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CAPTAIN COOK AND THE RUSSIANS

by Yakov M. Svet and Svetlana G. Fedorova

In 1778, Cook's two ships Resolution and Discovery entered the waters of the North Pacific. From that time on, Russia became the most important subject matter of Cook's third voyage, and this expedition, in turn, left an ineradicable imprint on the Pacific Ocean history of Russia. James Cook had made his first, indirect contact with Russians, however, long before his vessels approached the island of Unalaska. While making preparations for his third voyage in London, Cook had familiarized himself with Russian sources which described the discoveries of Russian navigators on the border line between Asia and America. Not a single member of Cook's third voyage knew Russian, so all Cook had at his disposal were translations of Russian geographical works and English editions of Russian geographical maps as follows:

First, An "Exact Chart of the Countries through which Cap. Bering travelled from Tobolski capital of Siberia to the Country of Kamchatka," composed in 1729 by warrant officer P. A. Chaplin, a member of the first Kamchatka expedition which formed part of a publication compiled by John Harris, dealing with different voyages and travels.[1] As the Soviet historian Alexei Yefimov has noted, this chart provided invaluable information about the northeastern extremities of Siberia and laid the foundation for all future cartographical works, begining with Ivan Kirilov's atlas, which exerted an enormous influence on European cartography.[2]

Secondly, "Description of the Land of Kamchatka" by Stepan Krasheninnikov (1775). This work appeared in an English translation in 1764 un-

[1]John Harris, *Navigantium at que itenerarium bibliotheca of Voyages and Travels*, 3rd ed., 2 vols. (London: T. Osborne, 1764), see volume II.

[2]A. V. Efimov, *Iz istorii velikikh russkikh geograficheskikh otkrytyi* (From the History of Great Russian Geographical Discoveries) (Moscow: Nauka, 1971), p. 216, an authentic Russian hand-drawn map, composed and signed by P. Chaplin, was published for the first time.

der the title History of Kamchatka.[3] In addition to Kamchatka, a description of the Kurile Islands and "America" (Alaska and the Aleutian Islands) was included in the first part of the book.

Thirdly, a description of sea voyages compiled by the Russian historian and cartographer Gerhard Müller, in which there was a detailed examination of the Vitus Bering-Alexei Chirikov second Kamchatka expedition (1741-1743). Müller's work appeared in 1758 in Russian and German and was translated into English in 1761. This English edition included a supplement, a map of Russian discoveries made on the northwest coasts of America, composed by Müller in 1758.[4] Of all the charts that had been published hitherto, that map provided the most accurate configuration of Siberia and those places visited by the second Kamchatka expedition.

Finally, "A Map of the Northern Archipelago discovered by the Russians in the seas of Kamchatka and Anadir" by the Russian historian and geographer Yakov Stählin, published in Russia, in the Russian language, in 1774 as a supplement to his work "Brief Report about the Newly Discovered Northern Archipelago" in *Mesyatsoslove istoricheskom i geograficheskom na* 1774 *god (Historical and Geographical Monthly* for 1774), which was also published in English the same year.[5] This map contained numerous errors and distortions--the northwestern extremity of the American mainland at 65° north latitude became a large, elongated east-north "Alaschka Is.," divided by two passages from Asia and America; the eastern group of Aleutian islands was stretched out along the meridian right up to "Alaschka Is."--an obvious absurdity, considering that their actual position between 53° to 54° north latitude had been pinpointed in 1768-69 by the expedition of Pyotr Krenitsin and Mikhail Levashov.

Therefore, Cook had at least three Russian charts, of which two--with a delineation of North America--were so contradictory that they could only be checked on the spot. And Cook scrupulously studied these sources, comparing the maps with the locality, trying to determine the geographical objectives discovered before him by Russian navigators. It can thus be said that in the waters of the Gulf of Alaska and of the Shumagin Islands, and in the north, in the passage which was named (as a

[3]Stephen Krasheninnikov, *The History of Kamchatka and the Kurilski Islands* (London: T. Jeffreys, 1764).

[4]Gerhard Müller, *Voyages from Asia to America for completing the Discoveries of North-West Coast of America. To which is prefixed a Summary of the Voyages of Russians on the Frozen Sea in search of a North-East Passage*. . . (London: T. Jeffreys, 1761).

