ribbon had scarcely been settled across his shoulder and the Star of the Order on his breast than he was firmly labelled and cruelly pinned down for posterity in the gross injustice of Gillray's cartoon. Published by Mistress H. Humphrey of 37 New Bond Street and spread abroad from that address by the genial lady this was a piece of most unnatural history, 'The Great South Sea Caterpillar transformed into a Bath Butterfly'. How much the iron of this historical mounting pin entered Banks's soul we cannot tell. Certainly there was no immediate effect for Banks was then too much engaged in the practical minutiae of so many unsought commitments³.

¹ Banks to Dundas, 5 April 1794, *De Beer Coll.* 1.

² Banks to Hawley, 6 July 1795, *Hawley MS.*

³ 'The great South Sea Caterpillar, transformed into a Bath Butterfly. Description of the New Bath Butterfly - taken from the Philosophical Transactions for 1795 - "This Insect first crawled into notice from among the Weeds & Mud on the Banks of the South Sea; & being afterwards placed in Warm Situation by the Royal Society, was changed by the heat of the Sun into its present form - it is noticed & Valued Solely on account of the beautiful Red which encircles its Body & the Shining Spot on its Breast: a Distinction which never fails to render Caterpillars valuable -"' This is the caption on the engraving, of which copies may be found in 'Catalogue of political and personal satires' by M. D. George, No. 8718, British Museum Department of Prints and Drawings.

Even at the time of the investiture the King had told him of the death of one of the rams at Windsor Castle since his last visit. This called for a letter to Ramsay Robinson [3 July] at Kensington Square ordering its replacement with No. 107 in the list of proposed destinations¹. There was the small matter of gratuities to the servants of the Royal Household payable by Banks as a new Knight of the Bath – £128. 5. 10d. – and the fees due to the officers of the Order itself². On Thursday, 2 July, there was the celebratory end of the Royal Society year in the dinner and annual general meeting of the Royal Society Club at the *Crown and Anchor* in the Strand³.

But on Saturday, 4 July, the newly hatched 'Bath Butterfly' was busy down the Thames at Rotherhithe on board the good ship *Venus* checking the stowage in the hold of the 300 potted plants of 'the Present'⁴; complimenting the carpenter on the economy and neatness of the special platform made to Banks's design; giving George Noe his written instructions freshly drawn up, his wages and money for gratuities to the sailors. The plants had come down safely on the evening tide of Thursday, 2 July, as Banks and the Captain had agreed. With them had come the list of plants prepared by William Aiton [2 July] somewhat hastily at the last for Banks to check⁵. This done he had prepared his own precautionary advice to Sir Charles Whitworth in St. Petersburg on the details of 'the Present' which he entrusted evidently to the safe hand of George Noe in a small departure from strict protocol in case the King's messenger with the diplomatic pouch should not arrive before the *Venus*. This was a copy of his own letter to James Bland Burges at the Foreign Office dated 4 July under cover of a personal note to Whitworth of the same date. It was a typical piece of forethought in which Banks asked Whitworth only that he would keep the means whereby he received the information secret. It was also a sign of Banks's confidence in the integrity of George Noe⁶.

With this parting visit to the *Venus*, satisfied by his own careful supervision to the last that all was well with 'the Present' he returned to Soho Square, able to give Burges a final report on all that he had done to fulfil the intentions and spirit of the Royal gift⁷. [4 July.] He could do no more and as the *Venus* dropped down the river on Monday, 6 July, to wait a further week for her convoy, Banks turned to the task of answering the letters and footnotes of congratulation on his K.B. that flowed in from Lord Auckland, Lord Macartney, John Lloyd and many others near and far.

He turned to Richard Gough seeking prints of relevance to his collection of maps and illustrations relating to the County of Lincolnshire from the second volume of *Sepulchral Monuments of Great Britain* then in press with John Nichols⁸. From

¹ Banks to Robinson, 3 July 1795, Ms. diary notes, BM(SC), I, 22. 24–26.

² Cooke to Banks, – July 1795 (receipt), DTC. 9. 227.

³ Geikie, A., *Annals of the Royal Society Club* (1917), p. 201.

⁴ MS. diary notes, 4 July 1795, SL Banks MS. Ru 1 : 33–34.

⁵ Aiton to Banks, 2 July 1795, SL Banks MS. Ru 1 : 39.

⁶ Banks to Whitworth, 4 July [1795], SL Banks MS. Ru 1 : 48.

⁷ Banks to Burges, 4 July 1795, R.S. Misc. MS. 6. 64 and DTC 9. 221–226.

⁸ Banks to Gough, 11 July 1795, Nichols, L.I. 4. 698; *Sepulchral Monuments of Great Britain applied to illustrate the History of Families, Manners, Habits, and Arts from the Norman Conquest*, vol. I, publ. 1786; vol. II, publ. 1796; introduction publ. 1799.

Nichols himself the same day, Saturday, 11 July, he sought the return of Sir George Staunton's paper on the East Indian poison tree Cayu Upas which had been submitted to the *Gentleman's Magazine*, the receipt of which he acknowledged¹ on Sunday, 19 July.

On Tuesday, 14 July, as George Noe and the *Venus* sailed at last from the Nore² under convoy of H.M.S. *Daedalus*, 'a nice little frigate' of 32 guns, Banks himself was among the Spanish rams in the 11-acre field in the Little Park at Windsor³. Here he was checking their condition which he found much improved; the state of their yard and shelter shed which he found good; and the state of their pasture which he found overgrown, and for which he recommended a few head of cattle to eat down the fast-growing grass tufts. The rams for Josiah Ridgway, Major William Price's tenant in Herefordshire, had already gone away on 8 July. Many others remained, notably those for the Duke of Montrose to go to his estate at Buchanan near Glasgow. About their despatch Banks wrote from Spring Grove on Saturday, 18 July, after the Duke's servant had called on Banks the previous afternoon with a covered cart⁴ for the two rams in question, Nos. 16 and 91. They were to sail from the Thames that Sunday, 19 July, for Leith where they arrived the next Friday, 24 July. The following afternoon of Saturday, 25 July, the plants for Russia had completed the first stage of their risky voyage as the *Venus* anchored safely at Elsinore in Denmark⁵.

In Lincolnshire, the undercurrent of estate matters had been flowing quietly but steadily, undeflected by the affairs of Courts and Kings during the early summer. James Roberts on 2 June had reported the collection of the Holbeach rents and the arrival of the new pointer puppy for the keeper at Revesby⁶. He added a long account of the paralytic stroke and further decline of Benjamin Stephenson whose longer survival was not much expected by John Parkinson⁷ when he wrote on 28 June. The old man was still in the same sorry state he had suffered for the past six weeks when James Roberts again wrote on 4 July reporting the collection of the Revesby and Horncastle rents and the sending of some 'ancient Arms' in a box to Soho Square⁸. Charles Chaplin of Blankney on 10 July speaking for the proprietors of land west of the River Witham sought Banks's support for an extension of the embankment and Lady Banks's sponsorship for his new-born daughter at her christening but added his congratulations on the new honour, perhaps the first from the county⁹. This was followed soon after by one from Richard Ellison, M.P., on 16 July to the effect - 'Honors become really such when they are the reward of

¹ Banks to Nichols, 11 July 1795, *Nichols*, L.I. 4 698; Banks to Nichols, 19 July 1795, *Nichols* L.I. 4 698.

² Noe to Banks, 13 July 1795, SL Banks MS. Ru 1 : 14.

³ MS. diary notes, 14 July 1795, BM(SC), I, 22. 24-26.

⁴ MS. diary notes, BM(SC), I, 22. 24-26.

⁵ Noe to Banks, 25 July 1795, SL Banks MS. Ru 1 : 15.

⁶ Roberts to Banks, 2 June 1795, UY Banks MS.

⁷ Parkinson to Banks, 28 June 1795, UY Banks MS.

⁸ Roberts to Banks, 4 July 1795, UY Banks MS. For a metallurgical analysis of these 'ancient arms' see *Phil. Trans. Roy. Soc.* 1796, LXXXVI (II) : 395-451. This paper read by George Pearson, F.R.S., 6 June 1796, acknowledges Banks as the provider of the instruments and 'for almost all the curious particulars relative to the history of these instruments'.

⁹ Chaplin to Banks, 10 July 1795, UY Banks MS.

merit & the character of Sir Joseph Banks must stamp a value upon any title conferred upon him¹. This was a hurried courtesy in passing on to the more immediate problems of the Horncastle Canal, which was a matter taken up also by John Parkinson in his letter of 18 July complete with a sketch plan². The nub was a proposal by the Commissioners of the Horncastle Navigation for a waggon bridge at the end of Kirkby Lock to link the village with the pastures on Banks's Lordship of Toft Hill. Banks consented to it on 22 July subject to agreement with John Burnham about the course of the road which could affect the site of certain proposed brick-kilns. This was a change eventually made as today's ordnance survey shows in common with so much else due to Banks in the present map of Lincolnshire³.

The scene of this small piece of civil engineering on the River Bain was only a few miles north of the fishing rendezvous which cannot have been far from Banks's mind as he thanked John Lloyd on 23 July for his congratulations and repeated his invitation of 21 June to the summer relaxations of Revesby Abbey '...now if you will Drive with us, Fish with us, Race with us, or be Quiet with us any or all of these things we shall be happy in your participation'. He gave Lloyd the dates and the route settled at last but a somewhat later departure from Spring Grove than he had formerly intended. He ended with the foreshadowed problems of the harvest and the national shortage of the corn supply which was to dog his travels that summer and autumn '...we are all Eating Wheat meal no Flower used in Rich Families it will be a near run matter whether or no we can hold it out'⁴.

The month, however, closed with a somewhat curt rejection of a long dissertation from one, Gregory Farquharson of Wilderwick House⁵, upon the uses of yeast in baking and brewing [24 July]. Banks demurred on the ground that he was President of the Royal Society not of the Brewers Association⁶ and that it should be addressed to the public at large not to him as a private individual. [30 July.] This may have been a sign of strain after the past three months of unending physical activity so soon after his gout in March. Or perhaps he was merely in some haste to leave London for his weekend in Sussex at Sheffield Place with the Holroyd family, though not this year enticed by the bait of 'the Gibbon'⁷ being present. He alas was beyond these summer jollities. For eighteen months now he had been resting in the Sheffield mausoleum at Fletching quietly waiting for his reunion with the noble Lord to come. Meanwhile Banks was at his most charming that year relaxing with his host and the women of their families, captured for us briefly by Maria Josepha Holroyd⁸, one of the future ladies of Alderley: '...The Red Ribbon has made no alteration to Sir Jo. in any other respect than that there is a red ribbon on his waistcoat. He sprawls upon the Grass, kisses Toads, and is just as good-humoured a nondescript of an Otaleitan as ever!⁹ So much for the image of the Great South Sea Caterpillar in

¹ Ellison to Banks, 16 July 1795, UY Banks MS.

² Parkinson to Banks, 18 July 1795, UY Banks MS.

³ O.S. one-inch, sheet 114, TF 245 625 for site of bridge.

⁴ Banks to Lloyd, 23 July 1795, NLW. MS. 12415. 39.

⁵ Farquharson to Banks, 24 July 1795, Kew B.C. 2. 126.

⁶ Banks to Farquharson, 30 July [1795], Kew B.C. 2. 126 (2).

⁷ Edward Gibbon, F.R.S. (1737-1794), historian, for whom Lord Sheffield was literary executor.

⁸ Maria Josepha Holroyd (1771-1863), eldest daughter of John Baker Holroyd, 1st Earl Sheffield, wife of Sir John Thomas Stanley, F.R.S. (1766-1847), 1st Baron Stanley of Alderley.

⁹ Adeane, J. H., *The Girlhood of Maria Josepha Holroyd* . . . (1896), p. 329.

the Gillray smear. Then on Monday, 3 August, Banks and Lord Sheffield visited the Wool Fair in Lewes; an occasion now of some eight years standing which Banks had done so much to initiate in 1787. For a quarter of a century more it would survive as a base from which Lord Sheffield, with Banksian data to serve him, would provide a one-man price review for the sheepbreeder and wool trade of the nation.

On his return to London he was greeted by a letter from Sir Charles Blagden, Secretary of the Royal Society since the 'Dissensions' of 1783-4¹, but now summering at Bognor in Dorset. [2 Aug.] Hovering as always on the fringes of aristocracy Blagden was now in the orbit of Georgiana, Duchess of Devonshire, then in her ripe maturity, but this did not suborn him from his secretarial duty to the Royal Society. The summer vacation for both the President and the Secretary was never free from the problems of papers, past, present and future. In this case Blagden was reporting not merely the state of the Dorset crops but the intentions of a precocious young man of seventeen in Edinburgh who was proposing to report to the Royal Society of London on his physical and mathematical studies of certain branches of Optics which the great Newton had apparently neglected. The young man wished to remain anonymous for the present but in due course he would stand revealed as Henry Peter Brougham, the future Lord Brougham, Lord Chancellor of England. Banks also received about the same time a letter from John Leslie at Largo in Fife² withdrawing his paper on hygrometry for further revision and re-writing although it had been accepted by the Royal Society [2 Aug.], a course which Blagden later much approved³. [11 Aug.]

Again the King's flock claimed Banks's attention immediately on his return to London from Sheffield Place⁴ as Ramsay Robinson told him on 4 August that arrangements had been made for the wool weighing in the barn at Marsh Gate Farm on Saturday, 8 August. With this news Banks arranged for John Buxton, wool stapler at Bermondsey⁵, to meet him next Saturday at nine a.m. on the farm. [6 Aug.] At the same time Banks asked for the ram lambs to be folded in the yard in front of the barn⁶ so that he could inspect them while the wool was being weighed. [6 Aug.] All this was duly arranged and the wool sent through John Buxton to John Walker of Painswick in Gloucestershire to be made there into cloth. This was done the following week with Ramsay Robinson acting under a certain amount of pressure⁷ from Banks [9 Aug.] who left the affairs of the flock with a final demand for details of the carcase weights and prices of the Spanish wethers⁸ which had been put out to fatten. [12 Aug.]

He turned again also to the affairs of the African Association in the matter of the petition for aid by Major Daniel Houghton's widow. Acting on a verbal message from Sir John Hort who headed the Association's Committee presenting

¹ Blagden to Banks, 2 August 1795, B.M.A.MS. 33272. 139-140. Henry Brougham's paper on light was read on 28 January 1796 and printed in *Phil. Trans. Roy. Soc.* LXXXVI (1): 227-277.

² Leslie to Banks, 2 August 1795, DTC. 9. 273-274.

³ Blagden to Banks, 11 August 1795, B.M.A.MS. 33272. 143 and DTC. 9. 280-281.

⁴ Robinson to Banks, 4 August 1795, B.M.(SC), I, 10. 12.

⁵ Buxton to Banks, 6 August 1795, B.M.(SC), I, 10. 15.

⁶ Banks to Robinson, 6 August 1795, B.M.(SC), I, 10. 14.

⁷ Banks to Robinson, 9 August 1795, B.M.(SC), I, 10. 20.

⁸ Banks to Robinson, 12 August 1795, B.M.(SC), I, 10. 22.

the memorial to the Government he wrote personally to William Windham, Secretary at War. [8 Aug.] He took it upon himself to urge Windham to fulfil his promise to present the memorial to Pitt because, he said, it was not possible to assemble the Committee at that season to do this more formally. This move was in the end successful and very much to the benefit of the good lady and her two young sons and as a salve to the conscience of the Association, who had, nonetheless, already done much to ensure her comfort and security¹.

The August migration of the Banks's *ménage* was now close at hand but there was one last point from Dr. Andrew Kippis to be answered. This concerned Kippis's life of Captain Cook prepared for inclusion in *Biographica Britannica* [10 Aug.] and fresh light which he had received from Boston, New England, about the American attitude to Cook's third voyage². Banks was able to confirm that Benjamin Franklin was mistaken in supposing that Congress would support his view that Cook's ships should be protected and thought that Kippis's reputation as a biographer would not suffer if he were to correct his account on this point. [15 Aug.] With this last-minute footnote to history despatched the family carriage could turn out of Soho Square and along Oxford Street on the first stage of its journey north³.

To reach Overton Hall in the shadow of the scarp above the River Amber in Derbyshire by Tuesday, 18 August, implied an early start on the morning of Saturday, 15 August – early enough to pause for breakfast at the *Red Lion* at Barnet, and to sleep that night at the *White Lion* in Brickhill. Next day the route usually lay through Stony Stratford and Northampton to sleep in the *Three Swans* at Market Harborough. Then on through Leicester and Loughborough to Derby staying overnight at the *George*. Finally came the last slow 22 miles to Overton Hall near Ashover, through Matlock Bath, and the last few tricky miles down the steep narrow roads of the scarp in time to dine. This was a journey of about 150 miles and about three and a half days of travelling time in well-regulated stages of about ten miles each for a daily average of forty to forty-five miles.

At Overton the next ten days passed in the customary problems of estate affairs dominated here by the business of the Gregory Mine and its lead ore, the operation of its Boulton and Watt pumping engine, and the smelting of its produce at the works near Matlock over the hill.

These were ten fairly strenuous days, largely on horseback, moving about the steep roads along the valley of the River Amber and over the moors westward toward the Derwent, covering a territory of about forty square miles around the village of Ashover. This year on the day of his arrival he was immediately confronted with the problems arising from the competition for water supplies, arising from the Eddlestow spring, between the house at Overton and Stephenson's mill farther down the Amber. At the same time Sam Kirk, the overseer at the Gregory Mine, drew his attention to the poor running of the new 'Fire Engine' from Boulton

¹ Banks to Windham, 8 August 1795, SL Banks MS. A 2 : 58.

² Kippis to Banks, 10 August 1795, DTC. 9. 279.

³ Banks to Kippis, 15 August 1795, DTC: 9. 282–283; cf. MS. letter Kippis to 'Mr. Urban', 11 September 1795, inserted in the front of the copy of Kippis's *Life of Cook* in the General Library, British Museum (Natural History), which acknowledges the error and corrects it.

and Watt costing as much in repairs as it appeared to save in coal. The week continued with visits to Kelstedge where his agent William Milnes had bought land sufficient for a new reservoir; to Butterley where he approved a new oak threshing floor laid on coal cinders as a good method of checking 'that dry rot which originates from *Clavaria hypoxylon*'; to the Upper Engine of the Gregory Mine on the edge of the scarp near the Rocking [= Cocking] Tor to settle with Francis Thomson, the Ashover engineer, about erecting a whimsie for the new shaft 'to be a Power of 8 Horses' for £280; over the hill to Lea where he saw Mr. Peter Nightingale's 'Pig of Roman Lead which weighs so near 8 stone as to give a just ground for Supposing that the intended weight'; and finally a ride by himself over the hills on 28 August to discuss Isaac Alsop's cart shed. Among the tenants of the Overton estate were the members of the Allen family near the Amber from whom would come John Allen, miner, to go with Flinders on the *Investigator* voyage five years later, but this year their affairs did not obtrude in any apparent way¹.

Final instructions to John Lloyd driving with his own horses up from North Wales on how to find the fishing party later on the River Witham below Dog Dyke [25 Aug.] set the scene for the first real holiday distraction². This was quite overlaid by the arrival at Overton on 29 August of a letter from Lord Hawkesbury of 20 August after a hunt circuitously through Revesby on an uncertain postal route. Thus on the very eve of his departure on the two-day journey east to Revesby Abbey Banks was faced with a demand for his opinion by the President of the Board of Trade on a contentious paper on the corn supply of the nation, including proposals for the importation of foreign wheat. This was heavily weighted with the remark that Hawkesbury proposed to show Banks's answer to William Pitt himself and other members of the Cabinet. Banks could not forbear to remind Hawkesbury that he was in fact 'on the wing' for Lincolnshire but, in the event, his answer was as long and as well-considered as if he had been at rest in his own study at Soho Square³. It was well laced with his own topical observations on the state of the crops and the temper of the people on his route up through the Midlands. [30 Aug.]

This year the family arrived at Revesby on Tuesday, 1 September, delayed it would seem by Banks's last-minute cogitations on the corn supply at Overton for next day the fishing expedition started somewhat later than Banks had promised John Lloyd. In fact the carriages did not leave Revesby Abbey until about eleven and the party did not embark on the boats at Dog Dyke until somewhat after twelve-thirty. Lloyd himself did not overtake the boats until after dinner on board just before six p.m. near Copin Sike, well down the Witham. Soon after the whole party landed at the Grand Sluice in Boston and Sir Joseph and his ladies stayed that night with Mr. Thomas Fydell, M.P. for Boston.

For four days the boats netted up and down the Witham between the Grand Sluice and Langrick Ferry with a total catch that year of 2567 pounds of pike, perch, eels and various white fish. Of this weight some 200 pounds were dressed and consumed for dinner at various points along the Witham, either on the bank or under awnings

¹ MS. estate notes. SL Banks MS.

² Banks to Lloyd, 25 August 1795, NLW. MS. 12415. 40.

³ Banks to Lord Hawkesbury, 30 August 1795, SL. Banks MS. Ag 1: 97.

on the boat as the weather dictated. On an average this year some thirty people, young and old, male and female, composed the party as Banksian guests – all Lincolnshire friends, except John Lloyd from distant Denbighshire. These were a cross-section of the county middle class, families of property, men of responsibility in county affairs, the church, the civil service and the magistracy – Cartwright, Fydell, Batty, Linton, Kenrick, Pacey, Brachenbury, Coltman, Walls, Rogers, Massingberd, Ellison, Elphinston, Partridge, Wheeler, Brand, Chaplin. These were the families represented this year at the fishing on the Witham.

The method was to use a long Seine net, 200 × 20 feet, drawn by two horses, one on either bank. The River Witham was well suited to this procedure for from Dog Dyke to the Grand Sluice it was an artificial channel ten and a half miles long, varying from 80 to 100 feet in width, and so free from roots, weed and other obstructions that the net was seldom caught or torn.

The week preceding the races at Lincoln, generally the first week in September, was the usual time for the fishing parties. As this was only done once during the year there was never any failure of sport though the total catch varied much from year to year. Usually 'the Company' dined under an awning on the big boat which was 52 feet 6 inches long with a deck 11 feet wide. The cooking fires were made on the river bank and here, if the weather were right, a more casual dinner was sometimes taken. The catch was most commonly pike, perch, and eels 'in the highest perfection' occasionally carp and barbel though these were rare. A profusion of bream and chub was always caught and these were divided among the numerous followers and assistants from the surrounding countryside and towns at this annual and well-known event. Occasionally a salmon, a flounder or a tench (as this year) would appear in the catch. The nets would be drawn during the day about ten times and the catch on each occasion carefully recorded by Sarah Sophia Banks from the weights taken by her brother Joseph. Other boats were there apart from the covered boat for 'the Company'. There was 'the black boat' covered with a tarpaulin for the servants; there was Major John Cartwright's rowing boat; there was Thomas Fydell's yacht the *Union*, and perhaps others which varied from time to time.

As a regular event of the late summer the Witham fishing continued at least for the thirteen years from 1783 to 1796. Thereafter it declined and probably ceased after 1798 when Banks's exceptionally long and painful illness confined him at Spring Grove that year so that the northern journey was not made.

This year the catch included 21 silver coins found in the Witham on 6 May at Cunnock Lock and brought to Banks during the first day's fishing on 2 September as a small sop to his known interest in all things antiquarian¹.

There was also that same day brought to him a letter from Francis Masson in London as a sign of his concern and responsibility for all things botanical². Masson, but recently returned from nearly a decade at the Cape, was seeking from Banks an order on Messrs. Coutts for £80 in cash as an immediate settlement of his passage

¹ 'Minute of the annual Fishery on the River Witham began MDCCLXXXIV', p. 133, *Hawley MS*. This volume contains the details of the fishing for the period 1784–1796.

² Masson to Banks, 28 August 1795, *SL Banks MS. A 1*: 28.

money home and promising to have all his accounts in order for Banks's inspection in the autumn. With his customary promptness in all these financial problems of his collectors Banks replied on 3 September with the bankers order required and at the same time settling Masson's mind on the score of all further bills to come.

With a brief respite at Revesby Abbey after the fishing the races at Lincoln took place the following week from Wednesday, 9 September, to Saturday, 12 September, an annual concession to the enthusiasms of Lady Banks and that excellent whip, Sarah Sophia, but less rewarding to Sir Joseph though he endured them with his usual good humour. The fishing and the races in Lincolnshire were probably the only two weeks in the year of almost complete relaxation for Banks from the unrelenting sequence of his correspondence.

From Blagden¹, in London again, soon came a letter on Royal Society business [3 Sept.] noting progress on the engravings for Herschel's paper on his forty-foot reflecting telescope, read on 11 June. This was already in press, with three other papers delivered since March, but only two out of the nineteen drawings were ready for engraving². Two papers in French had been received – an abstruse one in higher mathematics from Simon L'Huilier and one on the manufacture of sugar in Martinique by De la Corbière – seeking acceptance by the Royal Society.

From Dr. John Laidley, the physician at Pisanía on the River Gambia, came the first news Banks had received of Mungo Park. This was a letter directed to Henry Beaufoy, Secretary of the African Association, dead since 17 May that year. Banks acknowledged this as Secretary for the time being [10 Sept.] approving all that Laidley had done for Park and promising reimbursement for expenses incurred³. In this he enclosed a letter for Mungo Park himself attributing the lack of direct news to the capture of the little *Endeavour* on its return passage from the Gambia. He had accepted the office of Secretary, he told Park, because he 'was unwilling that your affairs should be Conducted by any one Else'⁴.