[5]Jacob Stählin, *An Account of the New Northern Archipelago, lately discovered by the Russians in the Seas of Kamtschatka and Anadir* (London: C. Heydinger, 1774).

result of Cook's voyage) Bering Strait, Captain James Cook made geographical discoveries on the basis of guidelines already set by Russian navigators.

James Cook's third voyage (1776-80) was officially undertaken with the aim of finding a Northwest or Northeast Passage from the Pacific to the Atlantic oceans. In the secret instructions Cook received from the British Admiralty, he was directed to plant the British flag in all countries which he would discover.[6]

On 7 March 1778, Cook's ships reached the North American coast at 44°20' (present-day Oregon). For three weeks Cook sailed north along the American coast but at some considerable distance from it. Because of this, he missed the wide mouth of the Columbia River and the passage between the mainland and Vancouver Island (Juan de Fuca Strait, the supposed relict of a through passage supposed to have been discovered by that Spanish navigator). Cook assumed that Vancouver Island was part of the mainland. On 29 March, the ships entered Nootka Sound on the west coast of Vancouver Island. Cook was not aware that four years earlier the Spanish vessel of Juan Perez had been in the Sound. From Nootka Sound, Cook headed north-northwest along the outer, western side of the American coast, not suspecting that he was sailing along the huge Alexander Archipelago.

Entering the waters of the Gulf of Alaska, Cook retraced Vitus Bering's route, guided all the way by Müller's chart. Here and there Cook surveyed inlets and bays which were not marked on the chart. On 1 May he was at the spot which Chirikov reached on the American coast and on 4 May he reached the point from which Bering saw Mount St. Elias on the horizon. Sailing past Yakutat Bay which Cook named Bering's Bay, on 10 May he reached Kayak Island on which members of Bering's expedition landed in 1741. Cook attempted to establish the landing site and the position of Cape St. Elias, discovered in the area, but did not come to any firm conclusion. Dubious that the position of Kayak Island corresponded to the island on which Bering's companions landed, Cook named it Keyes Island and left a bottle with a note and two silver twopenny pieces in it.

On 12 May the vessels entered a fairly wide bay which Cook named Sandwich Sound and which was later renamed Prince William Sound by John Douglas, the editor of the first edition of Cook's diaries. The ships dropped anchor there for a week, after which, on 19 May Cook sailed to Cape St. Germogen, shown on Müller's map. To the northwest of this

[6]J. C. Beaglehole, ed., *The Journals of Captain James Cook*, 3 vols. (Cambridge: The Hakluyt Society, 1955-67), III, Part one, ccxxiii.

"cape," a large passage opened which was not marked on Müller's map. Cook entered it on 28 May and until 6 June conducted a survey of it. He erroneously concluded that this deep inlet represented the estuary of a large river. Even though the shores of this "river" were within the confines of the area of Bering's discoveries, and the southern tip of the Kenai Peninsula had been discovered by Chirikov in 1741, they were "brought under" the jurisdiction of the English crown.

Following in Bering's wake, Cook passed the islands of Shuyak, Afognak and Kodiak, believing them to be part of the mainland, and to the south of Kodiak discovered Trinity Island, which in fact was a group of islands (Sitkinak, Tugidak and smaller islets), separated from Kodiak by a narrow strait. On 17 June, one of the islands in the Yevdokeyev group (Semidi Islands on modern maps), already well-known to Russian traders, was discovered and on the following day the ships reached the Shumagin Islands.

At dawn on 28 June, the vessels of the third expedition entered Samgoonoodha Harbor on the north side of Unalaska Island and spent almost five days there having replenished their supplies of fresh water, greens and fresh fish. Ahead of them lay the northern latitudes and each day of summer counted. It was obvious that five days were not long enough to explore the island and locate the Russian settlers who by all indications were somewhere in the vicinity. As soon as contrary winds were replaced by favorable weather, the ships headed northeast.

From Unalaska, Cook sailed northeast and discovered a bay on the American coast which he named Bristol. From the northwest tip of this bay, Cape Newenham, Cook turned into the Bering Sea and on 28 July reached St. Matthew Island, discovered by Russians in 1748. On 3 August he passed St. Lawrence Island.

On 9 August, Cook reached the northwestern extremity of North America, which he named Cape Prince of Wales, despite the fact that on Müller's map this spot is marked: "Coast discovered by surveyor Gvozdev in 173(2)." [When G. F. Müller's map was published in 1758 the date was wrongly given as 1730.] From this cape Cook sailed into St. Lawrence Bay in Chukotka, and from there returned to the American coast and sailed northeast along the northern coast of North America. Failing to notice the large Kotzebue Sound, Cook proceeded to the cape which on 17 August he named Icy Cape, located at 70°19' north and 161°41' west, and there he was halted by pack ice.