As the races at Lincoln ended two other letters were posting north to Revesby Abbey, both from the industrious President of the Board of Trade, Lord Hawkesbury. The first was the matter of the collections of M. de Calonne⁵ recently offered to the King or to the British Museum for purchase. [11 Sept.] This was a dilemma for whose solution Banks's opinion was sought and which he deferred, with qualified expectations of the value of the collections⁶, until he could inspect them after his return to London on 3 November. [14 Sept.] The second pursued the theme of his last letter from Overton of 30 August to the noble Lord about the corn supply and which Hawkesbury was now acknowledging [11 Sept.] from Addiscombe Place in Surrey, though he wished any reply to be sent to him through William Fawkener, clerk to the Privy Council⁷. Banks answered this letter on Tuesday, 15 September, rejoiced to learn that his Lordship had 'hit upon an expedient for Securing some weeks

¹ Blagden to Banks, 3 September 1795, BM.A.MS. 33272. 144-145 and DTC. 9. 284-285.

² *Phil. Trans. Roy. Soc.* 1795, LXXXV (II): 347-409.

³ Banks to Laidley, [10 September 1795], Dawson MS. 46. 25-26 and SL Banks MS. A 3: 53.

⁴ Banks to Park, [10 September 1795], SL Banks MS. A 3: 52.

⁵ Lord Hawkesbury to Banks, [11 September 1795], BM.A.MS. 38310. 144; original, signed, SL Banks MS. NH 1: 2.

⁶ Banks to Lord Hawkesbury, 14 September 1795, SL Banks MS. NH 1: 1.

⁷ Lord Hawkesbury to Banks, 11 September 1795, SL. Banks MS. Ag 1: 100.

provision of wheat for our Luxurious Metropolis without interfering in the usual course of Commerce¹. He had no doubt he would approve the plan when he learned exactly what it was in his Lordship's own good time. Meanwhile he launched into the state of the wheat crop and wheat prices in Lincolnshire, noting the trend toward substituting oats and barley for wheat in the domestic diet as he had already observed in Derbyshire and Northamptonshire.

Much nearer to Banks's immediate interests a letter came from Jonas Dryander written on 14 September sending specimens of William Bulmer's type for the printing of the first volume of the *Catalogus Bibliothecae*... of the Banksian Library at Soho Square². He also presented Nichol's suggestions for the arrangement of the entries, and asked for Banks's comments on both these things. If all was well Dryander hoped the volume would go to press in a fortnight. There was also some mention of the 'nastiness' oozing from 'the little house' into one of the coal cellars at Soho Square and Mr. Goran's report on what was necessary to deal with it. Banks's comments were sent back on 17 September to which Dryander replied from London on 24 September happy to have Banks's approval of the specimen sheets³. He hoped to start Bulmer composing the following week but intended to go slowly at first. He noted also that Mr. Goran and his henchmen would set to work emptying 'the little house' at dead of night next Sunday, 27 September.

The Proceedings of the Board of Longitude intruded also in a letter from the astronomer-royal, Dr. Nevil Maskelyne, F.R.S. [15 Sept.] consulting Banks on the best plan for distributing a printed paper on the Board's proceedings against the University of Oxford to recover the valuable manuscripts of Maskelyne's predecessor, Dr. James Bradley⁴. Should they go first to their friends or 'into the enemies quarters', the colleges of Oxford? He was also able to report that the Admiralty were prepared to receive James Weir and Joseph Lindley on H.M. cruisers at Portsmouth for the testing of Weir's artificial horizon which the Board had had under its scrutiny for the past two years.

Abroad it is instructive to view the letters that were preparing under their writers' hands as the autumn approached. From St. Petersburg, even as the Grand Duchess's new plants from Kew were settling into their new hot-houses, Anton Hove was reporting to Banks the disruption of his work in Poland⁵, the destruction of his collections, his flight to Russia and his possible future employment on the Turkish border. [20 Sept.] In Vienna, however, Nicolaus Jacquin the elder was emphatic in his complaint that he had received no answers to his last six letters to Jonas Dryander [22 Sept.], little appreciating that industrious man's preoccupation with the *Catalogus Bibliothecae*...⁶. He would receive some months later Banks's own full exculpation of the offender [8 Mar. 1796] and a promise of the great work itself⁷. In Gibraltar Pierre Broussonet [23 Sept.] announced his early return to France where

¹ Banks to Lord Hawkesbury, 15 September 1795, SL. Banks MS. Ag 2 : 2.

² Dryander to Banks, 14 September 1795, FMC. Banks MS. 190 and DTC. 9. 292-293.

³ Dryander to Banks, 24 September 1795, FMC. Banks MS. 191.

⁴ Maskelyne to Banks, 15 September 1795, DTC. 9. 294-295.

⁵ Hove to Banks, 20 September 1795, Kew B.C. 2. 128. Cf. Noe to Banks, 12 November 1795, SL. Banks MS. Ru 1 : 47.

⁶ Jacquin the elder to Banks, 22 September 1795, B.M.A. MS. 8098. 363.

⁷ Banks to Jacquin the elder, 8 March 1796, ML. Banks MS. 73^a.

his property was still safe, promising an early settlement of his debts to Banks, and rhapsodising over the vast unworked field of Natural History he had found in North Africa¹. From Lisbon the Duc de Lafoens [26 Sept.] was seeking news of 'our Abbé' Correia de Serra and the use of Banks's library and collections on his behalf² – a fruitful association already established and due to blossom just one year hence in their exploration of the palaeobotany of the Lincolnshire coast together³. From Dominica Henry Hamilton, the island's Governor, [27 Sept.] was seeking Banks's opinion on a theory he had formed about climatic changes and variations in the Polar ice-pack – a subject close to Banks's own heart⁴.

Perhaps of more immediate impact was the letter from Archibald Menzies [14 Sept.] written on board H.M.S. *Discovery* in the Shannon on her way home after nearly six years in the Pacific on the American coast and among the islands, portending new botanical riches⁵. It presaged also much trouble for Banks as Menzies's state of arrest imposed by Captain George Vancouver gave ample warning. More hopeful but more distant yet was the letter received under cover of one from East India House dated 22 September. This was the copy of Dr. William Roxburgh's letter from Calcutta⁶, directed to Banks, with the list of plants now sailing home under the care of Peter Good on the *Royal Admiral*, dated as far back as 25 April. But this was a problem for the coming winter⁷.

While these letters were being framed or slowly finding their way across a war-torn world towards him Banks and his family were 'all well and merry' after the fishing and the races as he told John Lloyd later⁸. Indeed Banks was happily engaged in practising the art of water divining according to the principles of Mr. Elkington. This harked back to a visit by Banks to Woburn Park on 4 December the previous year where he had seen Elkington at work for the Duke of Bedford⁹. Now he was applying what he had learned with apparent success in discovering springs in the upper levels of Revesby Abbey park. A particular success was the finding of one that his father had sought but failed to find some forty-eight years before in 1747. This was already yielding three hogsheads a day (c. 160 gallons per day or c. 1100–1200 gallons per week). From all these new springs, when linked together, he had estimated the house could be supplied entirely instead of by the prevailing system of pumping from ponds and wells. To meet the weekly household demand he would require some 70 hogsheads or roughly 3800 gallons.

October, the last month of the late summer vacation, opened and continued with the affairs of the Royal Society becoming more insistent as Blagden raised problems of incoming papers, referees, and the printing of papers already accepted and read.

¹ Broussonet to Banks, 23 September 1795, BM.A.MS. 8098. 255–256.

² Duc de Lafoens to Banks, 26 September 1795, BM.A.MS. 33980. 16 and DTC. 9. 296.

³ *Phil. Trans. Roy. Soc.* 1799, LXXXIX (1): 145–156.

⁴ Hamilton to Banks, 27 September 1795, BM.A.MS. 33980. 18–19.

⁵ Menzies to Banks, 14 September 1795, Kew B.C. 2. 127 and DTC. 9. 288–291.

⁶ H.E.I. Co. to Banks, 22 September 1795, BM.A.MS. 33979. 192.

⁷ Roxburgh to Banks, 25 April 1795, BM.A.MS. 33980. 9–10.

⁸ Banks to Lloyd, 5 October 1795, NLW. MS. 12415. 41.

⁹ MS. notes by Banks on a visit to Woburn Park, 4 December 1794, and further notes of a ride with Elkington on Crawley Moor, 24 March 1796. UY Banks MS. Banks said of him: '... he seems free from all Charlatanery & desirous of Communicating all he Knows but for want of science he has not the means of explaining himself'.

[5 Oct.] There was some dispute among the authors of the paper on the trigonometrical survey presented by Lieutenant-Colonel Williams which was delaying the printing. De la Corbière in Martinique must have his reply written in French by Layard, the Society's Foreign Secretary, who was away. The very long paper on optics by the very young 'gentleman of Edinburgh' had been received. The mathematical paper by Simon L'Huilier, on Banks's suggestion, had been submitted to Maskelyne but he was still out of town¹.

All these things reflected the seasonal dislocation of academic and scientific life as its practitioners pursued the last comforts of a dying summer. However, by the end of the month, Blagden could report [23 Oct.] that at least the title of the paper on the trigonometrical survey and its authorship had been settled as between Lieutenant-Colonel Williams, Captain Mudge, and Mr. Dalby and its communication assigned to the Duke of Richmond, who was still at the Ordnance Office, though since the previous February no longer Master-General. The young man's paper from Edinburgh had been found tedious and badly prepared and if thought worthy of printing would have to be much altered. On the other hand L'Huilier's paper seemed to have much merit. Count Rumford had arrived in England with a batch of papers drafted but unfinished. Then as a final rub for the President he reported that Elkington the water diviner had completely failed in his attempts to drain Petworth Park in Sussex and his reputation had greatly suffered².

At Soho Square the seduction of the summer and approaching autumn had left Jonas Dryander unmoved. The business of the Library was well-matched with that of the Royal Society. He was undoubtedly giving priority to the preparation of the *Catalogus Bibliothecae* . . . for its printing by Bulmer but he dutifully sent on the letters as they arrived and recorded the steady flow of publications. [1 Oct.] From the Rabbi Herman Treschow in Denmark had come the *Flora Danica* and the proceedings of the Agricultural Society at Copenhagen; from Norway a periodical; from various quarters four bundles of theses some of which were good and 'made a hole in the catalogue of wants'; a volume on Oaks was sent on to Revesby Abbey with a 'Scotch Crown' for Miss Banks from Dr. Wright of Edinburgh 'who also wants something' - a copper medal of Captain Cook³.

In answer to a letter of enquiry from John Lloyd the wide-ranging character of Banks's intelligence system revealed itself again as he confirmed the reports in the newspapers of the finding of gold in Ireland. [9 Oct.] Banks had in fact seen a letter from William Marsden's brother Alexander who had been on the spot in the middle of September, just three weeks earlier⁴. He now sent Lloyd the details of where it was 'in the County of Wicklow 6 miles west of Arelow in a Level valley abutting on & very near to the Steep side of a high Mountain' with many other circumstantial details. This was the beginning of a sequence of letters and action as John Lloyd set off forthwith for Ireland. The results would finally appear as

¹ Blagden to Banks, 5 October 1795, B.M.A.MS. 33272. 146-147 and DTC. 9. 298-299. The paper by Simon L'Huilier, F.R.S., was read 18 February 1796 and printed in *Phil. Trans. Roy. Soc.* LXXXVI (1): 142-165.

² Blagden to Banks, 23 October 1795, B.M.A.MS. 33272. 148-149 and DTC. 9. 306-307.

³ Dryander to Banks, 1 October 1795, F.M.C. Banks MS. 192.

⁴ Banks to Lloyd, 9 October 1795, NLW. MS. 12415. 41.

a communication to the Royal Society and be printed in the *Philosophical Transactions*¹. The community of interest between these two mine-owners prompted Banks to lay another task on John Lloyd, emphasising their deep concern with all things geological, not merely Irish gold. He prayed that when Lloyd should return to visit their mutual friend Sir George Shuckburgh, F.R.S., in Warwickshire he would 'Examine the mineral in the Tunnell which is Call'd Clunch'. He was to report to Banks 'how many beds of Iron Stone have been seen in this Clunch as they call it & whether nautili which are the genuine Productions of the ocean are found in Strata above the Iron Stone beds which seem by the Flags they abound with to have been of vegetable origin in Short the Peat bogs of a Prior world'.

As the annual visit to Revesby Abbey came to its autumnal end a variety of matters from the world outside the fens maintained the ebb and flow of letters. Banks had been pondering the value of swan skins and seeking information in London from whence came full information on the skinning and dressing of the birds from Mr. Kleinert² of Highgate [12 Oct.] and also no less than Alexander Aubert, F.R.S.³ who had probed the business among other more philosophical pursuits. [20 Oct.] January seemed to be the proper month for killing the birds, a detail reserved for future reference⁴. John Leslie from Fife [15 Oct.] was now a candidate for the chair of Natural Philosophy at St. Andrews and was eager for Banks's support⁵. Across the Forth at Leith Captain William Bligh was anchored in H.M.S. *Calcutta*⁶, instead of with the convoy from the Orkneys, having been diverted to aid the Army in quelling a mutiny on board H.M.S. *Defiance*, and with this news kept his name fresh in the mind of his benefactor. [19 Oct.] From Vienna William Heidinger had come, a mineralogist, whom Banks was sure from his credentials he could safely recommend to Matthew Boulton at Birmingham⁷ as an upright scientist who would not pry into secrets of manufacture. [20 Oct.] Heidinger would later be the safe hand to Vienna bearing a soothing letter back to the elder Jacquin⁸, nettled by Dryander's silence from Soho Square. [8 Mar.] Then to William Ramsay of the Honourable East India Company he sent his thanks for presentation to the Court of Directors for the plant collection sent home by Robert Brooke, Governor of St. Helena. [22 Oct.] He promised to draw the King's attention to the handsome manner in which the Directors had promoted the science of botany⁹. The subject was again foremost in his mind as he answered the letter from the Duc de Lafoens of 26 September, pledging [27 Oct.] every assistance to the Abbé Correia de Serra¹⁰, a promise well fulfilled and amply rewarded, if by no other means than the Abbé's part in

¹ *Phil. Trans. Roy. Soc.* 1796, LXXXVI (1) : 34-38, 43-45.

² Kleinert to Banks, 12 October 1795, *Dawson MS.* 45. 13.

³ Aubert to Banks, 20 October 1795, *Dawson MS.* 45. 14.

⁴ Roberts to Banks, 13 January 1802, UY Banks MS. Here Roberts, concerning the killing of some swans at Stickford for their skins, reminds Banks '. . . you know Sir that I have been a little used to skinning Birds, and have not quite forgot, tho' now 'tis about 33 years since you taught me how, when at New Zealand'.

⁵ Leslie to Banks, 15 October 1795, DTC. 9. 300-301.

⁶ Bligh to Banks, 19 October 1795, DTC. 9. 303-305.

⁷ Banks to Boulton, 20 October 1795, BAO. (39).

⁸ Banks to Jacquin the elder, 8 March 1796, ML., Banks MS. 746.

⁹ Banks to the H.E.I. Co., 22 October 1795, I.O. *Misc. Letters Received*, 93. 207.

¹⁰ Banks to the Duc de Lafoens, 27 October 1795, BM.A.MS. 33980. 17 and DTC. 9. 207.

consolidating the introduction of Robert Brown into the circle at Soho Square three years hence¹.

Then at last the matter of 'the Present' emerged again with James Bland Burges announcing his retirement from 'official drudgery' though still 'liable for some time to what the Lawyers call Remanets'. With one of these small pieces of unfinished business he now troubled Banks [24 Oct.], namely Captain Vickerman's account received from Sir Charles Whitworth in St. Peterburg for the transport of the Tsarina's plant collection². Banks was quick to reply [28 Oct.] with congratulations on the baronetcy to be conferred on Burges at the end of his public life but no less ready to contest the accuracy of the account with which he would deal further on his return to London on 3 November 'floods permitting'³.

Again it is worth a glimpse at some of Banks's distant correspondents who were that October preparing letters yet to come – some within weeks, others not for many months far into the next year. From Naples Sir William Hamilton, longing for the end of a war that had scarcely begun, wrote to acknowledge the arrival of four copies of his paper on the most recent eruption of Vesuvius, from the first part of the current volume of the *Philosophical Transactions*. [10 Oct.] He sent also a sketch and description of some small fishes called Cicinielli by the Neopolitans and greetings from the second Lady Hamilton, on the brink of becoming Admiral Nelson's Emma, whose 'mind has gained and her body lost nothing of its beauty' since Banks had last seen her four years before⁴. Less complicated by social undertones was the letter from Johann Blumenbach from Göttingen curious to obtain a small specimen of the Indian wootz steel⁵ of which already he had heard rumours that the Royal Society possessed some. [15 Oct.] But more distant still at the very limits of Banks's or any European's lines of communication several letters were prepared that month at Sydney in Port Jackson, New South Wales. The new Governor, Captain John Hunter, announced his arrival in H.M.S. *Reliance* on 7 September, having escaped the French cruisers and after a passage of more than seven months. [12 Oct.] He had found the colony much better than had been reported; the live-stock and the cultivation thriving better under the hands of private individuals than of Government; and, most valuable, the finding again of the cattle lost in 1788 now grown to a large but very wild herd⁶. Commander Henry Waterhouse, Captain of the *Reliance*, wrote to the former Governor, Captain Arthur Phillip, a long account of the state of the colony which duly found its way into Banks's hands. [24 Oct.] He recorded his plain opinion of the *Reliance* – 'I never sailed in so complete a tub' – and noted without comment 'A Mr. Flinders is appointed our 2^d Lieut. in the room of the one left at Rio de Janeiro...' ⁷. The young master's mate had advanced a step further and was soon to lay up a store of experience in seamanship and sailing with that same 'tub' in its next historic circumnavigation under Waterhouse in the wild unruly 'forties' of the South Seas. There was also

¹ Corria de Serra to Banks, 17 October 1798, Kew B.C. 2. 206 and DTC. 11. 14.

² Burges to Banks, 24 October 1795, DTC. 9. 308–309.

³ Banks to Burges, 28 October 1795, DTC. 9. 310.

⁴ Hamilton to Banks, 10 October 1795, B.M.A.MS. 34048. 83–85.

⁵ Blumenbach to Banks, 15 October 1795, B.M.A.MS. 8098. 224.

⁶ Hunter to Banks, 12 October 1795, DTC. 9. 246–251.

⁷ Waterhouse to Phillip, 24 October 1795, DTC. 9. 252–255.

a long letter from the 30-year-old Army Captain William Paterson, the aspirant F.R.S. and present commander of the turbulent N.S.W. Corps, who had for the past year carried the burden of Lieutenant-Governor of the young colony of little more than three thousand people, two-thirds of them convicts or convict born¹. He referred to the letter from Banks which Governor Hunter had brought and which, he said, had brought great satisfaction to the colony. This and the contents of the small plant cabin on the quarter deck of H.M.S. *Reliance* were an earnest of real and practical services by Banks to the colony which were to extend over the next twenty-five years with incalculable results to the future of the Southern Hemisphere. [26 Oct.] These letters were apparently all swept together with Hunter's despatches to the Duke of Portland², successor to Henry Dundas as Home Secretary, and sent home by the *Young William* by way of China, sailing from Sydney on 29 October.

The next day, 30 October, Banks turned south from Revesby Abbey unaware of the violent scenes of the previous few days in London for no hint had filtered through in any of the late letters from that quarter. The popular unrest had indeed been so great that few civil servants and Ministers of the Crown had risked appearing at their offices in the vicinity of Westminster, Whitehall and St. James. Of these few William Pitt, the prime target as well as the Prime Minister, and Henry Dundas, Secretary for War, were the most prominent among those who refused to be intimidated by the spate of popular turmoil at the impending Acts to restore order – the Seditious Meetings Act and the Treasonable Practices Act³. James Bland Burges was also among the steadfast few who kept his normal hours at Downing Street but there was no hint of this in his letters to Banks. It was indeed on 29 October, while Banks's letter of 28 October was on its way to Burges, that the King himself was attacked in his coach on his way to and from the opening of Parliament that day – even shot at, according to witnesses and above all to the lords-in-waiting with him in the coach, the Earls of Westmoreland and of Onslow.

It was into the aftermath of these frightening scenes of public disorder bordering on violent revolution that Banks made his return to Soho Square. One of his first acts was to join with Lord Yarborough to press Ayscoughe Boucherette, M.P., his successor as High Sheriff of Lincolnshire, to convene a county meeting for purpose of carrying resolutions of loyalty to the King. To these would be joined an address of thanksgiving for the King's escape from 'the late atrocious attack' upon his person. The request was carried verbally by Robert Vyner, M.P. for the county, to Boucherette who agreed [17 Nov.] and set 28 November for the meeting at the County Hall in Lincoln⁴. The address of loyalty was generally acclaimed marred only by the written dissent of that well-known dissenter, Major John Cartwright, lately and often Banks's guest at the Witham fishing. Banks himself, for reasons which he explained to Boucherette [23 Nov.], did not return to Lincoln for the occasion but instead signed the address from Oxford which he made a particular point of attending 'as a graduate of that university' on Wednesday, 25 November⁵.

¹ Patterson to Banks, 26 October 1795, DTC. 9. 256–258.

² Hunter to Duke of Portland, 21 December 1795, HRNSW. II. 344–346.

³ Seditious Meetings Act, 36 Geo. III. c. 7. Treasonable Practices Act, 36 Geo. III. c. 8.

⁴ Vyner to Banks, 17 November 1795, UY Banks MS.

⁵ Banks to Boucherette, 23 November 1795, UY Banks MS.

Meanwhile John Lloyd had visited the scene of the Irish gold discovery with Abraham Mills, F.R.S., mineralogist, and wrote in some detail to Banks in two letters dated 4 November from Cronbane, County Wicklow, nearby¹. Banks replied on 13 November, the day after receiving them, and promised that Lloyd's letters should be read at the next Royal Society meeting². Meanwhile he craved Mills's supporting geological report. On 8 November he was constrained to refuse John Leslie's plea of 15 October from Fife for support in his candidature for the chair of Natural Philosophy at St. Andrew's gently suggesting that others who actually knew the members of the University might be more useful³. On 11 November he received from John Steel at Revesby Abbey a progress report on the new water supply from his new found springs [9 Nov.] and the laying of the lead pipes and drains⁴. On 17 November he replied to Sir William Hamilton's letter of 10 October acknowledging the arrival of a parcel of plants from John Graeffer⁵, the Queen's gardener at Naples, especially the *Sterculia*. Then, almost as though stirred by the very mention of the vulcanologist Hamilton's name, the earth quaked in England on 18 November. Banks immediately set about gathering as many reports of the phenomenon as he could stimulate from his correspondents. These he summarised and in due course a paper was presented to the Royal Society and printed in the *Transactions*⁶. While he was engaged on this Count Rumford was aflame with a new idea for conserving coal in its domestic use and was trying to persuade Banks to apply it at Soho Square – 'He has threatened my Kitchen & I am submissive but I Seriously hope he will find some one better suited for his Practice than mine'⁷. Before the month was out there came a final touch to the long list of disbursements which followed his elevation to the Order of the Bath. The Lord Chamberlain's clerk, Samuel Betty, proclaimed the Knight's Collar ready to be collected and the fees for it to be £26. 14. 6.⁸

The month of December was notable for the frequency with which the name of Bligh appeared on Banks's desk. Early in December Elizabeth Bligh sought a position for her husband at Greenwich Hospital. [5 Dec.] How much of this notion William Bligh himself had instigated does not appear, though he was certainly intent on keeping his name fresh at Soho Square with news of his movements and adventures⁹. At all events on 10 December Banks wrote on Bligh's behalf to the First Lord, the 2nd Earl Spencer, soliciting the vacancy 'spontaneously', he said. This is one of those extremely rare deviations from the strict truth, it would seem, which Banks permitted himself as far as we can judge him in this way¹⁰. An

¹ Lloyd to Banks, 4 November 1795, DTC. 9. 311–314; DTC. 9. 315–316.

² Banks to Lloyd, 13 November 1795, NLW. MS. 12415. 42. Lloyd's letters were published in *Phil. Trans. Roy. Soc. LXXXVI* (1): 34–45; Abraham Mills's reports were published in *Phil. Trans. Roy. Soc. LXXXVI* (1): 45–51; read before the Society, 17 December 1795.

³ Banks to Leslie, 8 November 1795, DTC. 9. 302.

⁴ Steel to Banks, 9 November 1795, UY Banks MS.

⁵ Banks to Hamilton, 17 November 1795, BM, Egerton MS. 2641. 157–158.

⁶ *Phil. Trans. Roy. Soc. 1796, LXXXVI* (II): 353–381. Written by Edward Whitaker Gray, F.R.S., from the letters provided by Banks.

⁷ Banks to Hamilton, 17 November 1795, BM.A.MS. 2641. 157–158.

⁸ Betty to Banks, 26 November 1795, DTC. 9. 28.

⁹ Elizabeth Bligh to Banks, 5 December 1795, DTC. 9. 321–322.

¹⁰ Banks to 2nd Earl Spencer, 10 December 1795, DTC. 9. 326–327.

immediate reply from the Earl on the same day [10 Dec.] said that the Greenwich vacancy was already filled but that he could promise Bligh a larger 64-gun ship at the end of his present cruise¹. For this dispensation Banks was duly grateful to his Lordship and was himself sure that this advance would do much to heal Bligh's spirits wounded as they were by the unjust actions against him by the relatives of the *Bounty* mutineers². Unaware of this brightening turn to his future Bligh meanwhile had been cruising off the Texel coast vainly seeking Admiral Duncan and was now sheltering in Yarmouth Roads where the *Calcutta* had narrowly escaped fire from a nearby timber ship. [25 Dec.] This Christmas newsletter was seasoned with a hopeful *quid pro quo*. Bligh, in passing his Pacific charts over to Aaron Arrowsmith for engraving had named an island group north of the New Hebrides after Banks³.

Another aspect of the war also intruded to emphasise the web of confidences spun from 32 Soho Square. On 16 September the Dutch garrison at the Cape of Good Hope under Colonel Robert Jacob Gordon had surrendered to a British fleet under Admiral Elphinstone. Before the month was out the Colonel had been driven to suicide by his compatriots, leaving a widow and a small sheep flock. Both were destined to come under Banks's notice. On 21 December Henry Dundas from the Board of Control submitted to Banks a long questionnaire on the Cape colony of the Dutch East India Company, its products and potential⁴. In the course of his reply Banks specifically noted the state of the sheep population and the presence there of the small flock of Spanish Merinos developed by Colonel Gordon. Within the next two years most of these animals were destined to sail for Port Jackson in New South Wales on board H.M.S. *Reliance*, Captain Henry Waterhouse, and H.M.S. *Supply*, Lieutenant William Kent. Here we have a first glimpse of a small asset of the war that was later to be a significant catalyst in the European colonisation of the new lands in the Southern Hemisphere.

At last, just before the end of the year on 29 December came George Noe himself to report a successful end to his Russian journey with the plants for the Empress Catherine. The interview clearly followed the pattern of numberless others, probably in the 'unarrangd regularity' of his 'little den', the study or 'small Library' which opened off the entrance hall at the foot of the staircase⁵. Here probably at the big desk under the long studio window Banks jotted down his notes of what Noe told him and soon after these were re-drafted into an urgent letter to James Bland Burges the same day⁶. Banks was now very anxious to meet Burges at 'the office that we may finish the affair' as soon as he returned from his retreat at Eltham beyond Greenwich. Three weeks passed and there was no word from Burges. In

¹ 2nd Earl Spencer to Banks, 10 December 1795, DTC. 9. 328.

² Banks to 2nd Earl Spencer, [11 December 1795], DTC. 9. 332.

³ Bligh to Banks, 25 December 1795, DTC. 9. 333-335.

⁴ Bruce to Banks, 21 December 1795, SL Banks MS. A3 : 18. In his answer to the questionnaire, assessing the products of the colony, he notes '... altho the Spanish [Merino] sheep have been introduced by Colonel Gordon little expense has been incurred or trouble taken by the Settlers in spreading them'. There was time enough for this information to reach Port Jackson and have an influence on later events before Captain Waterhouse and Lieutenant Kent sailed for the Cape in late September 1796.

⁵ MS. notes by Banks. SL Banks MS. Ru 1 : 50.

⁶ Banks to Burges, 29 December 1795, Kew B.C. 2. 130.

that irritating interval, however, there were still the felicities of the Christmas season to be attended to, especially his thanks to James Edward Smith for the fine Norfolk turkeys his wife had procured for him [3 Jan.] with sapient remarks on turkeys in general¹. Captain Bligh was able [7 Jan.] from H.M.S. *Calcutta* to announce his commission to H.M.S. *Director* with Lord Spencer's permission to take with him all his officers and men to the new ship. Nevertheless he still clung to hopes of Banks's support for future appointment to Greenwich Hospital². Problems of naval unease were never far from Soho Square and there was also the shadow of that other thorny character, Captain George Vancouver, the Camelford incident, and the arrest of Archibald Menzies yet to be set straight with the Duke of Portland as Home Secretary.

The home affairs of Lincolnshire were no less insistent than those of the nation. John Parkinson senior of Asgarby was now the steward for the Revesby and Holland estates in the place of the Benjamin Stephenson of Mareham-le-Fen, dead since the previous July. He was now assisted by James Roberts, the boy of sixteen who had set out with Banks as his servant on the *Endeavour* in 1768. They were both now somewhat concerned at the dissatisfaction of the tenants expressed during the last rent collection in December when many had thought the increase announced to them as not wholly fair. This seemed to revert to the question of whether the surveyed areas were correct and this in turn impugned the accuracy of Thomas Stone who had recently completed this task for Banks. Parkinson³ raised this in his letter of 7 January and promptly Banks answered on 9 January that he would forthwith ask Stone to explain the discrepancies⁴. He promised justice to his tenants, especially the old, and would rectify the errors on his next visit to Revesby. There was also a call on his advice about the future of his young relative Henry Hawley at Oxford⁵, only son of his cousin Sir Henry Hawley, 1st bart. [6 Jan.] Young Henry hankered after the Guards but had been dissuaded by the logic of Banks's arguments and had returned for the time being to his University. Banks, however, was disturbed at this easy compliance [8 Jan.] and hoped that he was really convinced and not merely swayed by adult pressure⁶. There was time also to answer a very old correspondent⁷, Johann Ludwig Formey, F.R.S., Secretary of the Berlin Academy, [9 Jan.] whose letter of 29 November he had just received⁸. His reply was a polite envy of his old friend's friendship with the great ones of Europe – Voltaire, Maupertuis, D'Alembert – and a speculation that 'Prussia may stand in the breach between England and France'. From Dr. James Edward Smith he sought information about the effects of the November earthquake⁹ in or about Norwich. [11 Jan.] While Banks was engaged in seismology John Sibthorp at thirty-eight was dying at Bath and dating his will [12 Jan.] which was so soon to become a preoccupation at Soho

¹ Banks to Smith, 3 January 1796, Smith MS. 1 : 92–93.

² Bligh to Banks, 7 January 1796, DTC. 10 (1). 1–2.

³ Parkinson to Banks, 7 January 1796, BM.A.MS. 43837. 8–9.

⁴ Banks to Parkinson, 9 January 1796, BM.A.MS. 43837. 10.

⁵ Hawley to Banks, 6 January 1796, UY Banks MS.

⁶ Banks to Hawley, 8 January 1796, UY Banks MS.

⁷ Banks to Formey, [9 January 1796], Kew B.C. 3. 12; DTC. 10 (1). 5–6.

⁸ Formey to Banks, [29 November 1796], BM.A.MS. 8098. 39–40.

⁹ Banks to Smith, 11 January 1796, Smith MS. 1 : 94.

Square as he ensured the future of his *Flora Graeca* and a new chair in Rural Economy to be held by the Sherardian Professor of Botany at Oxford¹. Problems of rural economy were indeed many and none more insistent than that of the wheat supplies, the grinding of flour and the making of bread. This then was the substance of a long technical discourse [13 Jan.] on the mechanics of stone hand-mills to Stephen Digby, ranger of Richmond Park, who had sought Banks's advice².

All these things and very much more had occupied the dark days through December and January. There was in particular the steady work with Jonas Dryander, diverted from the *Catalogus...*, classifying the botanical gatherings from China brought more than a year before by the Macartney Embassy. This involved frequent correspondence with Sir George Leonard Staunton³ as each batch was finished [23 Dec., 26 Dec. 1795; 6 Jan., 23 Jan., 24 Jan. 1796]. To all this was added the collections by Archibald Menzies on the long Vancouver voyage of 1790-1795 which had ended when the ships H.M.S. *Discovery* and H.M.S. *Chatham* anchored in the Thames on 20 and 17 October respectively. From these Banks not only received at Soho Square their fascinating new accessions to botany from the Pacific coasts of the Americas and the islands of that ocean but also the whole tangled business of another *contretemps* between the Navy and science. There was the problem of Menzies's arrest to resolve and his future to ensure at least until his journals and his collections were put into a fit state for the world to see and to use⁴.

None of these things could detract from the nagging irritation of a task completed but an account unpaid. Three weeks' silence from James Bland Burges in retirement at Elton was more than Banks was now prepared to allow and on 19 January he felt impelled to 'aim another Shot' in that direction⁵. This was a masterly discharge compounded of a just claim and an unusual display of bared feelings. It was enough to shock any civil servant into action however bruised and gout-ridden he may in fact have been. A quick exchange of letters followed⁶ and accounts checked and cross-checked. [20, 22, 23 Jan.] These disposed of the main problems as Burges agreed to relieve Banks of further trouble and pass the matter into the obscure channels of the Foreign office for ultimate - very ultimate - settlement from the Contingency Fund⁷. With this assurance but clearly with his private doubts Banks at least saw that the good and faithful George Noe should not stand in want. On 4 February he paid the final amount due to Noe for salary and expenses - £56. 17. 5 - leaving Sir Joseph himself now with a total sum owing from an unconcerned Government of £162. 0. 6 and - as far as we know - no official word of thanks from any quarter. For three years the debt remained unpaid until 6 February 1799 when Mr. Thomas Bidwell sr., Chief Clerk at the Foreign Office 'took the

¹ Copy of the will of John Sibthorp, 11 January 1796, BM.A.MS. 33980. 49-50; DTC. 15. 294-297

² Banks to Digby, 13 January 1796, DTC. 10 (1). 9-10.

³ Banks to Staunton, 23, 26 December 1795; 6, 23, 24 January 1796, SL Banks MS. [BM(SC), Mf. 28].

⁴ Banks to Duke of Portland, 3 February 1796, DTC. 10 (1). 15-16.

⁵ Banks to Burges, 19 January 1796, SL Banks MS. Ru 1: 11.

⁶ Burges to Banks, 20 January 1796; 22 January 1796; Banks to Burges, 23 January 1796, SL Banks MS. Ru 1: 19-20.

⁷ Note by Thomas Bidwell sr. in MS. volume of Foreign Office Contingency Fund accounts, now in Foreign Office Library, dated 11 February 1799.

liberty of enclosing a draft for £102 being the amount spent by Sir Joseph on His Majesty's service¹. This was all that George Hammond, Burges's successor as Under-secretary, had authorised. What further shots were fired by Banks we do not know. There remains only that bare footnote to the account: 'I received the whole of the money Feb 11 1799 being exactly 3 years after I had paid it & nobody has Thankd me'². Perhaps by then he was beyond further words. Certainly it would not be easy to advance beyond those unusual, scathing, even bitter comments to Burges three years before:

'... If I am to do all to write all to direct all & to pay all & no human being feel inclined to thank me I shall I fear in due time feel as Sulky as a measly Sow who has lost her scrubbing Post'³.

It is probable that Time, since those harsh words, had eased the original irritation, the frustration and the sense of official ingratitude. His very private form of public service had indeed been recognised by his elevation to the Privy Council on 29 March 1797, although even this was merely making *de iure* what had been for some years *de facto*. It is possible that he was more than commonly exhausted in spirit as well as in body after the harrowing months of illness during 1798, which had confined him at Spring Grove and from which he certainly had not recovered in February 1799. However, it is much more likely that in spite of his very evident infirmity he was simply dismissing the matter as of no further importance to him when so much else was immediately claiming his attention. He was in fact immersed again in the problem of plant transport by sea to distant latitudes. This centred round the fitting out of the first H.M.S. *Porpoise* to sail for Port Jackson under the future Governor of that colony, Captain Philip Gidley King. It is another case in the long series of naval problems associated with Banks's unwearying attempts to move plants of scientific and commercial value across the oceans of the world or, in a wider context, to marry Science and the Sea. From the days of the *Endeavour* and the disappointment of the *Resolution* to the present case of the *Porpoise* there had been a chain of tricky compromises to be found between naval ideas of seaworthiness and the notion of effective scientific service. In this sequence both Banks and the Navy Board had learned much not only about each other but about the inescapable problems set when something other than aids to sailing or fighting were added to one of the King's ships. The ghost of the old *Resolution* argument might seem to hover over the *Porpoise* and the difficulty of accommodating her 'garden', but in the end she was condemned and discarded as a ship of unfit design and sailing capability regardless of any contentious plant cabins on the quarter deck. Meanwhile the long, involved, and finally unsuccessful attempts of all concerned to make the *Porpoise* fit for the voyage briefly brought the experience with the little *Venus* into the calculations of what might be possible.

Captain King mentioned to Banks on 6 February 1799 that the master of the vessel 'has found it absolutely necessary to write officially to the Navy Board, and has stated the necessity for removing the plant-cabin from the quarter deck, and has

¹ Bidwell to Banks, 6 February 1799, SL Banks MS. Ru 1 : 29.

² MS. account of money spent, February 1796, SL Banks MS. Ru 1 : 30.

³ Banks to Burges, 19 January 1796, SL Banks MS. Ru 1 : 11.

suggested the propriety of its being placed in the 'tween decks'¹. There is no rancour here for King added: 'Should the Navy Board see the necessity for this request being agreed to, I shall very much lament the disappointment that will attend your benevolent exertions and endeavours to benefit a place that owes so much to your bounty and well-directed efforts, which I fear will be frustrated in the present instance, unless you think the plants can have a chance by being placed between decks.' The closeness and goodwill with which the naval officers worked with Banks were underlined by the presence of the first Governor of the Colony, Captain Arthur Phillip, who, said King, 'is now standing by me' even as he wrote and who was ready to add the weight of his experience. Banks thus had ample time for reflection before the Navy Board did in fact write to him on 9 February with the essence of Lieutenant William Scott's strong views arising from the ship's very alarming crank behaviour on her passage round from the Downs to Portsmouth. The Board had indeed judged 'it proper the plant-room on the quarter deck should be taken away'. There was here also a note of consideration as the Board added: 'We therefore request to have your opinion on the propriety of placing it between decks, in the manner Mr. Scott has proposed'². It was a strange chance that on the very day that he could record the closing of his account with the Foreign Office over the debt of three years' standing for the expenses of the *Venus* and her successful cargo to Russia he was now prompted by the Navy Board to recall the episode, as he answered its letter on 11 February³. He laid claim, he said, to no great experience in the management of plants between the decks of a ship and could not be answerable for the success of the measures proposed by Lieutenant Scott. Then he said: 'I once sent a cargo of plants from the Royal Gardens at Kew to St. Petersburg. They were stowed in the hold of a small vessel, and all of them arrived safe at Cronstadt, tho' they had a long and boisterous passage. I have also frequently received living plants from the East Indies that have been preserved during the long passage from thence to Europe in the cabbins of passengers. I am therefore of opinion that in case good care is taken of the plants in their intended situation between decks, and all opportunities of giving them air made use of, that the largest part of the cargo will arrive safe at its destination, unless the passage is unusually unfortunate...'. By coincidence the weights of the two floating gardens in this comparison were almost the same: on H.M.S. *Porpoise* 3 tons 3 cwt. 3 qr.; on the *Venus* 3 tons 1 cwt. 22 lb., weights large enough in these small vessels to be a potent factor in their bearing on the ship's behaviour at sea according to their placement.

In the end after another year of mishaps and delay to the acute frustration of all concerned, not least George Caley, another ship had to be found. The plant garden, however, survived well enough in its new situation to be transferred to the new *Porpoise* in which it made the voyage with moderate success only under the care of George Suttor alone in a situation between the main and the mizzen mast.

Thus, by the end of the eighteenth century, the episode of the *Venus* and her plant cargo for the Empress Catherine II had played its small part in adding a modicum

¹ King to Banks, 6 February 1799, HRNSW. III, 533-534.

² Navy Board to Banks, 9 February 1799, HRNSW. III, 536.

³ Banks to Navy Board, 11 February 1799, HRNSW. III, 538-539.

of experience and guidance in the organised dispersal of plant species by man. With the advent of the new century from the mistakes and failures of the old the transport of living plants both for economic and scientific reasons quickly settled into an established and fairly smooth routine even for the longest voyage to and from the Antipodes.

The circumstances of the year 1795 surrounding the episode of the *Venus* and her diplomatic cargo may also be viewed as a revealing glimpse of the general pattern of Banks's working year during the last and most influential thirty years of his life.

KEY TO THE DOCUMENTS

The sources of the documents cited in this bulletin and the abbreviations used are as presented here :

- ATL Alexander Turnbull Library, Wellington, New Zealand. By registration number.
- Auckland Inst. Auckland Institute and Museum, Auckland, New Zealand. By registration number.
- BAO Birmingham Assay Office, Birmingham. Boulton and Watt Correspondence. Not numbered.
- BM British Museum, Bloomsbury, London. Additional Manuscripts and *Egerton* Manuscripts. By registration number and folio.
- BM(SC) British Museum (Natural History), South Kensington, London. Copies of the Banks 'Sheep and Wool' papers in the Sutro Library, San Francisco, California. By microfilm number, section, and frame.
- Dawson MS.* Manuscripts in the collection of the late Warren R. Dawson, Esq. By volume number and folio.
- DTC Dawson Turner Copies of the Banks Correspondence in the Botany Department, British Museum (Natural History). By volume number and folio.
- de Beer Coll.* Manuscripts in the collection of the late Sir Gavin de Beer. By serial number.
- FMC Fitzwilliam Museum, Cambridge. By serial number.
- Fortescue MS.* Manuscripts in the collection of the late Sir John William Fortescue. Unnumbered.
- Hawley MS.* Manuscripts in the collection of Sir David Hawley, 7th Bart., Mareham-le-Fen, Lincolnshire. Unnumbered.
- Hill Coll.* Manuscripts in the collection of Sir Francis Hill now in the Lincolnshire Archives Office. By file and serial number.
- HRNSW *Historical Records of New South Wales*. Edited by Frank Murrcott Bladen, 8 vols., Sydney, 1892-1901. By volume number and page.
- IO Records of the Honourable East India Company, now in the Foreign and Commonwealth Office. By volume and serial number.
- Kew B.C.* Royal Botanic Gardens, Kew, Surrey. Banks Correspondence. By volume and serial number.
- Lindsey* Letters and papers relating to Lincolnshire in the Lindsey County Library, Lincoln. By registration number.
- ML Mitchell Library, Library of New South Wales, Sydney. By registration number, volume, and folio number.
- NLW National Library of Wales, Aberystwyth. By volume and serial number.
- Nichols L.A.* *Literary Anecdotes of the Eighteenth Century*. By John Nichols and John Bowyer Nichols. 8 vols., 1817-1858. By volume and page.
- PML Pierpont Morgan Library, New York. Not numbered.
- RS The Royal Society of London. By file and serial number.

- Sinclair* MS. Manuscripts in the collection of the Viscount Thurso of Ulbster, Thurso, Caithness. Not numbered.
- Smith* MS. The correspondence and papers of Sir James Edward Smith in the collection of the Linnean Society of London. By volume and folio.
- SL Sutro Library, University of San Francisco, California. By alphabetical order of subject and folio.
- UY Yale University, New Haven, Connecticut. Banks Correspondence. Arranged in chronological order, unnumbered.

The documents presented in the ensuing pages of this bulletin were transcribed from Microfilm No. 12 (in the custody of the author) of the papers of Sir Joseph Banks in the Sutro Library, now in the precincts of the University of San Francisco. In these and all other relevant documents the editorial procedure followed is identical with that used formerly by the author in the book *His Majesty's Spanish Flock*, published in 1964. This implies that the idiosyncratic details of each document (in spelling, use of capitals, abbreviations, punctuation, etc.) are presented as closely as modern typography conveniently allows. However, in this bulletin, an exception is made in the case of all identifiable scientific names of plants. These are by convention given in italics and in the modern spelling wherever they occur.

All documents which may be attributed to Sir Joseph Banks as the author, whether in his autograph or not, are identified by an asterisk thus *. The same symbol identifies any annotation in the autograph of Banks on any document and these are set within square brackets, thus [* . . .].

Where words or phrases are deleted in draft or other documents these are presented in italics between obliques, thus / . . . / as far as these can be discerned and placed appropriately.

In two cases (Banks to Burges 5 May 1795 and also 6 May 1795), where separate versions of the same document occur in Banks's autograph (the draft and the final form), both are given. These are useful examples of Banks's common working method even in the small details of his correspondence. They illustrate his general care in drafting even minor letters and the relative status of the first scribbled draft compared with the version actually sent.

THE DOCUMENTS



Sir Joseph Banks *act.* c. 51

1793 November 15 Whitehall

Her Majesty having done Sir Watkin Williams the honour to lay her commands upon him for Monday next, he has requested Lord Grenville to submit to your Majesty his humble request to be allowed to wear your Majesty's uniform. Lord Grenville at the same time takes the liberty to trouble your Majesty with the expression of Sir Watkin William's sense of your Majesty's goodness to him with respect to the Lieutenancy of Merionethshire.

Lord Grenville begs leave also humbly to request to be honoured with your Majesty's commands respecting the letter from Sir Charles Whitworth on the subject of the seeds and plants desired by the Grand Duchess from your Majesty's garden at Kew¹.

1793 November 16 Windsor

Lord Grenville is to acquaint Sir Watkin Williams that I shall be very glad to see him in my uniform as also to confer on Wednesday the Lieutenancy of Merionethshire on him.

I shall order the seeds wished for the Russian Empress's garden to be collected at Kew and such plants as in the present early state of cultivation can be spared to be sent at the proper season to Petersburg. Lord Grenville will notify this to Sir Charles Whitworth².

1795 May 4 Downing Street

I have the Honor to acquaint you that, since you was here this morning, I have had a notice from the Russia Company, that the *Jemima*, Cap^t Metcalfe, will sail for [St.] Petersburg on the 15th of this month. If your arrangements for conveying the Plants can be finished by that time, I am assured that Cap^t Metcalfe may safely be intrusted with the care of them.

I have the Honor to be with the most perfect truth and respect. . . ³

1795 May 5 Soho Square

*if by telling me in your Favor of yesterday that "Capt Metcalfe may safely be intrusted with the Care of the Plants" you mean that he has Skill to take care of them during their Passage, I will readily undertake to put them on board the *Jemima* before the 15th inst, but if otherwise I by no means advise their being sent to Sea till midsummer at the soonest

if you recollect that we England Shall not for a month to Come venture to expose our most Hardy green house plants to the open air, you will probably agree with me that hot house Plants which are the principal Object of the Grand duchesses request,

¹ Lord Grenville to H.M. King George III, 15 November 1793, *Forlescue* MS. William Wyndham Grenville, Baron Grenville (1759-1834), Foreign Secretary 1791-1801, and first cousin to the Prime Minister, William Pitt the Younger (1759-1806).

² H.M. King George III to Lord Grenville, 16 November 1793, *Forlescue* MS.

³ Burges to Banks, 4 May 1795, SL Banks MS. Ru 1 : 2. Sir James Bland Burges, 1st bart. (1752-1824), Under-secretary of State for Foreign Affairs 1789-1795 when he retired from the Foreign Office to make way for George Hammond (q.v.); later known as Sir James Lamb, after 1824.

cannot safely be venturd on the Baltic at this Season of the year unless perhaps the Captain Consents to fit up his Cabbin with Flues for the purpose of Protecting them
I have the honor to be with the most perfect Truth & Regard. . .¹

1795 May 5 [Soho Square]

*if by telling me that "Capt Metcalfe may safely be intrusted with the care of the Plants", you mean that he has Skill to take Charge of them during their Passage I will readily undertake to put them on board the *Jemima* before the 15th inst but if otherwise, I by no means advise their being put on board until near midsummer time.

if you recollect that we in England Shall not for near a month venture to expose our most hardy green house Plants to the open air, you will probably agree with me that hothouse Plants which are the Principal object of the grand Ducheses request cannot safely be */in/*trusted to Cross the Baltic at this Season of the year except perhaps the Capt Consents to have his Cabbin made into a hothouse for the Purpose²

1795 May 5 Downing St

Give me leave without loss of time to assure you that I do not mean to vouch in any degree for the skill of Cap^t Metcalfe, of whom I know nothing personally. I should on the contrary suppose that he is entirely unskilled in the management of Plants, and that it will be necessary for you to send an experienced Gardiner whenever your Cargo is put on board. Your reasoning with respect to the propriety of delay- ing the transport of the Plants till a later period in the Season strikes me as being perfectly just ; but as you must be the best judge of the period when they ought to go, I shall be obliged to you if you will let me know of the arrangement being settled, that I may be enabled immediately to obey Lord Grenville's order by applying again to the Russia Company for their recommendation of a proper vessel.

I have the Honour to be with the sincerest respect and regard. . .[*May 6 Saw Mr Burgess & laid before him the Paper intitled Articles of Charge which he approv'd]³.

1795 May 6 Soho Square

*in Answer to your Favor of yesterday I have the honor to inform you that I have receivd The King's Commands to Select from the Royal Botanic Gardens at Kew as Complete a Collection of Exotic Plants as can possibly be Spard, which his majesty intends as a present to the grand Duchess of all the Russias

His Majesty has moreover been Pleas'd to Direct that Plans & Elevations of the Principal Hothouses at Kew be immediately Prepar'd by the clerk of the Works, in order that they may be Sent with the Plants & has order'd one of his own Gardiners to Proceed to St Petersburg in the Ship which will Carry them, who will be instructed to take charge of them during the voyage & to give such information Respecting the

¹ Banks to Burges, 5 May 1795, PML, Banks MS.

² Banks to Burges, 5 May 1795, SL Banks MS. Ru 1 : 2 [draft].

³ Burges to Banks, 5 May 1795, SL Banks MS. Ru 1 : 3.