Turning back, Cook approached the north coast of Chukotski Peninsula and surveyed it right up to North Cape (now Cape Schmidt), where

Cook found himself on 29 August. And here too, the pack ice prevented him from sailing farther west.

Cook turned southeast, on 2 September rounded a cape (Dezhnev), and on 5 September passed St. Lawrence Island for the second time (imagining that he was discovering a new island; an error prompted by Stählin's map). From here he once again headed for the North American continent and between 6-18 September surveyed the shores of a large bay which he named Norton Sound which, it is thought, Ivan Fedorov and Mikhail Gvozdev visited in 1732.[7]

Thus, for the first time, Cook mapped a considerable part of the westem and northern coasts of North America and thanks to Cook, all of Alaska, at last and on the whole, acquired that configuration on geographical maps which is known to our contemporaries. It can be said with assurance therefore that James Cook's third voyage opened a new and important stage in the cartographical representation of Alaska.

From Norton Sound, Cook once again headed for Unalaska and on 2 October, the ships of the English expedition dropped anchor in Samgoonoodha Harbor. This time the Russians themselves located them, sending both English captains messages and a pie made of rye flour and salmon and seasoned with pepper, representing, no doubt, "bread and salt," the traditional sign of Russian hospitality.

Both captains--Cook and Clerke--and the officers of the two vessels entertained on board ship the Russians Gerasim Gregoriev Izmailov, a student navigator from the Russian settlement on Unalaska; Yakov Ivanov Sapozhnikov, the chief of the Russian factory on the island of Umnak; and Peter Natrubin, a *peredovschik* from one of the Russian vessels. At last, Cook was meeting the Russians face-to-face. The Englishmen wanted to know, above all, how long the Russians had been settled on Unalaska and their numbers on this island and the nearby ones; how far eastward the Russians had advanced and whether they had their settlements on the North American continent; how were the relationships of the Russians with the native inhabitants of the islands and how broad was the Russian sphere of influence; how frequently was the complement of Russian traders relieved, and on what type of ships did they travel; and how accurate were the charts in everyday use by the Russians?

All these questions were not idle ones. The rapid advance of the Russians towards the North American continent which followed the com-

[7]Yakov M. Svet, *Kommentarii k knige: Tretye plavaniye kapitana Jemsa Kooka. Plavaniye u Tikhom okeane v 1776-80 gg.* (Third Voyage of Captain James Cook. Voyage in the Pacific Ocean in 1776-80) (Moscow: Mysl, 1971), p. 615, No. 283.

pletion of the second Kamchatka expedition in 1743 had spurred the colonialist activities of Spain and England. The interests of these powers were incessantly stimulated by the reports of the Spanish ambassadors in Petersburg (Almadovar in 1750-64 and Herreria in 1766-68, Lacy in 1773-75). In Madrid, on the basis of these reports in which Russian activities in the Pacific Ocean were clearly exaggerated, decisive measures were taken immediately. Between 1760-80, Spain was awakening from two centuries of lethargy. In 1769, the Spanish founded San Diego in Alta California; in 1770, Monterrey; and in 1776, San Francisco. The Spanish established missions and settlements and built forts.

In 1768, a Spanish naval base was established at San Blas on the shores of the Pacific Ocean of the present Mexican coast. Between 1774 and 1792, twelve Spanish naval expeditions were despatched north from San Blas and Acapulco to survey the present territory of the states of Washington and Alaska and the province of British Columbia. One of them reached Unalaska, but a decade after Cook (the expedition of Esteban J. Martinez and de Haro in 1788).

Russian advances eastward in the last quarter of the eighteenth century also evoked apprehensions in England. Moreover, the English broke through to the northwest shores of America not from Hudson Bay, where since 1670 the English Hudson's Bay Company had operated, but from the south. Cook sailed into Alaskan waters in 1778 from the Hawaiian Islands. The search for a passage from the Pacific Ocean to the Atlantic' along the northern shores of the American continent were closely connected with British plans for expansion in North Pacific waters.

The written reports of members of Cook's third voyage have preserved unique, and the very earliest, information about the Russian settlement on Unalaska, *the first permanent Russian settlement* in Northwest America, which arose some ten to twelve years before the permanent settlements founded in 1784-86 by G. I. Shelekhov on Kodiak, Athognak, and on the Kenai Peninsula.[8]

Only three members of the English expedition visited the Russian settlement on Unalaska: surgeon's mate David Samwell, corporal of marines John Ledyard, and master of the Discovery Thomas Edgar. Their impressions served as a foundation for James Cook's notes, first published in

[8]Svetlana G. Fedorova, "Pervoye postoyannoye poseleniye russkikh v Amerike i Jems Kook," in *Novoye v izuchenii Australii i Okeanii* ("First Permanent Settlement of Russians in America and James Cook," in the book *New Developments in the Study of Australia and Oceania)* (Moscow: Nauka, 1972), pp. 228-36.

London by Douglas in 1784.[9] John Ledyard's notes, with a description of the trip to the Russian settlement on Unalaska were published in 1783.[10] The diary entries of Samwell and Edgar, including the more important ethnographical observations, were published in 1967 thanks to the efforts of the outstanding historian and geographer of New Zealand, J. C. Beaglehole, who prepared the materials of James Cook's third voyage for printing, and for the first time in a publication of this type, included the diaries of his companions.[11] The descriptions of the dwellings of the Russians on Unalaska, their food and clothing, which provide an idea of the cross-influences of Russian and Aleut cultures, are of great scientific value.

By collating the diary entries of the English travellers, one can conclude that one large party of Russians and Kamchadals had established themselves on Unalaska (seventy-five people) and another on Umnak (ninety-seven people), and that altogether on these and neighboring islands there were close to 500 Russians and Kamchadals. The Unalaskan party arrived in 1777. The trading parties were relieved every four or five years. Communications with Okhotsk and Kamchatka were maintained by sloops with a displacement of thirty to sixty tons. Russian attempts to settle on the American mainland did not produce the desired results.

On 19 October, Izmailov gave permission to Cook to copy two Russian hand-drawn charts. One of them showed the coastline of the Sea of Okhotsk and part of Kamchatka, the other, the Russian discoveries made to the east of Kamchatka toward America. On the latter, between 58° and 58°30' north, the American coast discovered by Chirikov was delineated, and in the Gulf of Alaska the point where Bering's companions landed was marked; the Kommander Islands and the Aleutian Islands were located between 52° and 55° north. When Izmailov showed Cook the chart, he remarked that it needed significant revision: he had "removed" about one-third of the islands marked on it and had located the positions of others more precisely. Izmailov told Cook about the voyages of Russian traders to the tip of the Alaska Peninsula, to the Shumagin Island and Kodiak Island. Judging by Cook's notes, the Russians realized that Alaska was part of the mainland, but Cook could not quite ascertain whether this name applied only to the land lying to the east of Unimak Island (the Alaska Peninsula), or to the whole of the northwest coast of the American

[9]James Cook, *A Voyage to the Pacific Ocean . . . 1776-80,* 3 vols. (London: G. Nicol and T. Cadell, 1784).

[10]John Ledyard, *A Journal of Captain Cook's Last Voyage to the Pacific Ocean* (Hartford: N. Patten, 1783).

[11]See Beaglehole, III, 1139-44 (Samwell), and 1351-54 (Edgar).

continent. Yakov Stählin's map, whose falsity, indeed, Cook did not doubt after the discoveries made by him on the northwest coast of North America, was now conclusively discredited.

As noted, Cook made a thorough study of Müller's map, comparing it with the locality. He strove to immortalize the memory of Vitus Bering on the map. With his inherent modesty, Cook did not bestow his own name on a single geographical objective (the so-called "Cook's River" shown on the English map instead of the inlet which Russians subsequently called Kenai, appeared much later, in London, in the course of editing the data collected by the third expedition).