English mode of Culture as the Grand Duchesses Gardiners may wish to Receive from him.

in order that this Collection may be Properly Securd from the influence of Sea water during the Passage, it will be necessary that the whole of the great Cabbin of the Ship on board of which they are Embarkd, be appropriated to their accomodation ; a Proper fire place must be Constructed in it, in order that a Fire may be kept up in case chilly nights during the Passage render that precaution necessary & a bed place must be made for the Gardiner as near the Plants as Possible.

An Extra Provision of water will also be necessary, which must be taken on board as near to the time of the Ship's departure as may be, in case the weather proves very Sunny & hot a Butt a week may be necessary during the whole Passage

The Proper time for the Ship to Sail is between the 24th of June & the 24th of July ; before midsummer we are liable to Frost in the nights in this Climate & after the end of August winter approaches Fast in the high Latitude of S^t Petersburgh

I have the honor to be Sir with Real Regard & Esteem
your very Faithfull Hble Serv^t. . .¹

1795 May 6 [Soho Square]

*in answer to your Favor of yesterday I have the honor to inform you that I have receivd the King's Commands to Select from the Royal Botanic Gardens at Kew as Compleat a Collection of Exotic Plants as can be Possibly Spard which his Majesty intends as a Present to the Grand Duchess of all the Russias

his Majesty has moreover been pleasd to direct that Plans & Elevations of the Principal hothouses at Kew be immediately prepard by the Clerk of the Works in order that they may be Sent with the Plants & also [*that one of*] directed [*orderd*] one of his own Gardiners [*there shall*] to Proceed with the [*m*] Collection to S^t Petersburgh [*as adviser &*] take Charge of them during the Voyage & [*to*] give such information concerning the Culture of them as the Grand Duchesses Gardeners may have occasion to receive when they are carried on Shore

in order that the Collection may be Properly Securd during the Passage by Sea from the dangers to which Plants are subject from the neighbourhood of Salt water, it will be necessary that the great Cabbin of the Ship on board which they are Embarkd be wholly given up for their accomodation a proper Fire Place must also be fixd in it & Fuel [*must also be*] provided that in case chilly nights during the passage should Render the Precaution necessary a fire may be kept up & a Standing bed place for the Gardiner Placd as near the Plants as possible

an extra provision of water will also be necessary which must be taken on board as near the time of the Ship's departure as possible. if the weather proves very Sunny & hot a Butt a week may be necessary

The Proper time for the Ship to Sail [*should*] is between the 24 of June & the 24th of July before midsummer we are in danger of Frosty nights in this climate & after the End of August [*autumn*] winter approaches fast in the high Latitude of S^t Petersburgh²

¹ Banks to Burges, 6 May 1795, ATL. No. 112.

² Banks to Burges, 6 May 1795, SL. Banks MS. Ru 1 : 5.

1795 May 6 [Soho Square]

*Articles of Charge¹

A Gardiner who should be taken from the Kings Establishment at Kew next week to Carry messages & Prepare himself &c at one guinea a week				
Say for 6 months	27	..	16	.. 0
for his Extra Maintenance while at Petersburg where he must appear like a Gentleman				
Say 6 weeks at a guinea a week	6	..	6	.. 0
Gratuity for his cloth[es] &c	30	..	0	.. 0
for his Passage out & home & his Maintenance while on board	21	..	0	.. 0
Gratuity to a man or boy to assist in watering Plants Removing Pots &c on board	2	..	2	.. 0
For freight of Plants which ought to occupy the whole of the great Cabbin	52	..	10	.. 0
Cost of a Stage to place them upon in the Great Cabbin to advantage	20	..	0	.. 0
Cost of Carrying the Plants from Kew to the Ship with a Mate to the Gardiner at Kew	5	..	0	.. 0
<i>/Cost of Removing d^o from the Ship to the Grand Duchesses Garden . . . /</i>				
Garden Tools for his use on board & when he assists at St Petersburg	3	..	3	.. 0
	<u>178</u>	..	<u>2</u>	.. 0

Memorandums

if the Plants are not Placd in the great Cabbin a hutch must be built to Receive them on deck which will cost near £50 but in that Case the Freight will be less & the Stage will not be wanted

outward bound they will Require an extra provision of water say a Butt a week homeward a hogshead a week

a Standing bed place for the Gardiner should be provided as near the Plants as possible

The Ship Should Sail between the 26th of June & the 24th of July

Proper Fuel must be provided to Keep a Fire in the Cabbin in Case of chilly nights while at Sea

Gratuity to Mr Brown for making Plans & Elevations of the Hothouses at

Kew	10	..	10	.. 0
	<u>178</u>	..	<u>2</u>	.. 0
	188	..	12	.. 0

This was Exhibited to Mr Burgess May 6 1796 [*sic*] & he approvd all the charges in ink

1795 May 8 Threadneedle Street

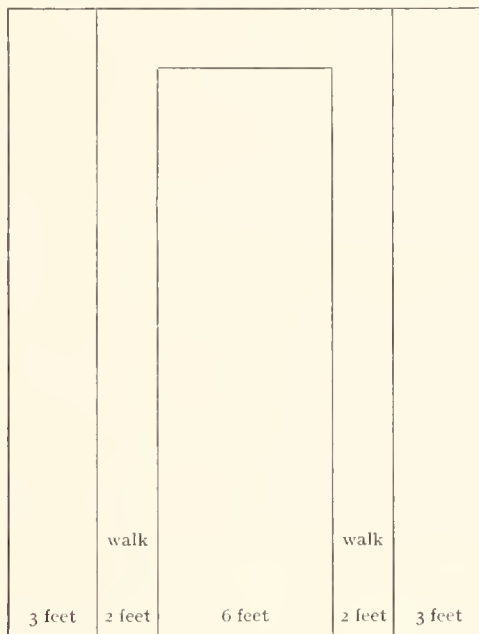
Mr Forster presents his compliments to Sr Joseph Banks, the Russia Company have as a Company no ships nor strictly speaking any fund, they lay a small duty on Importations for defraying necessary expences, & the surplus is the only sum they have the command of, which can only be disposed of by a resolution of the Council of Assistants where the proposition hinted at by Sr Joseph Banks might probably meet with a variety of opinions, & might become the subject of a discussion which perhaps it might be better not to hazard.²

¹ Banks to Burges, 6 May 1795, MS. estimates and memoranda, SL Banks MS. Ru 1 : 4.

² Forster to Banks, 8 May 1795, SL Banks MS. Ru 1 : 35.

1795 June 14

*22 Feet by 16 — $\frac{1}{4}$ of an inch to a Foot
Platform for the Venus's hold June 14 1795¹



Leaves 244 square Feet for the Stowage
of Plants $16 \times 22 = 352 \times 6 = 2112$ Cubic feet of space
53 Tons measure

1795 June 15 Soho Square

*as I had a private intimation from Mr Forster Jun^r that the Venus is the only merchant Ship likely to Sail for St Petersburg within the Limits of the Time that appears most Eligible for Sending away the Grand Duchesses Plants, I conclude you have received similar information officially from his Father the Governor of the Russia Company, if not I request you to make the Enquiry that I may be sure I am acting upon Certain grounds

I yesterday went on board the Venus, she is very Small for tho She is Rated at 100 Tons in her Freight bill, She does not measure much more than 70, her Cabbin is only 8 Feet 4 by 6 Feet 3 so that no Possible use can be made of it for our Purposes,

¹ Sketch plan by Sir Joseph Banks of the dimensions of the hold in the *Venus*, 14 June 1795, SL Banks MS. Ru 1: 41.

in her hold I can get a Platform large enough to Contain a sufficient number of Plants, but I wish to avoid that measure, for the Plants when in a Cabbin which has plenty of Light & Air, Continue healthy & Flourishing during a long voyage, in a hold they are liable if bad weather happens to be so long deprived of both the one & the other that if not Quite Killd their beauty is materially impaired & in the case of a Present you will I am sure agree with me that it is very desirable for the Object presented to be in the best Possible Condition at the moment it is Receivd.

For this Reason I am clearly of Opinion that it will be desirable to ask the Admiralty for one of the Indiamen that have been newly Equipped for their Service, if we could obtain the Calcutta Capt Bligh's Ship which now lies at Long Reach, his Experience in the Care of Plants at Sea will be of infinite use to the undertaking, & his name will add not a little to the Compliment, indeed I think it will be Compleat if the Foreman of the Royal Botanic Garden attends the Plants, as is intended, & Capt. Bligh carries them out.

in the meantime I Shall arrange myself in such a manner as will Enable me to take advantage of Either Plan, Early this morn I shall go to Kew, Set the Foreman to work & Forward the Selection &c of Plants that all may be ready in that department & that whatever the destination may be I may be ready to adopt it

I Shall be glad to hear from you on the Subject as soon as you have anything to communicate a letter by this nights Post directed to me at the Queens Lodge Windsor will find me tomorrow morning occupied with the Kings Flock & Consequently in Condition to Communicate to my Royal master anything on the subject which may be thought necessary to make him acquainted with on Wednesday my address will be Spring grove near Hounslow on Thursday Soho Square¹

beleave me my dear Sir
 with unfeignd Esteem & Regard
 Your Faithfull Hble Servant
 Jos : Banks

1795 June 15 Soho Square

*as I have had a private intimation from Mr Forster Jun^r that the Venus is the only merchant Ship likely to Sail for St Petersburg within the Limits of the Time that appears most Eligible for Sending away the Grand Duchesses plants I conclude that you have receivd The Same information officialy from his Father the Governor of the Russia Company if not I request you will make Enquiry that I may be sure I am acting upon Certain Grounds

I this day went on board the Venus she is very Small for tho She is rated in her Freight bills at 100 She does not measure much more than 70 Tons her Cabbin is 6 3 by 8-4 & She has only 2 Stern lights of 2-1 by 1-3 & one small Sky light so

¹ Banks to Burges, 15 June 1795, Auckland Inst. & Mus., B.2.

that no use can possibly be made of it for our Purpose, in her hold I can get a Platform if [?] large Enough *[for my purpose]* but I wish to avoid that measure if Possible for Plants when in [a] Cabbin Continue healthly during a Long voyage whatever the weather may be but in the hold they are liable if bad weather happens to be so long deprivd of Light & Free air that if they are not Quite Killd they lose much of their beauty which in the Case of a Present it is very desirable that the Object Presented be in the best Condition possible at the moment when it is receivd

For this Reason Sir I am clearly of opinion that it will be desirable to ask the admiralty for one of the India men that have been newly Equipped in their Service, if we could obtain the Calcutta the Ship which Capt Bligh Commands now lying in Long Reach his Experience in the Care of Plants at sea will be of great use to the undertaking & his name will add not a little to the Compliment indeed I think it will be Compleat if The Foreman of the Royal Botanic Garden attends the Plants as is intended & Capt Bligh Carries them

in the meantime I Shall arrange myself in such manner as will Enable me to take advantage of Either plan Early tomorrow I will visit Kew & Set the Foreman at work & Forward the Selection of Plants that all in that department may be ready & that whatever the destination may be I may be ready to adopt it

I Shall be glad to hear from you on the Subject as soon as you have anything to Communicate a Letter by this nights Post directed to me at the Queens Lodge windsor will find me *[occupied]* on Tuesday morn occupied with the Kings Flock consequently in condition to Communicate to my Royal Master anything on the subject it may be necessary for him to be acquainted with¹

1795 June 15

Understanding that you are in want of a Vessel to carry out Plants to Petersburg and that you was fearful the Vessel you was looking at yesterday would be too shallow in the Hold being only 9 feet I took the liberty of waiting on you with a tender of a *[Vessel]* very fine roomy Vessel lying now in the River Thames and ready to proceed to Petersburg, She is 11½ feet deep which perhaps may answer you better and the Captain is a steady careful Man & will I am confident pay every attention to the safety of what is intrusted to him and will go upon very moderate Terms – Should you wish for any further Information or be inclined to Treat a Message or a few Lines will be particularly attended to...[P.S.] The Vessels name is the Charlotte Capt Sheriff 120 Tons Measurement or 160 Tons Burden 11½ feet deep lying in Addermans Chain – ²

1795 June 16 10 P.M. Downing Street

I have lost no time in laying your Letter of yesterday before Lord Grenville and the Admiralty Board ; and I am sorry to be obliged to acquaint you, that I see no

¹ Banks to Burges, 15 June 1795, SL Banks MS. Ru 1: 6 [draft].

² Robertson to Banks, 15 June 1795, SL Banks MS. Ru 1: 44.

prospect of the Calcutta, Cap^t Bligh's Ship, being possibly spared for the purpose of conveying the Plants to Petersburg. I hope you will be able to make your arrangements, so as to avail yourself of the Ship mentioned by Mr Forster, especially as notice was some time ago sent to Sir Charles Whitworth of his Majesty's intention to send the Plants and the Telescope immediately.

I have the Honor to be with the utmost truth and regard. . . [*This Letter was not delivered at my house till past 2 O clock on the 17th as Vackeri my porter declares]¹

1795 June 17 [Soho Square]

*I did not object to the hold of the Venus as being too small for my purpose but to the holds of Ships in general as not being Long Enough What I wish for is a Cabbin large enough to hold my Cargo²

1795 June 20*

Rec^d of Sir Jos: Banks the Sum of Thirty Pounds being a gratuity Granted to me by Government for the Purpose of Furnishing me with Proper Cloths & necessaries for my Voyage to S^t Petersburg³

[sgd] George Noe

1795 June 22 Kew

*I have this morn visited the Plants intended for Russia & Set the Gardiners about putting them in order for their Voyage

The Carpenter will be ready on Thursday at 2 Aiton & myself will then be on board & order the. . . of the divisions which may be finished by noon on Friday & by the Evening tide of that day we may come on board which will be about 4 O clock the Plants may be Stowd on Saturday a m So that he may Sail if he chuses by that nights tide in Case he can joint the Present Convoy

if he Cannot I Shall Expect your directions respecting time & Obey them all I shall Say is that Plants Suffer much by being on board a Ship so that it is to be wishd that he does not move more than a day before the Convoy sails & that the Plants are not more than a day on board before lie moves⁴

¹ Burges to Banks, 16 June 1795, SL Banks MS. Ru 1: 7.

² Banks to Robertson, 17 June 1795, SL Banks MS. Ru 1: 45.

³ Ms. receipt signed by George Noe, 20 June 1795, SL Banks MS. Ru 1: 23. George Noe, a Württemberger, was born at Stuttgart, served as foreman-gardener at the Royal Botanic Gardens at Kew ca. 1790-1800, and then returned to the gardens of Charles Eugene, Duke of Württemberg.

⁴ Banks to Forster, 22 June 1795, SL Banks MS. Ru 1: 36. Edward Forster jr. (1765-1849) was the youngest son of Edward Forster (1730-1812), banker, merchant, and antiquary, of Edward Forster and Sons, Russia merchants, Gracechurch Street, and the banking house Forster, Lubbock, Forster and Clarke, Threadneedle Street. Edward Forster jr. was also a governor of Guy's Hospital and a botanist; an early F.L.S. (elected 1800); treasurer, Linnaean Society, 1816; president, Linnaean Society, 1828.

1795 June 23

N^o 4Sir Joseph Banks¹

1795

To Edward Benbrook N^o 82
Rotherhithe Street RotherhitheFor Sundreys of Joiners work on board the Ship
Venus Viz to Building a Plat form & Bulkhead
in the Hold making Boxes for Plants making
a Cerb and Grating for the fore Hatch and Ladder &c

June 23	£	s	d
26 feet of Inch & $\frac{1}{2}$ Deal	0	5	5
62 .. 12 feet Inch Deals	6	4	0
264 feet of Quarter 3 by 6	3	17	0
50 feet of D ^o 3 by 3	0	8	4
102 feet of D ^o 3 by 2	0	10	7 $\frac{1}{2}$
480 feet of Inch Batton	1	0	0
1 C of 40 ^d .. 1 C of 30 ^d .. 6 C of 20 ^d .. 18 C of 10 ^d Nails	1	10	10
17 Day & $\frac{3}{4}$ Joiners work	3	7	9 $\frac{1}{2}$
Waterage	0	10	2
	£17	14	2

6 Water Barrels	3	3	0
1 Hand Pump	0	2	6

£20 .. 19 .. 8

£21 .. 0 .. 0

1795 June 25 London*

Rec^d of Sir Joseph Banks the Sum
of Thirty Pounds on account of the Freight of
Certain Plants & the charge of a Passenger for which
we have agreed at the Rate of Eighty Pounds
from hence to St Petersburg.²

[sgd] MDuke Vickerman

1795 June 26 Admiralty Office

The next Baltic Convoy is appointed to sail from the Nore on the 7th July – being
14 days from the sailing of the last – This information, tho' known I presume to all
the Trade, you may as well not quote me for . . .³

[1795] June 28 [Spring Grove]

*by the best information I can procure the next Convoy for the Baltic will Sail
from the nore on the 7th of July I intend therefore to Send the Plants on board
by the Evening tide of Thursday the 2nd they will arrive if I calculate right between
9 & 10. & may Either remain all night in the Lighter or be handed in as you find
most Convenient¹ Benbrook to Banks, 23 June 1795, MS. account, SL Banks MS. Ru 1: 25.² Vickerman to Banks, 25 June 1795, ms. receipt signed, SL Banks MS. Ru 1: 22.³ Marsden to Banks, 26 June 1795, SL Banks MS. Ru 1: 46. William Marsden, F.R.S. (1754–1836),
orientalist and numismatist, Second Secretary to the Admiralty 1795–1804; Secretary 1804–1807;
Treasurer, Royal Society, 1802.

if the Platform is made ready on thursday Packing may begin on Friday morn at day Light & will Easily be compleated that day So that the Ship will have 3 days to join convoy at the nore Abundance of time if the wind is Fair & if it is Foul the Convoy you Know Cannot Sail

I Shall be glad of a Line by the Penny Post directed to me in Soho Square to hear if this arrangement Suits your Purpose & am. . .

To Capt [Marmaduke] Vickerman Batsons Coffee house¹

*this Letter was put into the Penny Post at Brentford before 8 in the morn of June 29 with another for M^r dryander² which was duely Rec^d but no answer coming in the whole of the 30th I Sent Cartlitch³ on the 1st of July with a Copy of it directing him to see the Captain & get one

1795 June 30 [. . .]

Yours of the 28th I Rec^d and the platform will be ready on Thursday Eve[n]ing So you may send the plants down on Thursday night or early on friday morning which you think will be the safest for them for should they have to Lay in the Lighter all night perhaps they might happen some misfortune from some other vessel get[t]ing foul of the Lighter but you can act as you think proper in the business for we shall have plenty of time to save the convoy – I shall clear on Saturday and Sail early on Sunday morning — I have wrote to the carpinter desireing him to come on board & to do any thing [that] may be wanting before the plants come along side. . .⁴

1795 July 2 [Kew]

Herewith I send you the Catalogue of the plants for the Arch Dutches I believe it is correct & I hope will meet your approbation, I would have sent a */better/* neater Copy but shipping the plants & other directions I have been necessitated to attend to today would not allow of it, I have added a few remarks in pencil as they */may/* struck me. The Stove plants do not run Alphabetically because I could not refrain to start off with *Strelitzia* the others do, in the List I have kept the Botany Bay plants together which I hope you will approve. In all there are upwards of 300 pots & you will perceive 226 Species.

I have the Honor to be Sir. . .⁵

¹ Banks to Vickerman, 28 June 1795, SL Banks MS. Ru 1 : 43.

² Jonas Dryander (1748–1810), botanist and librarian at 32 Soho Square; original fellow and librarian of the Linnaean Society of London, 1788; vice-president, Linnaean Society; compiler of *Catalogus Bibliothecae Historico-Naturalis Josephi Banks Baroneti*, 1796–1800.

³ William Cartlich, clerk to Sir Joseph Banks at 32 Soho Square.

⁴ Vickerman to Banks, 30 June 1795, SL Banks MS. Ru 1 : 42.

⁵ Aiton to Banks, 2 July 1795, SL Banks MS. Ru 1 : 39. William Townsend Aiton (1766–1849), successor to his father William Aiton (1731–1793) as head gardener at the Royal Botanic Gardens at Kew in 1793; a founder and original fellow of the Royal Horticultural Society; editor of *Hortus Kewensis*, 3rd ed., 1810–1813.

1795 July 2 [Kew]

Stove Plants¹

- | | | |
|----|---|-----------------|
| 1 | <i>Strelitzia reginae</i> | |
| 2 | <i>Fuchsia coccinea</i> | |
| 3 | <i>Crinum</i> [Botany Bay] | |
| 4 | <i>Polygala bracteolata</i> | |
| 5 | <i>Dracaena frerea</i> | |
| 6 | <i>marginata</i> | |
| 7 | <i>Clusia flava</i> | |
| 8 | <i>Calophyllum calaba</i> | |
| 9 | <i>Xylophylla latifolia</i> | |
| 10 | <i>Calycanthus praecox</i> | |
| 1 | <i>Euphorbia</i> [sp] | |
| †2 | <i>Pelargonium crithmifolium</i> | |
| 3 | <i>glaucum</i> | |
| 4 | <i>Erodium hymenodes</i> | |
| 5 | <i>incarnatum</i> | |
| 6 | <i>Myrtus pimenta</i> | |
| 7 | <i>Ixora coccinea</i> | 2 plants |
| 8 | <i>Solanum auriculatum</i> | |
| †9 | <i>Moraea northiana</i> new species from Brazil | |
| 20 | <i>Solandra grandiflora</i> | 2 plants |
| 21 | <i>Datura arborea</i> | |
| 2 | <i>Salvia violacea</i> | |
| 3 | <i>coccinea</i> | |
| 4 | <i>Haemanthus multiflorus</i> | 2 plants |
| 5 | <i>Chloranthus inconspicuus</i> | |
| 6 | <i>Sisyrinchium striatum</i> | |
| 7 | <i>Antirrhinum macrocarpum</i> | |
| 8 | <i>Tradescantia discolor</i> | 2 plants |
| 9 | <i>Murraya exotica</i> | |
| 30 | <i>Pothos lanceolata</i> | |
| 1 | <i>Caryota wuens</i> | |
| 2 | <i>Pentapetes acerifolia</i> | |
| 3 | <i>Garcinia</i> ? [mangostana] | |
| 4 | <i>Limodorum tankervilleae</i> | 2 plants |
| 5 | <i>Justicia hyssopifolia</i> | |
| 6 | <i>formosa</i> | Hort. Kew incl. |
| 7 | <i>punica</i> | Hort. Kew incl. |
| 8 | <i>nitida</i> | |
| 9 | <i>Alstroemeria ligtu</i> | |
| 40 | <i>Eucomis striata</i> | Hort. Kew incl. |
| 1 | <i>Oxalis incarnata</i> | |
| 2 | <i>Iris</i> [sp] from China | |
| 3 | <i>Kaempferia</i> [longifolia] <i>rotunda</i> | 2 plants |
| 4 | <i>Epidendrum vanilla</i> | |
| 5 | <i>cochleatum</i> | |
| 6 | <i>Convolvulus jalapa</i> | |
| 7 | <i>Aucuba japonica</i> | |
| 8 | <i>Dorstenia contrajerva</i> | |
| 9 | <i>Heritiera littoralis</i> | |

¹ Ms. catalogue of the plants sent from the Royal Botanic Gardens at Kew, prepared by William Townsend Aiton, 2 July 1795, SL Banks MS. Ru 1 : 40. Names marked thus: † = species which appear on lists of plants sent from the Cape by Francis Masson, 1786-1795.

50	<i>Begonia nitida</i>	
1	<i>Brucea ferruginea</i>	2 plants
2	Lemon Grass, <i>Schoenanthum amboinicum</i> Rumphii	
3	<i>Celsia linearis</i>	
4	<i>Campanula aurea</i>	22 Pl.
5	<i>Verbena triphylla</i>	
6	<i>Adiantum reniforme</i>	
7	<i>Hydrangea hortensis</i>	2 pl.