New Soviet studies, based on the scrutiny of such important historical sources as log-books kept in Leningrad archives (and, in particular, the logs of the packet-boats *St. Peter* and *St. Paul* for 1741), show that Russian seamen discovered, calculated the positions of, and named innumerable geographical objectives in the waters of the Pacific Ocean.[12] A map showing the voyage of the *St. Paul*, executed with highly professional skill by navigation officer I. F. Yelagin under the supervision of Chirikov, is an authentic reflection of the discoveries made by the second Kamchatka expedition. Together with the ship's log, it was despatched by Chirikov from Kamchatka to Petersburg on 7 December 1741.[13] For a long time, however, this map remained unknown and was not published until 1893, and two of its variants only in 1964.[14]

Cook was forced to bestow his own names on unnamed (on the Russian maps in his possession) geographical objectives, as well as on places actually discovered by him. It does not seem quite fair to say that Cook renamed "places, lands and islands . . . previously discovered by Russians,

[12]A. A. Sopotsko, "Zabytyye sokrovischa znanyi--Kto pervym otkryl eti zemli. Dar etnografam, Orientir dlya zoologov i botanikov," (Forgotten Treasures of Knowledge--Who was the First to Discover these Lands. A Gift for Ethnographers, an Orienter for Zoologists and Botanists), in the book, *Transportnyye vozmozhnosti Tikhogo Okeana i ikh realizatsiya* (Transport Possibilities of the Pacific Ocean and their Realization) (Vladivostok: Far Eastern Scientific Center of the USSR Academy of Sciences, 1976), pp. 84-136.

[13]V. I. Grekov, *Ocherki iz istorii russkikh geograficheskikh issledovanyi v 1725-65* (Essays from the History of Russian Geographical Explorations in 1725-65) (Moscow: Nauka, 1960), map on p. 166.

[14]V. Andreyev, "Dokkumenty po ekspeditsii kapitan-komandora Beringa v Ameriku v 1741" (Documents on the Expedition of Captain-Commander Bering to America in 1741), *Morskoy Sbornik*, 255 (1893), 5; also *Atlas geograficheskikh otkrytyi v Sibiri i v Severo-Zapadnoy Amerike v XVII-XVIII vv* (Atlas of Geographical Discoveries in Siberia and North-Western America, XVII-XVIII Centuries), compiled by A. V. Yefimov, M. I. Belov, and O. M. Medushevskaya. Edited with introduction by A. V. Yefimov (Moscow: Nauka, 1964), maps Nos. 97 and 98.

claiming them as his own discoveries," as was stated in the instructions given by the Admiralty Board to Rear-Admiral von Dezin, the compiler of a map being prepared for the first Russian circumnavigation of the globe, the expedition of Grigori Mulovsky planned for 1787 which never took place.[15] It is hard to refrain, however, from reproaching Cook over a matter which does seem rather to the point: in keeping with the inscription on G. F. Müller's map of 1758, "Coast discovered by surveyor Gvozdev in 173(2)," the northwestern tip of the North American continent should have been named in honor of the Russian geodesist, Mikhail Spiridonov Gvozdev, and not Cape Prince of Wales. For the sake of justice, it is worthwhile to mention yet another name forgotten on the maps--that of master-mate Ivan Fedorov, who together with Gvozdev discovered America on the side facing Russia in 1732. [The name was forgotten because I. Fedorov died in 1733, and the data collected by the expedition, subsequently edited by M. Spanberg, were received from the geodesist M. Gvozdev.]

According to the instructions received by Cook from the British admiralty, in case of failure to find a Northwest Passage, he was to proceed to the harbor of Petropavlovsk on Kamchatka to winter over, so as to resume the search the following year. However, on Unalaska Cook learned from Sapozhnikov how scarce provisions were on Kamchatka and how expensive. Cook decided to sail to the Hawaiian Islands where he met his death 14 February 1779 in a skirmish with the local inhabitants.

Cook's mortally ill successor, Captain Clerke, led the expedition in another search for a Northwest Passage in June-July 1779. But before the English sailed north (from 29 April to 12 June) and once again on their return from the fruitless search (from 23 August to 8 October), the expedition put in at Petropavlovsk on Kamchatka.

Both those encounters exerted a considerable influence on the course of future developments at the frontiers of Asia and America and left a deep imprint on the history of Anglo-Russian cultural ties.

In April-June 1779, the third expedition was welcomed openheartedly and hospitably by the governor of Kamchatka, Lieutenant-Colonel Mag-

[15]V. A. Divin, *Russkiye moreplavaniya na Tikhom okeana v XVIII veke* (Russian Navigations in the Pacific Ocean in the XVIII Century) (Moscow: Mysl, 1971), p. 254; S. G. Fedorova, "Tretye plavaniye Jemsa Kooka v russkoy i sovetskoy literature" (Third Voyage of James Cook in Russian and Soviet Literature), *Materials of the First Symposium of Soviet Historians--Americanobgists,* 30 November-3 December 1971, 2 vols. (Moscow: Institute of General History of the USSR Academy of Sciences, 1973), II, 166-72, translated in *Soviet Studies in History,* 14, No. 1 (Summer, 1975).

nus Behm. He supplied the Englishmen with provisions and marine stores (cordage, canvas, pitch, spars, wood, etc.) worth 2,256 rubles and ninety-seven kopecks but charged nothing for them.[16] In turn, Captain Clerke presented Behm with an invaluable collection of cultural objects and household implements of the peoples of Oceania and Northwest America. Moreover, Behm received a map of the discoveries made by the English expedition between 1776 and 1779.

The ethnographic collection was delivered to St. Petersburg, and it entered the Kunstkamera in 1780. In the course of time the collection was divided and thinned out, but the main part is still in the USSR Academy of Science's Museum of Anthropology and Ethnography in Leningrad. (See Appendix A.)

Kamchatka, however, left unhappy as well as happy memories in the hearts of the Englishmen. On the eve of the expedition's second visit to Petropavlovsk (22 August 1779), Cook's successor, the thirty-eight-year-old Captain Charles Clerke, died. Before his death, Clerke had expressed the wish to be buried in the church at Paratunka. However, it was not the Russian custom to bury the dead in churches. Therefore, Gore chose a spot on the high northern shore of the Petropavlovsk harbor near a new church that was being built and not far from the hospital and warehouses. The priest of the Paratunka church, Roman Vereschagin, took part in the funeral procession and the whole garrison attended the solemn ceremony. To the sound of a gun and artillery salute, the body of Charles Clerke was committed to the earth of Kamchatka. A birchwood paling was put up around the grave. Two oaken boards were prepared and the name and dates of the deceased were printed on one side and on the other. Clerke's family crest was drawn. One board was hammered to the tree growing at the head of Clerke's grave, the other was taken to the Avachinskaya Church of the Birth of Most Holy Mother of God in Paratunka. In 1787, Lapérouse noticed that the board nailed to the tree had rotted and he nailed a bronze plate in place of a cross at the head of the grave. In 1805, I. F. Kruzenstern visited the grave and erected a wooden pyramid. In 1827, Captain Frederick Beechy learned that the monument put up by Kruzenstern had been "removed to the governor's gardens for safe-keeping". In 1913, representatives of the British Admiralty erected a granite monument to Clerke, which in the process of Petropavlovsk's ex-

[16]Yakov M. Svet, "Novyye dannyye o prebyvanii na Kamchatke Tretei ekspeditsii Jemsa Kooka, 1779" (New Information about James Cook's Third Expedition's Stay on Kamchatka, 1779), in the book *Novoye v izuchenii Avstralii i Okeanii* [footnote 8 above], pp. 219-27.

pansion, is now located in the heart of the city. The land of Kamchatka preserves the memory of Cook's third voyage.

The map showing the discoveries of the third expedition, which was presented by the English to Behm on his departure from Kamchatka to Petersburg, had its own story. In Irkutsk, in 1779, governor Franz Klichka took the map away from Behm. On the basis of this map, Major Mikhail Tatarinov of the Irkutsk navigation school composed three maps.

The first of these, "Map of whole Arctic Ocean near North Pole with shewing of explorations in the Arctic Ocean as well as in the Pacific sea of gentlemen naval officers Russian, English and Hispanic," was composed by Tatarinov in 1779. At its foundation lay the somewhat altered (the North American continent stretched to the North Pole and merged with Greenland) circumpolar map drawn up by Mikhail Lomonosov in 1763. But the configuration of the Northwest coast of the North American continent acquired names and approximate outlines borrowed from the English map.[17]

The second, "Mercator's projection map of part of the Arctic and Pacific oceans with depiction of the coasts of Kamchatka and part of the coasts of North America on the basis of past descriptions and new of the English gentleman captain-commander Cook in 1778 and 1779." Below in cartouche, there is another inscription: "By command of his excellency, gospodin major-general, cavalier of several orders, governor of Irkutsk Franz Nikolayevich Klichka, composed at the Irkutsk navigation school by Major Mikhail Tatarinov in 1780." The routes of both ships of the second Kamchatka expedition and of the Krenitsyn and Levashov expedition are traced on the map. In the form of an insert, a plan of the Petropavlovsk harbor is given, executed by Charles Clerke in 1779. Another insert shows the harbor plan at Unalaska, made by navigator Yakov Schebanov when Mikhail Levashov's vessel wintered on the island in 1769. The map was never published.[18]

Thirdly, "Map belonging to the journey of Cossack lieutenant Ivan

[17]Svetlana G. Fedorova, "Issledovatel Chukotki i Aliaski kazachii sotnik Ivan Kobelev" (Explorer of Chukotka and Alaska, Cossack Sotnik Ivan Kobelev), *Letopis Severa,* 5 (1971), 156-72.