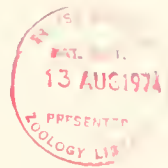
Cape House Plants

58	<i>Adonis vesicatoria</i>	
9	<i>Anthyllis hermanniae</i>	
60	<i>cytisoides</i>	2 d°
†1	<i>Blaeria ericoides</i>	2 d°
†62	<i>Borbonia cordata</i>	2 plants
3	<i>Brunia nodiflora</i>	2 d°
4	<i>superba</i>	2 d° Hort. Kew incld.
5	<i>Cussonia thyrsiflora</i>	
6	<i>laciniata</i>	Hort. Kew incld.
7	<i>Casuarina equisetifolia</i>	
†8	<i>Chironia</i> [new sp]	
9	<i>frutescens</i>	
70	<i>linoides</i>	
1	<i>baccifera</i>	
2	<i>Cliffortia trifoliata</i>	2 plants
3	<i>[orbiculata] obcordata</i>	
†4	<i>cuneata</i>	2 plants
5	<i>Cestrum parqui</i>	
6	<i>Clethra arborea</i>	3 plants
7	<i>Cistus</i> sp	
8	<i>Cytisus foliolosus</i>	
9	<i>Cluytia pulchella</i>	
80	<i>Cytisus proliferus</i>	
1	<i>Cineraria cruenta</i>	
2	<i>Curtisia faginea</i>	
3	<i>Crotolaria elegans</i>	Hort. Kew incld.
4	<i>Dais cotinifolia</i>	
5	<i>Daphne tartonraira</i>	
86	<i>Decumaria barbata</i>	
87	<i>Diosma uniflora</i>	2 plants
8	<i>[3 latifolia]? latifolia</i>	
9	<i>serrata</i>	Hort. Kew incld.
90	<i>Digitalis sceptrum</i>	
1	<i>Oenothera rosea</i>	
2	<i>Euphorbia mellifera</i>	
2	<i>Erica urceolaris</i>	3 plants
†4	<i>halicacaba</i>	3 d°
†5	<i>marifolia</i>	2 d°
6	<i>vastita</i>	
7	<i>pluknetii</i>	3 pl.
8	<i>comosa</i>	
9	<i>capitata</i>	2 d°
100	<i>parviflora</i>	2 d°
1	<i>monsoniae</i>	2 d°

†2	<i>lutea</i>	2 d ^o
3	<i>quadriflora</i>	3 d ^o
4	<i>ventricosa</i>	2 d ^o
5	<i>discolor</i>	
†6	<i>tubiflora</i>	2 d ^o
†7	<i>triflora</i>	3 d ^o
8	<i>cruenta</i>	2 d ^o
9	<i>cubica</i>	
110	<i>[gelida sp/]</i>	2 d ^o
1	<i>concinna</i>	
2	<i>persoluta</i>	2 d ^o
3	<i>baccans</i>	2 plants
†4	<i>banksii</i>	
5	<i>[albens/]</i>	
6	<i>sebana</i>	
7	<i>grandiflora</i>	
8	<i>mammosa</i>	2 d ^o
9	<i>versicolor</i>	2 d ^o
120	<i>nudiflora</i>	2 d ^o
1	<i>sessiliflora</i>	3 d ^o
2	<i>petiolata</i>	
†3	<i>cerinthoides</i>	3 d ^o
4	<i>[confrateroides/]</i>	
5	<i>patersonia</i>	2 d ^o
6	<i>taxifolia</i>	2 d ^o
7	<i>denticulata</i>	
8	<i>coccinea</i>	
9	<i>[Sp/]</i>	
†130	<i>massonia</i>	
†1	<i>Gnaphalium congestum</i> Lamarck	2 plants
2	<i>crassifolium</i>	
†3	<i>Gardenia florida</i>	
4	<i>Genista linifolia</i>	2 pl.
†5	<i>Gnidia pinifolia</i>	2 d ^o
6	<i>oppositifolia</i>	
7	<i>Gentiana viscosa</i>	2 d ^o
8	<i>[Genus ?/]</i> Unknown, not having yet flowerd	
9	<i>Halaragis cercodia</i>	
140	<i>Hypericum glandulosum</i>	
141	<i>Hermannia salvifolia</i>	2 plants
2	<i>Hydrangea hortensis</i>	
3	<i>Linum arboreum</i>	
4	<i>Laurus foetens</i>	
5	<i>Myrsine retusa</i>	
†6	<i>Menyanthes ovata</i>	
7	<i>Malva tridactylites</i>	
†8	<i>Mesembryanthemum [Sp/]</i>	
9	<i>hispidum</i>	
150	<i>linguiforme</i>	
1	<i>pugioniforme</i>	
2	<i>Oedera prolifera</i>	
†3	<i>Protea conocarpum</i>	
†4	<i>scolymus</i>	
†5	<i>[conifera/]</i>	

†6	<i>globosa</i>	
7	/sp <i>hirta</i> /	
8	<i>purpurum</i>	
9	<i>argentea</i>	
†160	<i>mellifera</i>	
†1	<i>speciosa</i>	
2	/coronacea/	
3	<i>spathulata</i>	
†4	<i>Psoralea aculeata</i>	
5	<i>bracteata</i>	
6	<i>pinnata</i>	
7	<i>Pavietaria arborea</i>	
8	<i>Phyllica buxifolia</i>	
169	<i>Plectranthus fruticosus</i>	
†170	<i>Polygala heisteria</i>	
1	<i>Pelargonium tricolor</i>	3 plants
2	<i>tenuifolium</i>	2 d ^o
3	<i>crispum</i>	
4	<i>apiifolium</i>	2 d ^o
5	<i>extipulatum</i>	
6	<i>fragrans</i>	2 d ^o
7	<i>Rosa semperflorens</i>	Curtis magaz.
†8	<i>Royena myrtifolia</i>	
9	<i>Rhamnus prinoides</i>	
180	<i>Salvia formosa</i>	2 d ^o
1	<i>Struthiola brevifolia</i>	2 d ^o
2	<i>Solanum marginatum</i>	2 d ^o
3	<i>Schotia speciosa</i>	
4	/Selinum arboreum/ An umbelliferous arborescent plant from Madeira	
5	<i>Sophora biflora</i>	
†6	<i>capensis</i>	
7	<i>Teucrium betonicum</i>	3 d ^o
8	<i>Heranthenum proliferum</i>	
9	<i>Banksia serrata</i>	
190	<i>dentata</i>	
1	<i>gibbosa</i> , Smith	2 d ^o
2	/Bilardera/ <i>Billardiera scandens</i> , Smith	3 d ^o
3	[missing number]	
4	<i>Dillenia humilis</i> Hort. Kew incl.	2 plants
5	<i>Dodonaea</i> /sp/	
5	<i>Dodonaea</i> /sp/	
6	<i>Ficus</i> /sp/	
7	<i>Glycine bimaculata</i> Curtis magaz.	2 d ^o
198	<i>Glycine rubicunda</i> Curtis magaz.	3 plants
†9	<i>Indigofera</i> /sp/	
200	<i>Metrodideros</i> /sp/	2 d ^o
1	<i>Metrosideros</i> /sp ?/	
2	<i>citrina</i> Curtis magaz.	2 d ^o
3	/piperita/	
4	/sp ?/	
5	/sp ?/	
†6	<i>Mimosa suaveolens</i> Smith	2 plants
7	/suaveolens/	2 d ^o
8	<i>myrtifolia</i> Smith	2 d ^o

9	<i>verticillata</i>	2 d ^o
210	<i>Opercularia aspera</i>	
1	<i>Phormium tenax</i>	
2	Plank Tree, a new species of <i>Genista</i>	
3	<i>Zamia</i> [sp ?]	
4	<i>Philadelphus</i> [sp/]	/2 d ^o /
5	<i>floribundus</i>	
6	<i>aromaticus</i>	
7	<i>scoparius myrtfolius</i>	
8	<i>Pultenaea daphnoides</i> Smith	2 plants
9	<i>Platylobium formosum</i> Smith	2 plants
220	<i>Sophora microphylla</i>	
1	Genus ?	
2	Genus ?	
3	Genus ?	
4	Genus ?	unknown plants, not having yet flowered
5	Genus ?	
226	Genus ?/	



[1795] May - July¹ [Soho Square]

May 8.

*Visited Mr Forster Jun^r & Consulted him on the subject of the Present in order to get matters forward he undertook to speak to his Father & desire him to Recommend another Ship to Mr Burgess

I proposed that the Company should pay the Freight of the Plants & the Passage of the Gardener but my Proposal did not seem to make the same impression as it would have done on a director of the E. I Company - The Present is Conciliatory & the Company ought to make themselves Sharers in the Compliment by Sending it out at their expence but they have not the Spirit of a - - - [sic]

[May 8/

Visited Mr Raikes² who seemd to Feel as Mr Forster did about the Companies engaging in the expence of £60 - he said that when he visited Russia he did not Sail till the 10th of June & that he Experienced some very Cold nights in the north sea but that as soon as he passd the Sound the heat was excessive & uninterrupted he informed me that the Ship in which the Plants are embarkd will not proceed farther than Cronstadt & that the Plants must be then put on board a galliot & sent to Petersburg about 20 miles a Galliot he says is a Roomy vessel with wide Hatches & plenty of hold but no Cabbin Conveniences The Grand Duchesses Garden is at Paveleffski 26 versts from St Petersburg he believes wholly by Land

¹ Autograph MS. diary notes by Sir Joseph Banks, May - July 1795, SL Banks MS. Ru 1 : 33-34.

² Thomas Raikes (1741-1813), director, Bank of England, 1797; London merchant; member of the Russia Company; personal friend of William Pitt the younger; father of Thomas Raikes (1777-1848), dandy and diarist, partner in his father's firm.

May 9.

I told Mr Forster that the Hint I gave respecting the Russia Company paying the Freight of the Plants was not intended as a measure to save the Expence to the King it was merely a suggestion whether the Company might not chuse to make themselves a party in a measure which it was Expected to Prove Conciliatory to the Empress & that whether or not they chose to do so it was a matter of the most Thorough indifference to the King's interest & to me.

June 2. the King approv'd of Mr Aitons nomination of [George] Noe to go with the Plants his Salary should therefore Commence from the beginning of this week Sunday May 31.

June 11. Mr Forster had left a paper at Soho Square which I met with this Morn informing me that the Venus would be the only Ship likely to Sail about the time that will suit

I wrote to him immediately Stating that I would go on board the Venus on Sunday about 3 if it suited the Captain or his mate

June 14. Visited the Venus She is very Small indeed measuring only 70 Tons her Cabbin 8 Feet 4 by 6-3 & 5-6 high 2 Stern Lights 2-1 by 1-3 & one Small Skylight in her hold a Platform might be Commodiously laid 22 Feet by 17 & 6 feet high or more if necessary with a main hatch way of 8 feet by 5-4 & a small fire hatch way over it but no possibility of any Scuttles through the Sides

The Captain asks ten guineas for a Passenger & says that his Ship will hold from £150 to 200 freight he Cannot undertake to find water Cask for the Plants.

June 18 Saw the Capt & agreed for the Freight of the Plants the Gardener & his maintenance at £80 - The Capt Engaging for all due assistance & to take water Cask freight free & to fill them at Elsinore Mess Hamilton & Towry assisted me very much £100 was asked for freight & ten guineas for the Passenger they told me that the Real value of the Room I am to occupy is £40 but advised me to offer £50 & ten guineas for the Passenger none of the Russia Company would help me they turn'd their backs both Forster & Raikes

19. Went on board to Clinch the bargain met Mr Benbrook Carpenter N^o 82 Redriff Street recommended by Mr Hamilton who agreed to build the Platform He is recommended as an honest man so I did not attempt a bargain he is to have it Laid by Thursday at 2 O clock saw Mr Burgess who approv'd of what I have done

22 Visited Kew & Found all Going on well orderd all to be double potted

24 Visited Kew again the larger pots of 12 inches over with their Plants weigh about 30 the Smaller one of 9½ about 20.

of the larger ones there are 103 = lb 3090

of the Smaller 184 = lb 3680

Total Weight. lb 6770

being 3 Tons 1 Quarter 22 lb

25 Visited the Venus found the Platform in part laid but the Convoy Sailed it is Probable the next will Sail in about 12 or 14 days Mr Aiton & Noe went with me they approve the Platform much

27 Rec^d from Mr [William] M[arsden] notice that Convoy would Sail on the
7th July Q. V.

29 Wrote to the Capt Q. V.

July 2 Rec^d from Mr Aiton the Catalogue Q. V.

3 Wrote to Sir Ch^s Whitworth Q. V.

July 4 deliverd Noes instructions & visited the Plants which were partly Stowd the
place in which they are appears to answer admirably & the Carpenter has fitted it
up with much Economy & neatness

our pots are of two Sizes 12 inches wide weight about lb 30
9½ d^o d^o lb 20

[1795 n.d.] [Soho Square]

*The Plants to be brought home will be Siberian Perennial & Trees they will travel
more safely in a box packd with spagnum than in a growing State

Passenger at Ten guineas Cannot Cost less in Victuals & Drink
than 3^s a day Say a guinea a week Call 3 weeks a medium
passage

Cap ^t Gains by Each Passenger	£7 .. 7 .. 0
Call the Plants 6 Passengers or	£44 .. 2 .. 0
the Gardiner one Passenger	-7 .. 7 .. 0
Total	51 .. 9 .. 0

Did he Ever Clear £50 by Passengers in a voyage

offer for Cabbin	52 .. 10 .. 0
for Gardiner	10 .. 10 .. 0
	<u>63 .. 0 .. 0</u>

Mr Dryander thinks 4 passengers a great average

for 4 Passengers	42 .. 0 .. 0
deduct for their maintenance	12 .. 12 .. 0
Gain of 4 Passengers	<u>29 .. 8 .. 0</u>

if he puts too great a Value on his Personal accomodation
we will give him a Canvas berth in the Cabbin¹

1795 July 4 [Soho Square]

In obedience to the King's commands, I enclose to you a list of the plants embarked
on board the Venus as a present from His Majesty to the Grand Dutchess of all the
Russias, with the following remarks upon them, & the manner in which they are
sent, in order to enable you to judge of the care that has been taken on the part of
our Most Gracious Sovereign to render the present acceptable to her Imperial
Highness & to point out to you such directions concerning their reception by Sir
Cha^s Whitworth at St. Petersburg as seem to me proper to be given. —

As the Master of the Russia Company represented to you, Sir, that the Venus
was the only Vessel likely to sail from the port of London to St Petersburg during
the proper season for transporting tender plants, it becomes unavoidably necessary

¹ Autograph MS. notes in pencil by Sir Joseph Banks, n.d. but 1795. SL Banks MS. Ru 1 : 32a.

to make use of her, tho' very small & by no means convenient. The whole stowage of her centre where alone a proper draught of air could be procured, amounting to 53 Tons was therefore secured, & a proper platform built for receiving the Plants; on this platform 226 species of Plants, with the duplicates of those that are difficult to preserve, are stowed; & this is the whole number it can contain. The Plants are all double potted a measure found by experience very useful in preserving the moisture of the soil: but they do not on that account take up more room, as their heads still occupy much more space than the pots they are placed in. —

As it has been found impossible to obey Her Imperial Highnesses commands respecting South Sea Plants, it is necessary I should inform you that Capt. Bligh's order when he went to Otaheite to bring the Bread Fruit to our West Indian Islands by no means permitted him to take on board any plants during his stay in the East but such as are useful; these he was ordered to deposit in the West Indies, except a very few individuals for Kew Gardens; & to bring back to England a Cargo of West Indian plants from the Royal Botanic Gardens at St Vincent's, & the public Garden at Jamaica. —

Of these he brought home a large collection: but of Bread Fruit Trees only 6, two of which were sent by His Majesties Gracious orders to Sierra Leone, & unfortunately arrived while that Colony was in possession of the French marauders, who took it last autumn: two have since died, & two only remain, one of which is destined for Sierra Leone, the other must be kept in hopes of its being increased; & if that fortunately should hereafter be done, her Imperial Highness will, whenever she thinks fit to ask for it, be furnished with whatever number can be spared.

The principal objects attended to in selecting the plants, has been to chuse such as produce beautiful Flowers, & are curious to a Botanist from the uncommon structure of their fructification or extremely rare; at the head of the list you will find the *Strelitzia reginae* which on account of the difficulty of increasing it is here considered as one of the most rare, & certainly is one of the most beautiful Plants in Europe. I know of but one plant of it that has lately been procured by purchase, which was imported from Holland last year, & this with money originally paid & charges of importation, is said to have cost the proprietor Forty Pounds Sterling. A coloured Copy of the Engraving of this plant published in the *Hortus Kewensis*, another of the *Limodorum tankervillea*, & a few drawings & coloured Engravings belonging to a work lately began intended for the publication of the Rare Plants in Kew Gardens, are by His Majesties permission sent with the Collection, in order that her Imperial Highness may be enabled to form an idea of what is to be expected when these plants shall hereafter flower in her Garden. —

Much has been said by all who have visited New Zealand on the prodigious strength of the fibres of the *Phormium tenax*, usually called New Zealand Flax; I have seen a Fishing Seine more than a hundred fathoms long entirely made of its leaves, divided into narrow Ribbons without any twisting: in the box with the drawing a small bundle of this Flax manufactured by the Indians is sent, it is part of what I procured when I visited New Zealand in 1769. In 26 years keeping it must have lost much of its original strength, but it is still very tough: as this Plant which is brought from a climate much resembling the South of France or Portugal may certainly be

cultivated in some part of the extensive dominions of Russia, & possibly in a Country where Hemp is a staple, become an article of commerce, His Majesty was pleased to order that one of them should be added to the Dutchesses Collection. —

Brucaea ferruginea which was found by M^r Bruce in Abyssinia, & is spoken of by him as a Sovereign remedy for the Dysentery, is also sent, in hopes it may in Dominions fitted for its culture become a blessing to the human species, under the influence of an Empress who has proved herself a continual friend to humanity, & whose reign will hereafter be recorded as more eminent for the happiness of her subjects, than for the brilliant victories she has obtained, owing to the enthusiasm raised in the breasts of her soldiers by the love of their Empress & of their Country, made dear to them by her prudent & wise administration of a system calculated by her to insure the prosperity of her dominions & the happiness of her people. —

In order that the grand Dutchesess may, if her Royal Highness shall hereafter chuse to patronize the science of Horticulture, know in what manner the Royal Gardens at Kew are managed, the King was pleased to command that his Clerk of the works should prepare drawings of the two kinds of Houses used there for the preservation of Exotic Plants, & that they should be sent with the Collection, which has accordingly been done: the one is called a Stove, in it the Plants of the Tropical Climates are cultivated, the other a Cape House in which Plants that cannot sustain a cold quite so low as the point of congelation of water are kept in the cold season.

In both these houses I am inclined to believe that plants naturally tender will succeed better in the climate of Russia than in that of England: we are not at all afraid of frost here, we can always proportion the heat of our fires in such a manner as to insure a proper temperature: last winter we had the Thermometer several degrees below Zero without suffering any injury in the houses, it is cloudy damp weather which hurts us, & Russia, if I am well informed, is much less subject to such weather than England.

Geo. Noe, who accompanies the Plants, is a German: he has been foreman of the Royal Botanic Gardens at Kew ever since the last foreman left them to take charge of the public Botanic Garden at Cambridge, of which he is now the director: his history is somewhat singular, he was educated at Stutgard, & sent some years ago by the Duke Charles Eugene of Wurtemberg to finish his Horticultural studies here under the late M^r Aiton; where owing, no doubt, to the rapid succession of Sovereigns which that house has unfortunately in the last two years sustained, he found himself at last forgot, & could procure no kind of assistance from the person who was ordered to take care of him. The elder M^r Aiton at that time finding Noe worthy of his protection, continued nevertheless to instruct him, as his Son has done since his death, so that he is now capable of undertaking any charge in the line of his profession he may be able to procure. I thought myself lucky in obtaining him, because his German is precisely the same as that of Her Imperial Highness, & he is sure therefore to be completely understood, if ever she does him the honour to command from him any kind of explanation concerning his mission.

His pay for his maintenance at S^t Petersburg you know, Sir, is fixed at two Guineas a week; of that I have advanced him, as I guess, about 4 Guineas, which makes the sum he receives as great as at present I think it prudent to trust him with:

this advance will prove more or less according to the length of his passage. I conclude, Sir that you will request Sir Cha^s Whitworth to supply him with such further moneys as he may have occasion for on that account, I have furnished him with a Copy of his account with me, & ordered him to exhibit to Sir Charles, when required, in case the Grand Dutchess should [wish] to engage him : he has the King's permission to quit Kew, if otherwise Sir Cha^s will no doubt be requested to pay for his passage to England, after he has staid as long as in Sir Charles' opinion is necessary to fulfil the object of his mission.

The freight of the plants & the cost of Noe's passage amount together to the sum of £80; in order to encourage the Capt., & in conformity to the usual custom of paying passage money in advance, I have paid him £30 on account : but as it is not customary to pay the whole freight till the goods are actually delivered, & as the Capt. will have an additional inducement to pay attention to his charge by having money to receive from the person to whom he is deliver it up, it will be necessary that sir Cha^s Whitworth should pay what will be due at the time of arrival, amounting to £50 with primage average &c., according to mercantile custom, which may come to £4 or 5 more. —

I am Sir &c. &c. &c...¹

1795 July 4²

*Receivd this day of Sir Jos : Banks

The Sum of thirteen guineas on the following account

for wages due this day £5 .. 5 .. 0

advance on account of wages to be due. 6 .. 6 .. 0

for gratuities to the Sailors of which

I am to keep an account 2 .. 2 .. 0

13 .. 13 .. 0

[sgd] George Noe

1795 July 4 [Soho Square]

*Copy of the paper given to [George] Noe July 4th for Sir Cha^s Whitworths information³

1795

May 30. Geo Noe was Engagd to take care of *[the]* a Collection of Plants sent by his Majesty to the Grand duchess during their voyage, to deliver them to Sir Cha^s Whitworth at St Petersburg & to give such instructions concerning their Culture to her imperial Highness Gardiners as they Shall chuse to Receive

his Subsistence during this Employ is Fixd at a Guinea a week during his Stay in England & his Passages outward & homeward bound & 2 Guineas a week during his Residence in Russia on H.M. account

¹ Banks to Burges, 4 July 1795, DTC. 9. 221–226; autograph MS. R. S. *Misc.* MS. 6. 64.

² Noe to Banks, 4 July 1795, MS. receipt signed. SL Banks MS. Ru 1 : 21.

³ Banks to Whitworth, 4 July 1795, SL Banks MS. Ru 1 : 38.

July 4 Paid him 5 weeks subsistance due this day £5 .. 5 .. 0
 advanced to him on account of d^o. . . . 5 .. 5 .. 0
*/Gave him also for Gratuities to such Sailors
 as assist him in the Care of his Charge 2 .. 2 .. 0/*

[1795] July 4 [Soho Square]

*I take the Liberty */in Confidence/* For your information in case the Messenger dispatchd from the office Should not */arrive/* Reach Petersburgh till after the Ship which brings the Kings Present of Plants for the Grand Duchess has arrivd to Enclose you in Confidence a Copy of the Letter which I have written to the Foreign department Explanatory of the Transaction I Should have Enclosed a Copy of the List of Plants had there been time to make it out but as Gardener is Furnished with one you will not be at all at a Loss for want of it

I have only to Request that you will keep */this/* the */Communication Secret/* means by which this Communication Came to your hands */a Secret till/Secret/* Quiet. The Letter from the office will Certainly arrive in due Course so that you may in the mean time make such use as you See proper of the Contents for making the Present acceptable & Conciliating the Good will of the Grand Duchess towards our Court¹

[1795] July 4 [Soho Square]

*instructions for George Noe Foreman of the Royal Botanic Gardens at Kew²

The King having intrusted you with the Care of a Collection of Plants Sent by his Majesty as a Present to the Grand Duchess of all the Russias, You are to take Charge of the Said Collection as soon as it is Sent */from Kew/* by M^r Aiton from the Royal Gardens & Proceed with it to the Ship Venus, on board of which */it is/* the Plants are to be Embarkd & where a Passage is Provided for you

as soon as you arrive at the Ship, you are to Assist in Placing the Plants properly on */board/* the Platform Provided for their Reception, & attend the Carpenter Employd to Fix them to See that he does his business in Such a manner that there may be no danger of their being Shaken out of their Places by the motion of the Ship at Sea, & yet that Each */Plant/* Pot Containing a Plant may Easily be removd from one Part of the Platform to another in case it is requisite on the Passage to */Shift/* alter the Places of any of them ; as soon as the Plants are Stowd you are to */Embar/* take your Station on board the Ship & by no means to Leave */the Ship/* her till her arrival at S^t Petersburg

in Stowing the Plants you are to take Especial [care] as far as your Judgment will Enable you to Place such Plants in the */Shady/* darker Parts of the Platform, as will

¹ Banks to Noe, 4 July [1795], SL Banks MS. Ru 1 : 37.

² Banks to Whitworth, 4 July [1795], SL Banks MS. Ru 1 : 48.

best bear the want of Light & from time to time during the Voyage/You are to attend to this Circumstance &/ (Stet) if any Plant Shall have sufferd from the Closeness of the Place where it is Stowd, you are to change it into a more airy one & to Place in its Stead some Plant That has been least incommoded by the Closeness of the Ship

during the Whole of your Voyage you are to visit the Plants as often as Possible & to Spend as much time among them as you can, watering those that Require water & attending above all to the Effect the close air of the Ship will produce upon them & you are Continually to remind the Captain, that as air & Light are Essential to the well being of your Charge, the more the hatchways are kept open over the Platform the better Condition the Plants will be in when they arrive at their destination ; in Fine weather there is no doubt that all the Hatchways may be kept open */left/* Provided their Coverings are placd to windward of them to ward off the */Splash/* Spray of the Sea */that may accidentally Come on board/* & except in */Case of/* an Actual Storm it is not likely that it will */in/* under any */case/* circumstances be necessary to Shut them all up at the Same time

in Case by Shipping a Sea, or by the influence of the Salt Sparay with which the air is always */chargd/* filld when the waves are turnd over by the wind into what Seamen Call White Caps, the leaves of any of the Plants become Salt, which is Easily known by the taste when the tongue is applied to them, you must as soon as possible wash them Abundantly with the Rose of your watering Pot, which will dissolve the Salt */& save the P/* & carry it into the Soil below ; the leaves of all the */whole/* Plants Should be Sprinkled every 3^d or 4th day lest Salt Should have got upon them without being Observd

When the Ship Comes to an anchor at Elsinore or Elsewhere you are to Remind the Captain to Fill all your Empty water Casks, which he has agreed to do, with the best Fresh water that can be procurd & you are afterwards to use the new water in preference */to the Thames water/* for watering & the Thames water for Sprinkling the Plants

as soon as you arrive at St Petersburg you are to wait upon Sir */Robt/* Cha^s/ Whitworth/*[stet]* his Britanic majesties */ambassador/* Envoy Extraordinary there & report to him the State */in which/* of your Plants, */are/* he will give you orders Concerning their future destination & your own Conduct which orders you are in all Cases implicitly to Obey during the whole of your Stay in Russia on the King's account, it is Probable that he will detain you till the Plants have been deliverd to the Person appointed by the Grand Duchess to Receive them, & till you have fully instructed her */Royal/* Imperial Highness's Gardiners in the mode of Cultivating them usd in the Royal Gardens at Kew, & in case it Shall be her */Royal/* Imperial highness's Pleasure to Retain you in her Service you have the King's Permission to */engage yourself/* Enter into it

at all times when you have an opportunity you are to write to me & tell me in what State your Plants are */in/* & in what manner the Master of the Ship has behavd himself respecting them & you & this you are more particularly to do at the times of your Sailing from England your arrival at Elsinore & your Sailing from thence & your Arival at */Russia/* St Petersburg & the delivery of your Plants to the Grand Duchesses agent

1795 July 7 11 P.M. Downing Street

I have the pleasure to tell you that your Letter has met with great approbation. It has however been thought right that a Copy of it should be sent by the vessel which conveys the Plants, if it is not yet sailed, and that a Duplicate should go by the Messenger who probably will be dispatched soon. I fear we shall be too late for the Ship, and I do not well know how to get at this circumstance. If you could devise means to ascertain this, and whether a Letter sent tomorrow can reach the vessel, you will greatly add to the many favours you have already conferred on My Dear Sir your sincerely faithfull and most obed^t Servant. . .¹

1795 July 11 Rotherhithe

I Rec^d Your Draught this Morning for which and Your Aprobation of the Business I return You My most gratefull Thanks and am and shall ever be Happy to be Sir. . .²

1795 July 11

Rec^d July 11th 1795 the Sum of twenty One

Pounds for Joiners Work on board the
Ship Venus by me³

[sgd] E Benbrook

£21. 0. 0

1795 July 13 'Venus'

According to command of Yours, to acquaint You of our departure from England, I am obliged to do it a day or two sooner as I am not sure of having another/opportunity. We arrievd at the Nore on the 8th but are obliged to wait for a Convoy till the 14th of July. and perhaps not then if the wind does not turn out more favourable. The name of the Convoy is Daedalus of 32 Guns, and an nice little frigate. The plants are at present in excellent order ; but I had at first a good deal of trouble to Keep the damp from them, as the[y] came so very Weet [sic] on board the ship, but since our sailing from London which it was on the 6th inst. I brought them in very good order as I could admit more air.

The Captain and Crew behave with a great deal of Kindness to me. I am Sir with the greatest respect. . .⁴

1795 July 25 Elseneur

I have the pleasure to inform You that we arrievd at Elsinour on the 25th inst. about 2 o Clock in the afternoon, and are going to Sail the Same evening as we have such fair wind, The weather was in general very favourable to the state of my charge excepting 3 or 4 nights where we had high Sea and rain, and then only I kept the hatch ways shed, The plants were all in as good order as when I brought them first on board the ship, except — The *Struthiola previfolia* [*brevifolia*] *Erica quadriflora*,

¹ Burges to Banks, 7 July 1795, SL Banks MS. Ru 1 : 8.

² Benbrook to Banks, 11 July 1795, SL Banks MS. Ru 1 : 24.

³ Benbrook to Banks, 11 July 1795, MS. receipt signed, SL Banks MS. Ru 1 : 25.

⁴ Noe to Banks, 13 July 1795, SL Banks MS. Ru 1 : 14.

and *Prunus superba* both a little Sick. I filled 3 of my watter casks with fresh watter, The Captain behaves with a great deal of Kindness to me and gives me all the assistance I desire, such as to help to move the plants on deck, which I do as often as possible and as many as I can well store I am Sir with the greatest respect...¹

1795 July 30 St Petersburg

Her Imperial Highness the Grand Duchess of Russia being informed of the complacent part you took in chusing and forwarding to her the compleat and valuable Collection of Exotic plants which His Majesty was pleased to Send her as a present, and which She has received in as good a condition, as it is possible to desire, has commanded me to transmitt to you the full Sense Her Imperial Highness entertains of your endeavours to Serve and oblige her, and to assure you, Sir, of the esteem which your known abilities, Superior Knowledge and Courteous C[h]aracter inspire her with.

I have the honour to be Sir...²

[1795] August 8 St: Petersburg

It is with pleasure I acquaint You of our arrieval at St. Petersburg where I wated [*I wated*] on his Excellency Sir Charles [Whitworth] according to comand. His Excellency ordered the plants to the Imperial Garden, till Such time as he had her Imperial highness acquainted of their arrieval, on the 7th I had orders to go with the plants to her Imperial Highness Seat about 20 miles from Petersburg, where I arrievd at 12 ° clock at night and was Sent for daily by her Highness, to acquaint Her of the state of my plants, and in the morning, She came at 6° clock, to see them, in the afternoon the Grand Duke and all his Court came to See them and they was all very well pleased with them.

It is with pleasure I informe You that I brought the plants in very good order, I loosed 3 of them and 4 are rather Sick, but the rest look as well as if the[y] had been at Kew, She had a house built for the reception of the plants but a very poor one, I am making such alteration on it as can be made at present, till Such [time as] they can built a house after the plans lay'd by.

The Grand Duches[s] will want me for a few weeks to Set all Her plants in order, who want it very much.

I am Sir with the greatest respect...³

[Received by Banks, 15 December 1795]

[1795 September 12] [Revesby Abbey]

*I beg leave to Request of you that [you] will do me The honor to Return my most gratefull thanks to her Imperial highness the Grand Duchess of Russia for the honor of her gracious approbation of the manner in which I have executed the Commands

¹ Noe to Banks, 25 July 1795, SL Banks MS. Ru 1 : 15.

² Plescheyeff to Banks, 30 July 1795, SL Banks MS. Ru 1 : 17. Sergius Plescheyeff, Captain with the rank of General-Major in the Fleet of Her Imperial Majesty of all the Russias, Knight of the Order of St. George 4th class.

³ Noe to Banks, 8 August [1795], SL Banks MS. Ru 1 : 16.

receivd from my Royal Master here & to you Sir I beg to make my acknowledgement for the obliging manner in which you were pleasd to Communicate to me her Imperial highnesses Commands

That her Imperial highness Should Receive the Collection with Pleasure is I am confident a matter of infinite Satisfaction to my King & I am also confident that if at any time hereafter her I.H. wishes for any addition to the Collection it will Readily be sent over as I well Know that the delay which took place on the Late Occasion originated Solely in his majesties ministers not knowing how to manage the detail of the Transport of the Plants

not having heard of the Gardiner who attended them to Russia since his departure from Elsinore I am in some degree anxious lest he should be ill if that Should be the Case you will much oblige me by giving me a Line to acquaint me with the circumstances of his situation¹

1795 September 13

*I conclude you have long ago heard that our Cargo of Plants Arrivd in good order at Petersburg, I this day receivd a Letter signd Sergius Plescheyeff & dated St Petersburg July 30 in which I am told that they Came in "as good a Condition as it possible to desire" & which conveys to me at the same time a liansome Compliment from the grand Duchess which greatly overpays the Little Trouble I had in arranging the business

now as I wish to Shew that I feel a due sense of the honor of having been noticed by her Imperial Highness I wish to answer this Letter but as I do not Know Either the Rank of my Correspondent or the Station he holds it is impossible I can address my Letter to him according to the Customary Etiquette

May I therefore trouble you to send me the necessary information & also request that I may be allowd to Forward my Letter through your office, it cannot be a matter of the Least moment at what Period my answer arrives in Russia, Provided it bears an Early date & it is Known that the means by which it is sent would not have brought it sooner

I tremble at the Idea of my Letter having miscarried as in that case I should have incurrd the censure of impoliteness without deserving it, it came by the Penny Post with a penny to pay adressd to me at London so that if the directors of the Penny Post had not been so good as to Enquire where I livd it would have been open'd & destroyd because they could not tell where Mr Plescheyeff resided

believe me my dear Sir with infinite Esteem & Regard
most Faithfully yours...²

1795 October 3 Downing Street

It is not from want of attention towards you that I have delayed 'till now to answer your Letter, but solely from not having sooner been enabled to procure for you the information you wanted. This morning, Count Woronzow sent me the inclosed Paper, which I suppose contains all that can be necessary for you.

¹ Banks to Plescheyeff, [12 September 1795], SL Banks MS. Ru 1 : 17.

² Banks to Burges, 13 September 1795, ATL. No. 112.

I take it for granted you will soon be in town. I shall not fail to take an early opportunity of paying my respects to you ; as there is nothing which I more sincerely wish than to afford you proofs of the truth and respect with which I have the Honour to be...¹

[1795] October 6

Monsieur de Plestchéef
 Captain du Rang de General-Major
 au Service de la Flotte de S. M. I. de toutes
 les Russies & Chevalier de l'ordre de S^t George
 de la 1^o Classe.

*Correspondence & information respecting the Voyage &
 the Reception of the Plants²

1795

His Excellency Sir Charles Whitworth

D^r to Shairps & C^o³

For Freight & Port charges of			
Plants in p ^r Capt ⁿ Vickerman			£60 . . .
Labourers, charges &			
Carriage	R ^{os}	11. 45:	
Customs on a Telescope			
value £500		60. -	
on Some Empty Potts		: 42	
Town dues. 2 p ^r Cent		1: 20	
Inspectors, & Expences			
at the Custom House.		25. -	
	R ^o	98. 7	
			11 : 13 -
		£ Ster ^l ^g :	71 : 13 -

1795 October 24 Eltham

Though I have been so fortunate as to make my escape from official drudgery, and am once more become a free agent, I still am liable for some time to what the Lawyers call Remanets. On one of these I feel it right to give you a little trouble. The inclosed is an account which I have received from Sir Charles Whitworth, for the amount of which he has drawn upon me. If you will be so good as to cast your eye over it, and let me know whether Captⁿ Vickerman has made a proper charge, I will honour the Bill when it shall be presented.

As I have had many proofs of your friendly kindness, I think it may not be a matter of indifference to you to know how very generously and handsomely our Royal Master and His Prime Minister have acted towards an old servant. I retire from office with a provision for life, equivalent to my official appointment ; and with the Reversion of a place for life of about £600 a year to my eldest son. This,

¹ Burges to Banks, 3 October 1795, SL Banks MS. Ru 1 : 9.

² MS. note, 6 October [1795], SL Banks MS. Ru 1 : 13.

³ Shairps and Co. to Whitworth, [1795], MS. account, SL Banks MS. Ru 1 : 10.

tho extremely agreeably [sic] to me, may perhaps be but little interesting to others, but I am sure it will not be uninteresting to you to know that the King we have both served has been kind to his servant, and that his kindness is felt properly and gratefully.

I have the honour to be with the most perfect regard and respect, . . .¹

1795 October 28 Revesby Abbey

*I rejoice with unfeigned sincerity to hear that your valuable labours for the public service have been rewarded in a manner satisfactory to yourself: it does credit to Ministers & honor to the Country when veteran servants of the public are provided for according to their deserts.

Respecting Mess^{rs} Shairp's Bill I have only to observe upon it that the agreement I made with Capt. V[ickerman] was to give £80 for the freight of the plants & the outward bound passage of the Gardener, & that I advanced him £30 on that acct, so that £50 only is due instead of £60 as is charged. To countervail this extra charge of £10 is port charges of Plants &c. & I conclude freight for the Telescope, which was not in my department.

Respecting the remaining charges of £11-19, they are of a nature that neither you or I have it in our power to investigate; I confess, however, that they appear to me very reasonable.

I shall, floods &c. permitting, be in London on the 3^d of Nov^r, & shall be happy to do any thing in this business that you order me to do, whenever I shall receive the pleasure of your commands. —²

1795 November 12 Elseneur

It is with pleasure I acquaint you Sir of my safe arrieval at Elsineur, after a very long and disagreeable passage of 29 days' on board Lady Bruse of Kennet, of my long stay at St Petersburg I suppose Sir Charles Withworth [sic] has already acquainted you. I have got about 25 plants and 180 different seeds from the Grand Duchess but I believe most of them are already in England, excepting the Rhododendron chrysanthemum, I was treated with a great deal of Kindness both from the Grand Duke and Grand Duchess. and they wanted very much to Keep me, but I did not like the restriction the Gardners are under. The ship I am in Sir is at present detained by contrary winds at Elseneur but I believe it is the Captains intention to sail with the first fair wind without wating for Convoy. I have got two letters with me for your Sir, one of Sir Charles Withworth, and the other of M^r Hove from Pollond who is gone to settle on the frondiers of Grimia, and of whom you may expect a good many Seeds. . .³

¹ Burges to Banks, 24 October 1795, DTC. 9. 308-309.

² Banks to Burges, 28 October 1795, DTC. 9. 310.

³ Noe to Banks, 12 November 1795, SL Banks MS. Ru 1:47. Cf Hove to Banks, 20 September 1795, Kew B.C. 2. 125.

[1795 December 29] [Soho Square]

*There were not 3 of the Plants the King Sent before in the Grand Duchess's Gardens

The houses in Paulofski were very bad except one built last year of 350 feet Long with Ten pits in two Divisions The Plants were put into this G R was markd on Each Pot

The Plants were Carried in 15 Coaches with 4 horses Each they arrivd at 12 at night & as it Froze a little the Garden was lighted with Lamps that they might be unpackd The Protea argentea lost about 1½ inches by the Cold it being too tall to be Coverd Properly at 6 in the morn the G[rand] Dutchess was in the Hot house before Noe Could arrange them he begd a few hours to arrange the Plants as they had been left in Confusion the night before at 2 in the Even She Came with the Grand Duke & about 70 Attendants She had before orderd him into the drawing Room to Shew the Engravings & the Botany Bay flax The Grand duke made Noe give him a Scetch of Kew Garden & orderd him to Katchina a Garden formerly made by Sparrow an English man where he intended to make a botanic Garden he orderd Noe to mark the Sticks as done at Kew & he taught them how to do it

The Grand Duchess Came every day for an hour to Learn the names of the Plants

Chironia linoides

— *frutescens*

— New species

Moraea northiana

Salvia violacea

Justicia nitida

Crinum ascetreum[?]

Erica ventricosa

Polygala pinnata

Rosa semperflorens

Flowerd while Noe was Petersburg

flowerd while Noe was in Russia The Grand Duchess drew Every one with her own hand

Noe was obligd to go with Every Plant that flowerd after She left paulofski 38 miles to Katchina that She might see it

The Grand Duchess said she was so much indebted that she could not ask for more Plants till she had some Siberian ones to send in Return

The G[rand]Duchess] gave Noe a gold watch & 100 ducats

She Commissiond Plants views of Royal Gardens &c &c & gave him 300 Roubles to purchase [them]

...brought 12 Rose trees 8 feet high

2 *Viburnum lantana*

2 *Robinia pseudoacacia* 10 feet high

& chardg 500 ducats freight

The throng was so great when the Ship came to the Keys at Petersburg that Noe was obligd ask for assistance [there we]

The hay in which the Plants were packd fermentd & was changd at Sheerness & Elsinore Noe was however much troubled with damp till he Coverd every Pot with dry Sand from the ballast washd over to take out the Salt

in the voyage the Hatches were down about 6 [days] Nights The hold was so hot that the Plants grew a great deal

Came to Petersburg	Augt 11
Saild from thence	Sept 11
laid at Elsinore	4 weeks
arrivd in England	Dec ^r 27

I wrote the Purport of this information to M^r Burgess on the 29th Dec^r the day I receivd it¹

[1795 n.d.]²

<i>Aquilegia alpina</i>	<i>Beta cycla taurica</i>
----- <i>sanguinea</i>	<i>Berberis mongola</i>
----- <i>viridiflora</i>	<i>Siberica siberica</i>
<i>Artemisia</i> sp -----	----- <i>nova</i>
----- sp -----	<i>Cineraria siberica</i>
----- <i>adozatissima</i>	----- <i>glauca</i>
----- sp -----	----- sp -----
<i>Amygdalus pedunculata</i>	<i>Colutea</i> sp -----
----- sp -----	<i>Campanula latifolia</i>
<i>Arabis pendula</i>	----- <i>lilifolia</i>
---- <i>grandiflora</i>	----- <i>punctata</i>
<i>Alyssum taurica</i>	<i>Cucubalus sibericus</i>
----- <i>singulare</i>	----- <i>occultus</i>
----- <i>halmifolium</i>	----- sp -----
----- <i>montanum</i>	<i>Centaurea gemelius</i>
----- sp -----	<i>Cotyledon sinensa</i>
<i>Androsace lactiflora</i>	----- <i>spinosa</i>
----- <i>macrantha</i>	<i>Convolvulus tauricus</i>
<i>Astragalus melitotoides</i>	<i>Cachrys alpina</i>
----- sp -----	<i>Cheiranthus fenestralis</i>
----- sp -----	<i>Cleome nivalis</i>
<i>Anthemis melifoliata</i>	<i>Clypeola minima</i>
<i>Anemone narcissiflora</i>	<i>Cnicus acaulis</i>
<i>Aster alpinus</i>	--- <i>salinus</i>
<i>Avena</i> sp -----	<i>Cymbaria dahurica</i>
<i>Actaea laccis rubis</i>	<i>Coniandra testiculatum</i>
<i>Aconitum dahuricum</i>	<i>Cacalis daucoides</i>
----- <i>camarum</i>	<i>Cruciata singularis</i>
<i>Amaryllis tatarica</i>	<i>Dracocephalum pinnatum</i>
<i>Antirrhinum junceum</i>	----- <i>glutinosum</i>
<i>Anabasis aphylla</i>	----- <i>altaiensis</i>
<i>Asphodelus luteus</i>	----- <i>grandiflorum</i>
<i>Aleca ficifolia</i>	<i>Doronicum altaicum</i>
<i>Biscutella alsinus</i>	<i>Dianthus prolifer</i>
<i>Betula nigra</i>	<i>Didelphia varia speciosa</i>
--- <i>fruticans</i>	<i>Ephedra species</i>
<i>Bunias cakile</i>	<i>Fritillaria</i> sp -----
<i>Ballota lanata</i>	<i>Ferula mongolica</i>
<i>Brunus mahaleb</i> [<i>Prunus</i>]	<i>Gramen singularis</i>

¹ MS. notes by Sir Joseph Banks, [29 December 1795], SL Banks MS. Ru 1 : 50.

² MS. catalogue of the plants received, mostly as seeds, from Her Imperial Highness the Grand Duchess of all the Russias in return for the plants from Kew, [1795 n.d.] SL Banks MS. Ru 1 : 49.

- Gentiana cruciata*
 ----- *indeterminata*
Glycyrriza mongolica
Gypsophila altissima
 ----- *siberica*
 ----- sp -----
Hesperis sibirica
 ----- *tartarica*
Hippophae albus
 ----- *physaloides*
 ----- sp -----
Hedysarum criticum
 ----- *argenteum*
 ----- *alpinum*
 ----- *obscurum*
Juniperus oxycoides ploeincea
Lonicera alpina
 ----- sp -----
Liliacae varia alpina
Lycopus pinnatus
Leontice sp -----
Leonurus alpinus
Lathyrus nesfolia
Linum caeruleum
 ----- *perenne*
Mespilus sp -----
Melissa officinalis
Mentha pataniana
Nepeta neraxica
 ----- *lavendulacea*
 ----- *conica*
Ornithogalum narbonense
Onosma tauricum
Koelipinia sp -----
Paeonia officinalis
 ----- *sinensis alba*
 ----- *laciniata*
 ----- *multifida*
 ----- *tenuifolia*
Phaca arenaria procumbens
 ----- *elata*
 ----- *rarissima*
 ----- *siberica* sp nova
Papaver hybridum
 ----- *sinensis*
 ----- sp -----
Potentilla nivea
 ----- sp -----
 ----- sp -----
 ----- sp -----
Pedicularis rubens mongolum
 ----- *caespitosa*
 ----- *incarnata*
 ----- sp -----
- Phalaris erucaeformis*
Polygonia sp -----
Pallasia pterococcus
Primula civitusoides
Polygala speciosa
Prunus taurica
Pyrus baccata
Rhododendron chrysanthum
 ----- *dauricum*
Robinia pygmaea
 ----- *frutescens*
 ----- sp -----
 ----- sp -----
 ----- sp -----
Rosa pimpinellifolia
 ----- *taurica*
 ----- *alba mongolica*
 ----- *pumila*
Rheum dentatum
 ----- *mongolum*
 ----- *latifolium*
Ribes mongolum
 ----- *diacantha*
 ----- *taranuska*
 ----- *trista*
 ----- sp -----
Rubus arcticus
Rhus cotinus
Ruta sp -----
Rhodiola rosea
Rumex sp -----
Statice paradoxa
 ----- *flexuosa*
 ----- *speciosa*
 ----- *trigona*
Salsola laniflora
 ----- *locla ?*
Swertia rotata
 ----- *corniculata*
Sophora lupinoides
Sibbaldia cruta
 ----- sp - prostrata
Sisymbrium sp -----
Silene amoena
Serratula salicifolia
Salicornia herbacea
Saxifraga sp -----
Tanacetum sibiricum
Trifolium subterraneum
Trigonella sp -----
Thymus odoratissimus
Tulipa altaica
Trollius asiaticus
Viola uniflora

Urtica cannabina
Ulmus pumila

and about 30 without names but
 the part of the country they
 come from

1795 December 29 Soho Square

*Noe the Gardener who went to Russia is Just now arrivd after a passage of 11 weeks by his account it appears that the success of his management was very good, he Lost very few Plants indeed & when he Carried his Cargo to Paulesski he found that only 3 of all those he brought had before been seen in Russia

the grand Duchess Receivd them with all possible honor, 15 Coaches were sent to Carry them from the water to the Palace & as they arrivd there in the night the Garden was Lighted up with Lamps for the *ir/* facility of unpacking them.

The Grand Duchess was in the Garden by Six the next morn & gave directions respecting them, before noon Noe was sent for into the Palace & had the honor to exhibit the Plans of the hothouses at Kew & the Drawings of Plants he had been chargd with to the Grand Duke and Duchess, at 2 they Came to the Garden with 70 attendants

The G. Duchess orderd the King of Englands Mark, G. R., to be inscribd by Noe on Every Pot he had brought that they might not be confounded with her own & She Every day Spent an hour in Learning the names of the Plants

When her imperial highness removd from Paulefsky to a Palace About 30 miles from it, she orderd Noe to attend with Every Plant that Should Flower & she with her own hand made a drawing of Each.

The most Hansome overtures were made to Noe if he would Consent to Enter into her Service, but he declined on account of his having had a recal[l] sent to him from Wurtemburgh, Where he says he is sure he never shall receive so much pay as was offerd him by the grand duchess.

he Receivd when he went away a handsome gold watch & 100 ducats as a Present

Whenever you Come to Town my dear Sir if you will let me Know I will meet you at the office that we may finish this affair beleive me my dear Sir with infinite Regard & esteem very Faithfully Yours. . . [P.S.] he has brought a large Collection of Seeds & some curious Plants for Kew many more I am Sure will follow¹

1796 January 19 [Soho Square]

*I wrote to you on the 29th dec^r to acquaint you that [George] Noe had Returnd from St Petersburg after a Passage of 11 weeks that his Present had been Rec^d in a manner truely super royal & that he had got a gold watch & 100 ducats as a present So that our business has succeeded beyond the warmest Stretch of our fears & equald indeed our most Sanguine wishes I fear however that my Letter never came to your hands as I have not Rec^d an answer, as I had hopes of seeing you yesterday at St Jame's I waited till today before I should aim another Shot at you

I have now made out Noes bill & find that an account of Salary no part of which appears to have been paid to him in Russia of expences incurrd in the River at

¹ Banks to Burges, 29 December 1795, Kew B.C. 2. 130.

Elsineur & in Russia on account of the Plants & his Passage home we Stand indebted to him in the balance of £56 : 17 : 5

as no part of the money I advanced on this account during your Reign has to the best of my Recollection been Repaid to me I am unwilling to advance any more till some person has acquainted M^r Hammond with the Particulars of the business, I told my whole story to L^d Grenville the other day, he heard me Patiently but did not deign to give me even a Sentiment of approbation much less of Thanks Give me then my dear Sir your advice for if I am to do all to write all to direct all & to pay all & no human being feel inclin'd to thank me I Shall I fear in due time feel as sulky as a measly Sow who has lost her scrubbing Post. . .¹

1796 January 20 Eltham

I will not make any apology to you for having delayed to answer you last Letter, because I feel that I have been in the wrong, and I hate to defend a bad cause. However I must say, that accident has in a great degree been the occasion of this omission ; for I hoped to have been able to call upon you, and to put the business into a proper course of final arrangement ; but I was so unlucky as to fall down, and to bruise my knee and strain my leg ; the consequence of which has been a fit of the Gout, which took this opportunity of paying me his first visit, and of laying me up with my foot on a stool for some time past. I hope however to be in town very soon when I will not fail to do every thing in my power to conclude the affair to your satisfaction. In my opinion, you have not been treated in the manner you ought ; for the money you advanced when the Plants were sent ought to have been paid long ago, and there can be no excuse for withholding it. As to Lord Grenville and his manner of receiving the account you gave him, I confess I feel no surprize for a very long acquaintance with that great man has familiarized me with his manners, tho' they are such as must appear singular to those who have had less experience of them. In the present case however you need not lay yourself under any further necessity of submitting to them ; for I will state the matter fully to M^r Hammond. It will however be right that M^r Noe should make out an account of what is due to him ; and if he will send it to me, I will lose no time in putting it into a proper train, and will try to save you and him from any more trouble. I can only add, that, if there should be any thing in which you can employ me on this or any other occasion, I shall feel the truest pleasure in convincing you of the sincere respect and esteem with which I have the Honour to be. . .

[*Sent Noes account for approbation Jan 21.]²

1796 January 22 Eltham

I do not perceive any article in M^r Noe's account to which an objection can be made, as I take it for granted that his Pay and Extra : Allowance in Russia were what had been agreed upon when he undertook the expedition. I therefore send you back the Paper, in order that it may receive such a Title as will explain its

¹ Banks to Burges, 19 January 1796, SL Banks MS. Ru 1 : 11.

² Burges to Banks, 20 January 1796, SL Banks MS. Ru 1 : 12.

purport, and enable those who were not acquainted with the transaction to understand it. When you shall be so good as to let me have it again, I will immediately set it agoing, and will do all I can to procure M^r Noe his money.

I am now able to walk about, and hope to be firm enough on my legs to pay my duty to the King next Wednesday.

I have the Honour to be with great respect and regard...¹

[1796 n.d.]

Extraordinary expences which I was necessarily
under going and coming from S^t Petersburg
On my passage to Petersburg.²

	£	Sch ^g p
for a Trowel	1	6
2 watering Pots	8	.
for a Truss of Hay at London	4	.
for a pump the old broken Gravesend	3	2
for 2 Trusses of Hay including ferriage Sheerness	13	.
Elseneur Hay and ferriage	10	6
for Letters from Elseneur & S ^t Petersburg	6	.
for a Sound pass	2	.
	2 £	8 Sch ^g 2 p

In Russia

At Cronstadt to the Translator		3 Rubles
Custom house duty for my wearing apparel		4½ . .
for 2 Extraordinary Custumhouse officer		2 . .
for bringing the plants from the Venus to the Imperial Gardens at S ^t Petersburg Barge		7 . .
for carriage to & from the Imperial Gardens to Sir Charles Withworth		4 . .
Coach hire to Paullofsky and Gatachena		25 . .
for advertising in the paper to leave Russia		1 . .
Passport interpreter and other fees		10 . .
for coach to Crownstadt		8 . .
Custum house fees at Crownstadt		3 . .
In my 4 weeks stay at Elseneur		7 . .
8 Rubles 1. £ Sterling	9 £	3. Sch ^g
Passage to England	10 £	10. .
Custum house duty at London	1	1.
£ Sh		
Ten weeks in Russia at 2 . 2	} 21 &	
per week		
	44 £	12 Sch ^g
Received before I left London . . . . .	.6 .	6 .
	38 £	6 Sch ^g

¹ Burges to Banks, 22 January 1796, SL Banks MS. Ru 1 : 20.

² Noe to Banks, [1796 n.d.], MS. account of expences, SL Banks MS. Ru 1 : 19.

[1796 n.d.] [Soho Square]¹

*George Noe a Wurtemburger originally recommended to Kew Gardens by the duke of Wurtemberg & intended for his own Garden but left destitute at Kew by the dukes death is the Person Recommended by Mr Aiton for the Care of the Plants he is Foreman of the Botanic Garden at Kew
 approv'd by His Majesty June 2nd his Pay is therefore to Commence from May 31 the first day in the week when he was approv'd

to have Gratuity to Find him Cloths &c £30
 a guinea a week during his Stay in
 England & his Passages at Sea
 2 guineas a week during his Stay at St Petersburg
 to Charge Coach hire & boat hire while employ'd
 on his Service

Account

1795					
June	20	1	Paid to George Noe Gratuity to Furnish him with Cloths & necessaries	£30	0 .. 0
		25	2	Paid to Capt Vickerman in advance on account of his Passenger & in part of freight	30 .. 0 .. 0
July	4	3	Paid to Geo Noe 5 weeks wages due this day advanced d ^o d ^o on account of wages to be due d ^o d ^o d ^o for Gratuities to Sailors who assist him to be accounted for in his Continent bill	5	5 .. 0
				6	6 .. 0
				2	2 .. 0
		6	Paid to Mr Brown Clerk of the works at Kew being a gratuity for his Trouble in making drawings of Two hothouses by his majesties orders	10	10 .. 0
		9	Paid E. Binbrook Carpenter for making the Platform & form furnishing water cask & Pump	21	0 .. 0
1796					
Feb	4		Paid balance due to George Noe of wages & expences when I settled finally with him	56	17 .. 6
					162 .. 0 .. 6

Feb. 6. 1799 Rec^d from L^d Grenville & 102 in full
 I suppose of this Expenditure I conclude
 I have Rec^d £50 before but Realy do not Remember

[1796] January 23 [Soho Square]

*I return with this the Account with a Title placed at the head of it The extra pay was in the original estimate approv'd by you it was not thought unreasonable that he Should have for Salary & board wages a guinea a week & Two during his stay at Petersburg The weekly pay was agreed to continue during his Passage as a kind of douceur not likely to Cost Government more than 8 or 9 guineas as a

¹ MS. notes and account by Sir Joseph Banks, n.d. probably February 1796, SL Banks MS. Ru 1 : 18.

months passage is about the average it has increasd somewhat on account of the Length of his homeward bound passage which took up 11 weeks but I Still think it would not have been Easy & for a person unacquainted with the business to have procurd a man Capable of taking care of Plants of Speaking Two Languages of being Civil & Prudent to go & Return from Russia & have the honor of Receiving Commands from the grand Duchess there for Less money than £45 : 10 & be perfectly Contented & satisfied on his Return to Resume his Station in Life without any claim for further favor¹

1796 February 4 London

*Receivd of Sir Jos: Banks the Sum
of Fifty Six Pounds 17/6 being in Full of the
Balance of wages due to me & all charges paid by me
during the Time I was Employd in Carrying Plants from
Kew to Russia & my stay & [sic] there & my Return home²
[sgd] George Noe

1796 January 23

[*Sent to Sr J B Burgess Jan 23 1796]

Final Account of Geo: Noe for salary & expences of attending a Collection of Plants sent from the Royal Gardens at Kew & delivering them to the Gardiners of the Grand Duchess of Russia³

On my passage to St Petersburg

1 Trowel	1 . 6
2 watering pots	8 .
1 truss of hay at London	4 .
1 pump, the old one broken . . . Gravesend	3 . 2
2 truss of hay including ferriage . . Sheerness	13 .
Hay and ferriage Elseneur	10 . 6
Postage of letters from Elseneur rec ^d at Petersburg	6 .
a Sound pass	2 .

2. 8. 2

¹ Banks to Burges, 23 January [1796], SL Banks MS. Ru 1 : 20.

² Noe to Banks, 4 February 1796, MS. receipt signed, SL Banks MS. Ru 1 : 26.

³ Noe to Banks, 23 January 1796, MS. account of expenses, SL Banks MS. Ru 1 : 27.

In Russia			
Translator at Cronstadt		3	
Custom-house duty for my wearing apparel		4½	
2 Extraordinary custom-house officers		2	
Bringing the plants from the Venus to the Imperial Gardens at S ^t Petersburg . . . Barge . . .	}	7	
Carriages from the Imperial Gardens to Sir Cha ^s Withworth's		4	
Coach-hire to Paullowsky and Gatoechna		25	
Advertising in the Paper to leave Russia		1	
Passport Interpreter and other fees		10	
Coach to Cronstadt		8	
Custom-house fees at Cronstadt		3	
In my 4 weeks stay at Elseneur		7	
8 Rubles being 1. £ sterling		74½	are 9. 6. 3
Passage to England		10.	10. -
Custom-house duty at London		1.	1. .
Ten weeks extra allowance in Russia 1. 1. p week		10.	10. .
			<u>31. 7. 3</u>
Pay from May 31. 1795 to Jan. 15. 1796 being 33 weeks at one Guinea a week			<u>34. 13. .</u> 68. 8. 5
Received 5 weeks pay due July 4		5.	5. .
in advance before I left London		6.	6. .
			<u>11. 11. .</u>
	Balance due		<u>£56. 17. 5</u>
<i>Received also for Gratuities to Sailors who should assist</i>			<u>2. 2. /</u>

1799 February 6 Downing Street

Mr Bidwell¹ presents his Compliments to Sir Joseph Banks and takes the Liberty of enclosing a Dr[aft] for £102 being the amount of Money which he expended on his Majesty's Service which Sum Mr Bidwell is directed by Mr Hammond² to pay Sir Joseph.

[*My Acc^t Stands Creditor to Government £.162 I have no Copy I suppose I have Rec^d £50 but forget when I had no Clerk & Kept no Copy of acc^t put in Expecting it to be paid the next day it was sent in in Feb^y 1796.]

¹ Bidwell to Banks, 6 February 1799, SL Banks MS. Ru 1 : 29. Thomas Bidwell sr. (d. 1817), chief clerk of the Foreign Office.

² George Hammond (1763-1853), Under-secretary of State for Foreign Affairs 1795-1806, 1807-1809; first accredited British Minister to the United States, 1791; close friend of Lord Grenville, Foreign Minister, who had James Bland Burges make way for Hammond on his return from Philadelphia.

[1796 February -] [Soho Square]

		<u>Account.</u> ¹		
		£	s	d
1795				
June	20 th	1	Paid to Geo: Noe a Gratuity to provide him with Cloths, necessaries &c ^a	
			30	.. ..
	25	2	Paid Capt Vickerman in advance on Acc ^t of <i>his Passenger &c</i> / Freight of Plants.	
			30	.. ..
July	4	3	Paid Geo: Noe on Account of his Wages commencing May 30 in advance	
			11	.. 11 ..
		4	Paid D ^o as a Gratuity to be divided among such Sailors as assist him for which he is to account in his contingent Bill	
			2	.. 2 ..
	6	5	Paid M ^r Brown Clerk of the Works at Kew a Gratuity for his Trouble in making drawings of two hothouses which were sent with the Plants	
			10	.. 10 ..
	9	6	Paid E Benbrook Carpenter for making the platform & finding a water cock & a Pump	
			21	.. ..
			<u>£105</u>	.. 3 ..

To be paid.

To complete the Freight it being agreed for at £80		50	..	..
Primage average &c suppose		5	..	..
Contingent Bill		5	..	..
Noe's return Passage		10	..	10 ..
Wages if he is kept 6 weeks at S ^t Petersburg		21	..	..
Gratuity if his Business is well done, and the Office is pleased with Noe		10	..	10 ..
		<u>£102</u>	..	0 .. 0

[1799 n.d.] [Soho Square]²

Account of Moneys expended & paid by Sir Joseph Banks in the execution of his Majesties commands by sending a present of Exotic Plants from the Royal Gardens at Kew to her Imperial Highness the Grand Duchess of all the Russias under the care of George Noe Foreman of the Royal Botanic Garden

¹ MS. interim account rendered by Sir Joseph Banks to the Foreign Office perhaps in February 1796 and evidently enclosed in Bidwell to Banks, 6 February 1799, as authority for the payment of the sum of £102. SL Banks MS. Ru 1 : 28.

² MS. statement of account, n.d. but most probably February 1799, SL Banks MS. Ru 1 : 30. Cf. Bidwell to Banks, 6 February 1799, above and Banks's annotation thereto.

			£	s	d
1795	June 20 th	Paid to Geo Noe Foreman of the Royal Gardens as a Gratuity to provide him with Cloths Necessaries &c as pr Rec ^t N ^o 1	30.	0.	0
	25 th	Paid Cap ^t Vickerman of the Ship Venus in advance on account of Mr Noe's passage & Freight of Plants as pr Rec ^t N ^o 2	30.	0.	0
	July 4 th	Paid Geo Noe on account of his Wages commencing May 30 Eleven weeks part in advance as pr Receipt N ^o 3	11.	11.	0
		Paid D ^o as a Gratuity to be divided among such Sailors as assist him for which he is to account in his contingent Bill as pr Rec ^t N ^o 3	2.	2.	0
	6 th	Paid Mr Brown Clerk of the Works at Kew a Gratuity for his trouble in making Drawings of two Hot houses which were sent with the Plants in obedience to his Majesties commands	10.	10.	0
	9 th	Paid E. Benbrook Carpenter for making the Platform & finding a Watercock & a Pump as pr Receipt N ^o 5	21.	0.	0
1796	Feb. 4	Paid to Geo Noe balance due to him of Wages & Expences when I finally settled with him as pr Bill & Rec ^t N ^o 6	56.	17.	6
			<hr/>		
			162.	0.	6
			<hr/>		
			102.	0.	0
			<hr/>		
			£ 60.	0.	6

[* I receivd the whole of Received Feb^y 7 1799
the money Feb 11 1799 being Remains due
exactly 3 years after I had paid it & nobody has Thankd me J B]

NOTES ON THE ILLUSTRATIONS

Frontispiece

The two sepia drawings of the frontispiece were brought to light at the Linnean Society of London in July 1972. They were found by Mr Gavin Bridson, the Society's Librarian, after specific enquiries made in correspondence by the present author. They were mounted together within the same frame, identified by an old hand-written label at the back which read: 'Museum and Library of Sir Joseph Banks, Bart. 17 Dean Street, Soho: the residence from 1820 to 1858, of his Librarian, Robert Brown'. Beneath this label read: 'Lucas, del. ? (Mrs Btt)', the *tt* in the parentheses being doubtful. So far the artist has not been identified. However there is no doubt that the drawings are authentic views of the state of these rooms more or less as they were known to Sir Joseph Banks at the time of his death. There are enough identifiable items of detail in each room to make this certain even though the drawings were probably made at some time after March 1828, perhaps about the time of the death of Lady Banks in that year. From this point the house in Soho Square was finally divided between Robert Brown and the Linnean Society of London and the 'back premises' occupied by Brown became known as 17 Dean Street thereafter.

In the context of the present bulletin these two drawings effectively give us for the first time a contemporary glimpse of the interior of the power-house epitomised by the address: 32 Soho Square. In 1795 the Library was the scene of the last stages in the preparation of the first volumes of the *Catalogus Bibliothecae Historico-Naturalis Josephi Banks...* by Jonas Dryander. It is however in the study that we must look for the background not only to the majority of the papers written by Banks in the present transaction of the plant collection sent from Kew to St Petersburg, but also for the scene where Banks worked and from which his influence radiated more than any other single place from the autumn of 1777 almost to his death in June 1820. Here is what he himself once described as 'the unarranged regularity of my little den'. This is the room at the foot of the main stairs on the ground floor opening off the left-hand rear corner of the large entrance hall, approaching from Soho Square. It was originally described as 'the Breakfasting Parlour' when Banks bought the 'Elegant and Spacious Leasehold House' known as 32 Soho Square on 29 March 1777. In size it was 20 feet by 13 feet. In this compact room with its south light from the large studio window Banks not only worked but also probably received from day to day most of that unending stream of visitors who sought his advice, co-operation, or merely his company.

His chair to the left of the fire-place is apparently that in which he was painted by Thomas Phillips in 1820, the year of his death, posed against the background of the doorway and bookshelves at the right. The big desk under the studio window is now the desk of the Keeper of Botany in the British Museum (Natural History). It was doubtless also used extensively by the first Keeper of Botany, Robert Brown, for the greater part of his working life, after the death of Banks.

The Library was one of the 'two large Apartments' on the first floor which formed part of the 'extensive back Building' and was already defined as such when Banks

bought the house in 1777. The herbarium cabinets along the wall on the right are now incorporated in those of the Botany Department of the British Museum (Natural History) at South Kensington. The blank space on the far wall at the end of the Library over the fire-place is where the portrait of Captain Cook hung after it had been commissioned by Banks in 1776 from Nathaniel Dance, R.A., and until Robert Brown in March 1828 delivered it to Banks's executor, Sir Edward Knatchbull 9th Bart. It was then presented to Greenwich Hospital in 1829 by Sir Edward where it hung in the Painted Hall until 1937 when it was removed to the National Maritime Museum. The 'Apartment' beyond this wall was presumably the main Herbarium where the bulk of the plant collections were kept and where the portrait of Linnaeus, now in the Linnean Society of London, was hung. This was the copy by Laurenz Pasch of the original painted by A. Roslin in 1775 given to Banks by Archbishop von Troil. Banks bequeathed this copy to Robert Brown who presented it to the Linnean Society of London. The dimensions of these two rooms are as yet uncertain but each would have been not less than 20 feet wide and in length together no more than about 50 feet.

Taken together the Banksian study and the Library shown in the frontispiece, with the Herbarium of which we have no visible record as yet, may with good reason be accepted as the effective nucleus of the present British Museum (Natural History). We may also with some confidence accept them as the working environment in which Robert Brown first firmly directed attention to that other nucleus – the 'kernel' in the plant cell – from which so much of the pattern of modern biology has evolved.

The original drawings have now been presented by the Linnean Society of London to the British Museum (Natural History) where they are lodged in the General Library.

Plate I

This plan shows the general state of the Royal Gardens at Kew about the time of the episode described in this bulletin. The centre of activity in preparing the collection of plants for the Empress was almost certainly the Great Stove and the Exotic Ground in front of it, a little below left centre in the plate. This was an area of slightly more than an acre and a half lying about 400–500 feet south of the present Orangery, then known as the Greenhouse. The Great Stove was demolished in 1864 and its former site is roughly marked by the large Wisteria on its iron cage and the Gingko or Maidenhair Tree which was probably near its western end. The Exotic Ground was therefore where the present lawn is between the Wisteria, the Broad Walk, and the path leading from the Turkey Oak back past the Ferneries.

The general orientation is clear from the position of St. Anne's Church on Kew Green at the extreme left just beyond the north-west end of Kew Lane (now Kew Road). Sandycombe Road may be seen passing through the fields toward the top right-hand corner and the junction with the present Lower Richmond and Lower Mortlake Roads continuing beyond as Manor Road, beside which lay the King's Marsh Gate Farm just outside the scope of the map. In the bottom left-hand corner

the position of the building now known as Kew Palace is at the end of a short avenue of trees leading from a small wharf on the River Thames.

The original of this plan is in the Map Room of the British Museum by whose permission it is published here. The press mark is K Top XL 4601.

Plate II *a* and *b*

The plan of the Park of Pavlovsk is shown in Plate II *a* as it appears to have been about the period of the events described in this paper. In extent it was apparently at least four times the area of the Royal Gardens at Kew at the same date and in design is clearly much the more elaborate. The Palace itself lies in the south-west corner and nearby was the Private Garden into which many of the plants from Kew were introduced. This garden may have been of about the same area as the Exotic Ground at Kew from which so many plants in the Royal gift had come.

The general style of these extensive and elaborate grounds may be assessed from the engraving in Plate II *b* which illustrates a view of the Slavyanka valley below the Palace and which traversed the Park from the south-west. This was engraved by S. Galaktionov from the original painting by S. Shchedrin.

Both illustrations are taken from *The Park of Pavlovsk* by O. Ivanova (1956), Leningrad. A copy of this volume was generously presented to the General Library of the British Museum (Natural History) from the Library of the Pavlovsk Museum and Park through the kindness of M. A. Flitt, Chief Custodian of the Park of Pavlovsk. Plate II *a* is Plate 2 and Plate II *b* is Plate 9 in the original volume.

Plate III *a*

Strelitzia reginae Ait. or Bird of Paradise Flower, native to the coastal areas of Cape Province, was among the first species sent to Great Britain by Francis Masson on his first visit to South Africa in the years 1772-1774. According to William Curtis the first plant was received in the Royal Garden at Kew in 1773 and Banks himself was responsible for the naming of the genus, long before the publication of *Hortus Kewensis*, in honour of the Queen, Charlotte Sophia (1744-1818), a daughter of the Duke of Mecklenburg-Strelitz in North Germany. The plant is widely cultivated and in recent years has become popular in floristry.

The plate is from the original water-colour drawing by James Sowerby, 1787, in the Banksian MS. No. 17, in the Botany Department, British Museum (Natural History).

Plate III *b*

Phaius tancarvilleae (L'Hérit.) Blume or Lady Tankerville's orchid, was introduced into Great Britain from China by John Fothergill about 1778. It is apparently named after Emma, Lady Tankerville (d. 1836), wife of Charles, 4th Earl Tankerville (1743-1822), of Chillingham Castle, Belford, Northumberland. It was first named *Limodorum tankervilleae*.

The plate is from the original water-colour drawing by James Sowerby (1757-1822) for William Aiton's *Hortus Kewensis*, vol. 3, t. 12 (1789) and is now in Banksian MS. No. 17, in the Botany Department, British Museum (Natural History).

Plate IV a

Phormium tenax Forst., or New Zealand Flax, endemic in New Zealand and Norfolk Island, was first seen by Banks in 1769 during Captain Cook's first circumnavigation in H.M.S. *Endeavour* when its potential value as a source of strong vegetable fibres for industry greatly attracted him. Although twenty years later in 1789 he introduced it to Great Britain it now survives there only as a garden species. In the Azores, St. Helena, Argentina, Chile and South Africa it has become a useful crop plant.

The plate is from the original water-colour drawing by Sydney Parkinson (c. 1745-1771) in H.M.S. *Endeavour* during the circumnavigation of New Zealand in 1769-70. It is now preserved with the Banksian MSS. in the Botany Department, British Museum (Natural History).

Plate IV b

Brucea antidysenterica J. F. Mill. (syn. *B. ferruginea*) was discovered by James Bruce (1730-1794) during his Abyssinian journey and named after him. It was reputed to have considerable value as a tonic and as a cure for dysentery. It is strongly astringent.

The plate is from the original water-colour drawing made for Banks by John Frederick Miller (fl. 1759-1794) who later engraved it as Plate 25 in his *Cimelia physica*, 1796. This drawing is also preserved in the Banksian MSS. in the Botany Department, British Museum (Natural History).

Line drawing p. 327

The line drawing of the profile of Sir Joseph Banks at the beginning of the section THE DOCUMENTS was derived by the author from the drawing by Henry Edridge in the National Art Gallery, Sydney, N.S.W. This is Banks apparently at the age of 51 in the year 1794 and therefore as he was about the time of the present episode as far as this can be deduced. The original drawing by Edridge is undated.

ACKNOWLEDGEMENTS

The task of gathering even the small sample of Banksian papers represented here would have been impossible for the author without the two generous grants from the American Philosophical Society and another from the Royal Society of London at an early stage. This assistance is now gratefully acknowledged.

Among individuals it is a particular pleasure to acknowledge the unfailing courtesy of Mr. Richard Dillon, Librarian of The Sutro Library in San Francisco during the

weeks of studying the Banks Papers under his care and from which the main core of documents for this bulletin was made available for publication. In the same way much help was received from Mr. Michael Hitchings, Deputy Librarian of the Alexander Turnbull Library, Wellington ; Mr. R. Duthie, Librarian of the Auckland Public Library and Miss Dorothy Lyon, Research Librarian ; and Miss E. Evans, Librarian, of the Auckland Institute and Museum, Auckland, New Zealand.

The final task of editing and preparing these documents for publication has been eased by the advice and help of Mr. M. J. Rowlands, Chief Librarian, of the General Library ; of Miss P. I. Edwards of the Botany Library at this Museum ; of Miss B. M. Skramovsky (now Mrs. H. Watson) formerly of this Museum ; and of Mrs. Hélène Sabo of the General Library.

Finally, due acknowledgement is made to the Libraries in whose custody the documents are for permission to publish them in the context of this Bulletin.

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HAROLD B. CARTER
 YEO BANK
 CONGRESBURY
 BRISTOL

PLATE I

Plan of the Royal Gardens at Kew c. 1785

Scale : 1 cm = c. 100 m.



PLATE II

- a* Plan of the Royal Park at Pavlovsk c. 1795
Scale 1 cm = c. 250 m.
- b* Landscape of the Slayyanka valley at Pavlovsk c. 1795



a



b

PLATE III

- a. Strelitzia reginae* Ait
See p. 34b
- b. Phaius tancarvilleae* (L'Hérit.) Blume
See p. 34b



b



c

PLATE IV

- a* *Phormium tenax* Forst
See p. 346
- b* *Brucea antidysenterica* J. F. Mill
(syn *B. ferruginea*) See p. 347



b



a



THE NON-DESCRIPTIVE
PALAEOLOGY OF THE
SOWERBYS'
MINERAL CONCHOLOGY



G. F. ELLIOTT

BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
HISTORICAL SERIES

Vol. 4 No. 6

LONDON : 1975

THE NON-DESCRIPTIVE PALAEOLOGY
OF THE SOWERBYS' *MINERAL CONCHOLOGY*



BY
GRAHAM F. ELLIOTT

Pp 387-399 ; 1 Plate

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LONDON: 1975

THE BULLETIN OF THE BRITISH MUSEUM
(NATURAL HISTORY), instituted in 1949, is
issued in five series corresponding to the Scientific
Departments of the Museum, and an Historical series.

Parts will appear at irregular intervals as they
become ready. Volumes will contain about three or
four hundred pages, and will not necessarily be
completed within one calendar year.

In 1965 a separate supplementary series of longer
papers was instituted, numbered serially for each
Department.

This paper is Vol. 4, No. 6, of the Historical series.
The abbreviated titles of periodicals cited follow those
of the World List of Scientific Periodicals.

World List abbreviation :
Bull. Br. Mus. nat. Hist. (Hist.)

ISSN 0068-2306

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TRUSTEES OF
THE BRITISH MUSEUM (NATURAL HISTORY)

Issued 4 September 1975

Price £1.00

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By GRAHAM F. ELLIOTT

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SYNOPSIS

Analysis of the classic descriptive work on British fossils, *Mineral Conchology* by J. and J. de C. Sowerby, published 1812–1846, shows a surprising number of small but significant passages foreshadowing lines of research and development carried out subsequently as the science of palaeontology and its appropriate technology developed, up to the present day. Included are some internal structures and their significance for foraminifera, cephalopoda, barnacles and brachiopoda; comparisons of fossils with their living analogues and reconstruction of the palaeoenvironments; the significance of some different types of fossils for stratigraphy; and a very early speculation on the evidence of fossils, for different, earlier positions of the Earth's poles. Finally a comment of James Sowerby on structures which are sometimes preserved to be seen more clearly in fossils than in recent examples, is justified by reference to the palaeobotany of a century later.

1. INTRODUCTION

THE *Mineral Conchology* of the Sowerbys occupies a very special place in British Palaeontology. Although produced from 1812 to 1846, with the majority of text and plates before 1830, its minutely accurate coloured illustrations and descriptive comments have ensured its working value, as opposed to historical interest, to the present day. This is in spite of the pioneer nature of much of the contents, and of the uneven geological documentation resulting from the gradual development of stratigraphy (and its terminology) during the years of publication.

The *Journal of the Society for the Bibliography of Natural History* recently devoted an entire number (1974 : 6 (6)) to the Sowerbys and their publications, especially the *Mineral Conchology*, and to the contents of the very interesting and meticulous studies therein I have nothing to add. The present paper endeavours to deal with another aspect of the Sowerbys' work which has long interested me. Given that the attempt to describe and illustrate British fossils was a likely development from James Sowerby's descriptive works on living plants and minerals, how far, if at all, are modern developments in palaeontology foreshadowed in the work? How much did James Sowerby, and his son James de Carle, think of their fossils as remains of once-living creatures; how far did they realize the special considerations which

apply to a fossil, as opposed to a Recent, shell? It must be realized that any such thoughts would be made in a 'pre-evolutionary' mental climate, that the geological time-factor would be, at best, very dimly sensed, and that any ideas found will be expressed in literary and imprecise terms, without any of the later terminologies which have grown to fit what are now subjects of study in their own right.

Inevitably, any compilation of such evidence will be capable of arrangement in various ways. That adopted here is to take those aspects arising directly from the fundamental descriptive nature of the *Mineral Conchology*, first, and to proceed from these to the writers' more philosophic speculations. The quotations which in this paper are ascribed to James Sowerby, or to James de Carle Sowerby, are on the basis of attribution of text and plates to the former up to the end of part 65 (in volume 4), and thereafter to the latter. Cleavelly (1974: 446) in discussing this boundary, has drawn attention to a letter of J. de C. Sowerby (1839) stating that much of the text (as opposed to plates) in the earlier parts was prepared by J. de C. and G. B. Sowerby and, indeed, the work as a whole seems very much to have been a family production.

2. INTERNAL STRUCTURES AND MICROSTRUCTURE

Devoted as it was to British fossil shells, the detailed external form and hinge-structures of molluscs form a great part of the work. But fossils are more usually filled with hard and intractable matrix; the Sowerbys, operating before the days of thin-sections, serial sections and X-rays, and with only the minority of hollow or easily excavatable specimens and the occasional lapidary's polished surface, nevertheless show an early realization of the essential importance of internal structures.

(a) *Cephalopoda (and Foraminifera)*

From the first part of Volume I James Sowerby showed an interest in recording the position of the siphuncle, an internal shelly tube of hydrostatic significance found in shelled cephalopods. Siphuncles are usually peripheral in ammonites and central in nautiloids. J. Sowerby was careful to indicate its position in the aberrant, uncoiled or turricone members of the former (*Hamites*, *Turritiles*; I, 135, 169, 170), and to mention it where it could be seen, in many species of the latter. J. de C. Sowerby, towards the end of the work, gave a summary of the form of the septa and position of the siphuncle in London Clay nautili (VII, 35, pl. 627), showing the change in position of the siphuncle during the growth of *Nautilus imperialis*.

This interest of the Sowerbys extended to all fossils referred to the Cephalopoda. At that time the shelled foraminifera were regarded as minute nautili. This ascription was made from the shells and not from the living animals, the foraminifera being of course much lower in the scale of life than the Cephalopoda (Mollusca) to which *Nautilus* belongs. D'Orbigny (1826) whilst recognizing the distinctive shelly characters of foraminifera, still grouped them as a section of the Cephalopoda, and it was not until after the recognition of living species as Protozoa (Dujardin 1835) that they became classified in their own right and not as minute Cephalopoda

(Mollusca). Hence in 1816 James Sowerby, describing a Cretaceous foraminifer as *Nautilus comptoni* (probably a *Lenticulina* sp.), wrote: 'I am sorry not to be able to find the siphuncle, but I suspect it is at the outer extremity. In all my specimens, which is seldom the case in Nautili than in Ammonites, it was obscure: one had a little break where I expected it, but I could not say it was there: - it must therefore be left for further research' (II, 45, 46). The siphuncle is exclusively a cephalopod structure, and so, naturally, he could not find it.

This foraminifer seems to have troubled the Sowerbys. Perhaps they realized that whilst its characters conformed to those used in the then current taxonomy, it (and its kind) were nevertheless in some way different, a feeling not unknown to many taxonomists. Thus in 1826 J. de C. Sowerby, discussing nummulites, wrote: 'The Nummulariae are supposed to belong to the same division of the Order Cephalopoda as *Nautilus*, *Spirula*, etc. . . . *Nautilus Comptoni* Tab. 121 belongs to this genus.' But a couple of pages later he added a footnote 'N. *Comptoni*, tab. 121, has only one or two whorls and about eight septa, and is one of the most remote species from Nummularia of Authors' (VI, 74, 76).

(b) *Brachiopoda*

Although Brachiopoda have long been recognized as a distinct and more primitive phylum than the Mollusca, their usual double-valved, shelly remains have some general similarity to those of bivalved molluscs, and the Sowerbys described many brachiopods in the *Mineral Conchology*. Many, though by no means all, brachiopods have an internal structure, the brachidium, composed of thin shelly ribbons inside the valves and often of considerable complexity in form; these structures are of the greatest value in classification. In fossils, usually filled solid with hard matrix or mineral infilling, the brachidia are difficult of access; serial sections, and chemical or mechanical dissection and clearance, are the usual means of revealing them today. In hollow or friable fossils, broken specimens sometimes reveal them, usually damaged, and often crusted with calcite or other mineral, and rather more frequently, the hinge-structures to which they are attached. Internal moulds in clear calcite may also sometimes show internal structures by translucency.

Such specimens were carefully figured by the Sowerbys when available: I, pl. 15; III, pls 265, 268; V, pls 435, 502; VI, pl. 535; VII, pl. 616. Of *Terebratulaplicatilis* (now *Cretirhynchia*) James Sowerby wrote that it occurred 'sometimes in such a state as to separate from the chalk, and show something of the interior construction, which is very desirable in this division of shells, as it is often very remarkable' (II, 37). But in addition there are a few brachiopods whose internal structures were dealt with by the Sowerbys in more detail.

James Sowerby, in two short communications to the Linnean Society in 1814-15 (Sowerby 1819), drew attention to the spiral brachidia in certain Carboniferous species, indicating that these occurred not merely in the externally transverse species typical of spiriferids, but in other, terebratuliform, shells. This work is referred to in the *Mineral Conchology* (II, 41, footnote), and this subject is returned to in IV, pl. 376, p. 105, by J. de C. Sowerby (see Cleveley 1974: 444-446 on attribution of authorship here): 'In general appearance it does not agree with most of the

species of the Genus *Spirifer*, but approaches nearer to the smooth *Terebratulæ*; its having a perforated beak, and little or no hinge-line, still further distinguish it; but the actual existence of spiral appendages seems to confirm it a *Spirifer*, unless its combining the characters of both Genera should render it advisable to construct a new genus of it. But as the appendages within the *Terebratulæ* are very variable, it will be well to wait until more of them are known.' The 'terebratuliform' species described is now *Composita ambigua*, a member of the *Athyridacea*; this was an early recognition of the occurrence of shelly spiral lophophore supports in several different families of the *Brachiopoda*.

James Sowerby also interested himself in the brachial supports of *Magas pumilus*, an Upper Cretaceous brachiopod with a somewhat unusual pattern of brachial support. *Magas* often occurs in, and is filled with, soft chalk which can easily be removed. It must be remembered that at this period even the more usual types of brachial structures in present-day shells were rarities, and little understood. Sowerby recognized the unusual nature of *Magas* from a broken specimen and described it as follows: 'In the middle of the shell rises a thin longitudinal septum reaching from one valve to the other; the upper part of it arches over to the hinge, the front of it is perpendicular, on each side are two shelf-like appendages, one over the other, the upper ones united by slender processes to the hinge. [Upside-down by later conventional orientation.] I know of but one species, some variation in these particulars may be expected in others, but the general structure is sufficiently remarkable to warrant the establishment of the Genus' (II, 39). This was the first described genus of these 'long-looped' brachiopods. Plate 119 gives a good, enlarged and recognizable figure, even though knowledge was so elementary that he could write: '... to which valve this septum is attached I have not been able to ascertain, because I could not open the shell without breaking it'. He also noted the distinctive shell-punctuation under magnification (II, 40). In a footnote (p. 39) he added 'it were much to be wished that some person would publish an account of the curious internal appendages of these shells' (though it is not clear if he means species cited in an erroneous comparison, or brachiopoda in general). And, indeed, the study of brachiopod brachial structures now has a large intrinsic literature, and has thrown much light on the variety and inter-relationships of these brachiopods, as well as on past anatomy.

Finally in 1826 J. de C. Sowerby described a Lower Cretaceous brachiopod as *Terebratula truncata* (VI, 71). This name was preoccupied for a living species of Lamarck's, and the fossil is now known as *Gemmarcula aurea* Elliott. Sowerby wrote: 'Were it not for the aperture in the beak and the internal structure, which is fortunately well preserved, it might be taken for a *Spirifer*.' (A continuation of the elder Sowerby's thoughts on the relations of external form and internal structure.) In Plate 537 J. de C. Sowerby illustrates this species. Because of the 'hollow' preservation, this was the species which I used (Elliott 1947) to demonstrate the full series of ontogenetic changes in a fossil terebratellacean for comparison with similar growth-stages in living genera. Sowerby's figured enlarged shell with loop is recognizable as the growth-stage which I termed 'campagiform'; it is of an example with septum and descending branches intact but the ascending portion of the loop

broken, as sometimes occurs. When one measures the size of the little shell from which the enlargement is taken (Sowerby's middle two figures of four collectively forming fig. 3), the size (transverse diameter) is exactly that given by me for that growth-stage (Elliott 1947: 151). No better example could be given of the Sowerbys' amazing accuracy in drawing things understood but very little at the time, though there are many examples as good.

(c) *Barnacles (Cirripedes)*

In figuring the shelly remains of these Crustacea from the Pleistocene Crags of East Anglia, James Sowerby commented: 'The inside projections and pores at the narrowish base are exposed in the lower figures 3 and 4; in one of them which is very thick, the bottom pores are elongated. Perhaps it will become of use to notice these parts as the progress of the yet infant knowledge of organic remains will point out' (I, 194). Although barnacles are not favourites of palaeontologists, yet this prediction, too, has come true, and the monograph of Davadie (1963) deals in great detail with the internal structures and pores of such fossils.

From all these examples it is clear that, in spite of limitations of knowledge and the absence of techniques now taken for granted, the Sowerbys showed a remarkable perception of avenues of future research on the less obvious or concealed characters of their fossils.

(d) *Serpulids*

In describing the Jurassic *Serpula tricarinata* (VI, 226) J. de C. Sowerby wrote 'Among the squamae . . . or between the lines of growth . . . there are frequently minute pores or short tubes, but whether formed by the animal of the *Serpula* or some minute one is not easily discovered.' Scrutton (1975) records this as probably the first notice of what he described in detail as a hydroid-serpulid symbiosis, ranging from the Mesozoic to the present day.

3. COMPARISONS WITH LIVING FORMS AND PALAEOENVIRONMENTS

As conchologists, the Sowerbys were familiar with much general information on the structures, and to a lesser extent on the habits and environments of living mollusca and other shelled organisms. It is therefore not surprising to find frequent comparisons, and some reconstruction, with their fossils.

James Sowerby compared the operculum of a London Clay serpulid with those of Recent forms (a subject returned to by J. de C. Sowerby, VII, pl. 634, together with their varying objects of attachment), the variation in Wealden *Viviparus* with that to be found in living freshwater snails, and a comparison of Coal Measure mussels with living freshwater mussels (I, 73, 77, 84). All these are lines of investigation followed in more recent times (Wrigley 1951, Prasad 1928, Eagar 1948). In comparing the living *Teredo*, or shipworm mollusc, with fossil remains (I, 229-234), he remarked: 'I have not detected the spatulate valves' (I, 234). These pallets, as they are now called, are of much classificatory value and a considerable literature

exists on them. They may be isolated by washing from incoherent rocks (cf. Stinton 1957), or occasionally, with exceptional preservation, revealed in hard rocks by sectioning (Elliott 1963). Wrigley (1930, 1939) ascribed some but not all of Sowerby's figures to *Teredina personata* Lamarck, which he states does not have pallets.

In dealing with attached (sessile) molluscs J. Sowerby commented on Recent cemented *Ostrea* and *Anomia* showing the ribbing of *Pecten* to which they were attached (II, 22, footnote). Of oysters in general he wrote (III, 66): 'Oysters and some other common shells are the most puzzling, because they admit of such extensive variation that, although there are certainly many species among them, the greatest discernment meets continually with stumbling blocks, while attempting to distinguish them from one another, or the recent from those of ancient times.' Many palaeontologists subsequently must have echoed the spirit of these words; it is to be hoped that the admirable *Treatise* volume on oysters (Stenzel 1971) will provide a basis for determination hitherto in great part lacking.

Classification apart, J. de C. Sowerby gives an early but excellent consideration of evidence to be obtained from fossil oysters. Writing of oysters attached to the cast of a Jurassic ammonite (V, 22) he said: '... there does not appear to be space enough between them and the stoney cast for any shell, it must have been thin, and is perhaps of such a texture as does not permit it to be readily distinguished from the Oyster; or we must conclude that the Ammonite was in a fossil state before the Oysters existed, but had not been removed far from its original station, before it was again buried to form along with the Oysters the index to another epocha.' Examination of a large ammonite in the British Museum (Natural History) from this level, the Corallian Sands (Upper Oxfordian) of Wiltshire-Berkshire, in the preservation depicted by Sowerby (articulated casts of the chambers) showed small oysters attached to the body-chamber, which was a matrix cast. It was not possible visually to be sure whether the oysters were attached to shell (surviving where they covered it) or direct to the cast. Dr M. K. Howarth thought the shell of the body-chamber on an ammonite of that size would be thick enough to show, and it does seem likely that the oysters were attached to the cast, which must thus have been re-exposed on the sea floor after burial and some diagenesis, after a geologically short interval. It shows considerable perception on the part of J. de C. Sowerby to have evaluated these possibilities.

This realization of the varying conditions under which organisms could be buried together for fossilization is again well shown in J. de C. Sowerby's discussion of the mollusca from the 'White Sand connected with the Lower Freshwater [or rather, perhaps, the so-called Upper Marine] Formation in the Hordwell Cliff' in Hampshire (VI, 61, 62). 'We have therefore either a mixture of Marine and Freshwater shells in a bed hitherto thought by us to contain only Freshwater ones, or we are mistaken in drawing conclusions from analogy without sufficient examination.' (Then follows an analysis of the fauna as then known and named, with comparisons with living analogues and their environments.) He continued: 'All these shells still leave us, therefore, in doubt. But what does the *Serpula* prove? No *Serpula* is known to live in fresh water, and the one we have along with these *Mussels* is too tender to

have been removed far ; so if the other shells belong to fresh water, they must have been brought down by a river into the sea ; but they are extremely well preserved, and many as tender as the *Serpula*, which makes us rather incline to the option that they are all Marine, at least those which occur in the same stratum.'

'That river shells should be washed down to the coast and mix with marine ones is probable : even large masses or islands, consisting of decayed vegetable matter with the shelly remains of animals that lived in lakes, may by floods be carried into rivers, and by them down to the sea, and be deposited upon the ordinary sediment in the bed of the ocean. The analogy of the various shells in the formation we allude to, rather favours this hypothesis. We leave it to geologists to compare a number of facts, respecting situation and many other circumstances, to determine the question.'

The bed under discussion later came to be known as the 'Crocodile Bed' in the Lower Headon Beds (Upper Eocene) of Hordle Cliff (the modern spelling). It became famous for its vertebrate remains, excavated for the Marchioness of Hastings (Hastings 1852, Edwards 1970). An account of the stratigraphic succession as now visible is that of Edwards (1971), who also provided a very brief account of the depositional environment (Edwards, in Cray 1973). Dr Edwards interprets the fauna of terrestrial mammals, freshwater reptiles and fishes, and some estuarine molluscs as indicating deposition, at the mouth of a river, in an environment locally brackish (low saline) : a full account is pending. Daley (1972) has analysed the invertebrate assemblages and their palaeoenvironmental significance in the Bembridge Marls of the same area. Of particular interest is his account of mixtures of *Viviparus* (freshwater) and serpulids (low-salinity). These he ascribes to introduction of serpulid larvae and subsequent rapid breeding, following saline invasion of certain coastal freshwater environments. On a return to freshwater conditions the serpulids were buried as whole 'knots' or growths, or, if scouring occurred, mixed with freshwater shells. Sowerby's comments are seen thus to be in accord with modern researches, and well ahead of his time. He subsequently described the Hordwell serpulid (VI, 202).

A further example of his speculation on palaeoenvironments occurred in discussing the bivalve *Panopaea* (now *Panomya*) from the British Pleistocene. He ascribed observed dwarfing of shell-size and shell-thickening to environmental conditions ; shallow water or freshwater dilution, rather than climatic change (VII, 2).

He also (VII, 74, 77) discussed the anatomy of Recent Razor-shells before describing fossil species. These are specialized, elongate, burrowing bivalves all of very similar habitats, with hinges greatly reduced in complexity ; in *Solen* the hinge-detail is more simple than in *Ensis*, and Sowerby suggested that this was in some way due to the life-habits of the two differing. Dr N. Holme, of the Marine Biological Association, Plymouth (personal communication), suggests that there is nothing in the depth-range of *Solen* which could correlate with the difference in structure, and that this character is related to phylogeny. However, it is possible that an investigation of the burrowing habits and of the grain-size of preferred sediment, for these two genera, might yield some evidence on differences between them, to which hinge-structure might be an adaption. *Solen* also has a much wider present-day geographical distribution than has *Ensis*.

Like many palaeontologists, and especially considering the period in which they worked, the Sowerbys were dependent upon published zoological accounts of the fleshy anatomy of some of the organisms on which they worked. Thus James Sowerby mentioned Cuvier's account of the anatomy of *Lingula*, a genus familiar to palaeontologists for its common occurrence and persistence through much of Phanerozoic time, but now a tropical and sub-tropical brachiopod and thus in his day a rarity in European collections. Sowerby wrote laconically (I, 56): 'He found that it has two hearts.' Cuvier (1802) was in error over this anatomical identification, though in his defence it must be said that the current authoritative account describes the 'heart' in *Lingula* as normally a very simple and inconspicuous thickening - 'contractile appendage' - of the central mid-dorsal channel of the so-called circulatory system, and that *Crania* is said to have several of these (Williams & Rowell 1965). But James Sowerby consulted the standard anatomical account of his day, and quoted Cuvier correctly, even if (we may surmise) with some doubt.

4. STRATIGRAPHY AND PALAEOGEOGRAPHY

British stratigraphy underwent much of its early development during the period covered by the publication-years of the *Mineral Conchology*. James Sowerby was the engraver for William Smith's classic *Strata identified by organized fossils*, etc. (Smith 1816-19), sold from (amongst other addresses) Sowerby's publishing home, and perhaps because of this direct references to stratigraphy are few.

James Sowerby (II, 212), dealing with Jurassic gastropods from equivalent strata (Bajocian), in the Jurassic of southern England and northern France, wrote: 'It appears very remarkable to me, that strata agreeing in their composition so closely should produce several shells resembling each other, but, as far as I have hitherto learnt, none are precisely the same. I wish to instigate further research. It is a circumstance corresponding with provincial differences among mankind; whether such differences among shells should be considered as specific, may remain a question.' The gastropods considered, '*Trochus* spp.', are pleurotomariids, abundant at this horizon and a very variable group both in space and time. Irrespective of later developments in both exact stratal correlation, and in the taxonomy of the shells, the comments of Sowerby show an early appreciation of the difficulties of the taxonomic handling of regional differences in closely related taxa.

In dealing with the London Clay, he wrote (IV, 77) of its conspicuous nautili: 'It is remarkable that the prevailing species of *Nautilus*, found at the depth of about 60 feet, in the Regent's Canal, near the White Conduit House at Islington, in 1815, and also in Hyde Park, should prove different from that found at Ilighgate, and upon the Isle of Sheehey, yet numerous specimens prove that fact.' This is a very early attempt (1822) at indicating faunal divisions within the London Clay, a comparison of lower with higher levels within the formation, well in advance of Wetherell's classic paper (1836), a system later worked out in great detail by Wrigley (1924, 1940) and currently under review by the Tertiary Research Group.

Finally, written in the year of his death, there is James Sowerby's prophetic passage, including later-established views on the variable stratigraphic value of

fossils, but rising above this to an early appreciation of one of the great problems in earth science: 'May not the several formations that lie in strata, or coats, over the nucleus of the earth, have successive zones replete with the fossil remains of the animals etc. peculiar to them, besides such as are universally distributed through them, which zones might be discovered by a diligent comparison of the fossils of different countries, and indicate the probable position of the poles previously to the destruction of life in those strata, for the order and perfection of many of the remains seem to indicate that they are not far removed from their original sites' (IV, 63). The occurrence of well-preserved remains of tropical and subtropical life in what are now temperate or cool latitudes (cf. Arkell 1935) has exercised many minds, and the reverse may be found in the tropics. Changes in distribution of land and sea, continental drift and its crustal mechanisms, changes in solar radiation or in the tilt of the earth and, currently, changes in global diameter *pari passu* with crustal drift have all been invoked without, so far, decisive conviction. It is to the lasting credit of the artist, engraver and natural history illustrator James Sowerby that he saw above the careful perfection of his illustrating, for which he is now celebrated, to the tantalizing and curious mysteries of the earth's history.

5. CONCLUSION

It will, I hope, be realized from what is written above that the Sowerbys, father and son, in their careful descriptions and illustrations of British fossils, saw well beyond this routine work into the realms of thought now elevated into separate studies. Yet the mere handling of material objects itself gives the intelligent worker unexpected vision. I quote from James Sowerby (II, 53) writing of a worn and imperfect specimen of a fossil nautiloid (ever one of his favourites): 'How admirable is it that Nature allows us so much distinction in specimens that have undergone such vicissitudes, while we are often puzzled with very perfect recent ones! It is truly useful . . . and thus will the recent species become more easy to our exercised faculties.' His son, James de Carle Sowerby, was later to illustrate the famous fossil fruits of the London Clay for Bowerbank (1840). Reid & Chandler (1933), in one of the most fascinating pieces of research ever produced, revised this flora in the light of nearly a century of knowledge of both recent and fossil tropical botany. They wrote (p. 29): ' . . . in fossilized fruits and seeds the fusion of successive coats, which in life may appear complete, tends to be dissolved by the processes of maceration and decay, the separation being yet further emphasized by the intercalation of layers or films of matrix. Consequently the structure as well as the succession of coats can often be more readily observed and more completely studied in the fossil than in the living'; and on p. 30 (referring again to this phenomenon): 'This was particularly well exemplified in specimens of *Tricarpellites communis* when compared with *Canarium*. One of the most remarkable of the coats of *T. communis* is that described by Bowerbank as a "beautifully reticulated layer". The term exactly describes it; and in the fossil it is most conspicuous. It forms the middle coat of the endocarp. Although we had traced in the living all the other coats seen in the fossil, we could find no sign of this, which in the fossil separates

freely from the others. It was only after many weeks of maceration in nitric acid that we were able at last adequately to expose the coat.'

I need give no further illustration of the Sowerbys' excellence in their chosen field, over and above the descriptive work for which they are famous.

ACKNOWLEDGEMENTS

My thanks are due to my colleagues at the British Museum (Natural History), Department of Palaeontology, for queries promptly dealt with: Dr C. G. Adams, Mr R. J. Cleevly, Dr N. J. Morris, Dr M. K. Howarth and Mr S. Ware. Likewise to Dr N. Edwards (Worthing) and Dr N. Holme (Plymouth) for their help. Mr Cleevly also kindly read the paper and commented helpfully.

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Top: Plate 537 of the *Mineral Conchology*, showing various fossil brachiopods, natural size. The two middle figures of the four comprising figure 3 (top centre) show an immature example of '*Terebratula truncata* J. de C. Sowerby' and an enlarged line drawing of its internal structure.

Bottom: Enlargement of the two middle figures of the composite figure 3, above, to show Sowerby's careful depiction of the slightly broken immature brachial structures within the hollow shell-cavity.