[18]Central State Archives of the USSR Naval Fleet (Leningrad), stock 1331, description 4, case 108. Hand-drawn copy of the eighteenth century.

[19]A variant of his map was published in 1971. See Svetlana G. Fedorova, *Russkoe naselenie Aliaski i Kalifornii. Konets XVIII veka-1867g.* (Moscow: Nauka, 1971), drawing 1. Translated and edited by Richard A. Pierce and Alton S. Donnelly, *The Russian Population in Alaska and California Late XVIIIth Century-1867* (Kingston, Ontario: Limestone Press, 1973).

Kobelev, 1784"[19] was first published by P. S. Pallas in "Historical and Geographical Monthly for 1784." The story of how this map came to be drawn up, as well as its fate, is closely interwoven with the history of James Cook's third expedition. The Cossack lieutenant Ivan Kobelev was dispatched in March 1779, from Gizhiga Fortress to Chukotka, in the vicinity of Bering Strait, in the official version "for the collection of tribute from the Chukotsk people for the treasury and of their census."

Only after the publication in 1967 of a new British edition of James Cook's third voyage, have the true aims of Ivan Kobelev's expedition to Chukotka emerged more clearly. In this edition for the first time two letters are published dated November 1779, from the English ambassador in St. Petersburg, James Harris, to the secretary of state, Lord Weymouth. Harris conveyed the text of a report from the governor of Kamchatka, Lieutenant-Colonel Magnus Behm, which he had been given by G. Potemkin. The report was based on information received from Gizhiga commandant, Timofey Ivanov Shvalev, who reported what Koryak and Chukot elders had said about the appearance in the summer of 1778 of two foreign vessels in Chukotsk waters.[20]

Before April 1779 (before the ships of Cook's expedition visited Petropavlovsk on Kamchatka), the Russian authorities did not have definite information as to the nationality of the ships involved. At the same time, both in Kamchatka and in St. Petersburg, there were fears that Maurice Benyovsky, a Polish confederate exiled to Kamchatka who escaped from there by sea and got to France, would turn up in Russian waters. In Russia they were worried that he might be able to arm a few ships at the expense of the French government and mount an attack on the defenseless shores of Kamchatka. So it was quite natural that Shvalev, having received information at the end of 1778 about the appearance in Chukotsk waters of unknown ships, decided to immediately send the Cossack lieutenant Ivan Kobelev to Chukotka.

As a result of this journey, a "description of all those places he [Kobelevl bad been and a map which he drew without knowledge of the compass" were sent to Irkutsk. On the basis of those materials and the map received from the English, Tatarinov composed the aforementioned map of Cossack lieutenant Kobelev in 1779.

[20]Yakov M. Svet, "Dokumenty otnosyaschiyesya k Tretei ekspeditsii Jemsa Kook," in the book *Tretye plavaniye kapitana Jemsa Kooka. . . ,* pp. 571-79. See the translation, *Cook and the Russians.* An Addendum to the Hakluyt Society's edition of *The Voyage of the Resolution and Discovey, 1776-80,* edited by J. C. Beaglehole (London: The Hakluyt Society, 1973).

Kobelev landed on the Diomede Islands in Bering Strait and from what he heard from American Eskimos he encountered, collected information about mainland America lying just across the water. The American ethnohistorian Dorothy Jean Ray believes that Kobelev's map is unique because before him nobody had shown on a map any part of the Alaskan hinterland, its rivers and also many inlets and islands "discovered' much later by navigators. Moreover, the map is unique because it shows the locations of sixty-one Eskimo settlements on the American shore, settlements which were not investigated until the twentieth century.[21]

It must also be noted that the Kobelev-Tatarinov map of 1779 revived the old legend about an early Russian settlement on some river called "Cheuveren." In 1791, Kobelev, together with a Chukchi named Nikolai Daurkin (both were members of the expedition of Joseph Billings and Gavriil Sarychev), made an attempt on kayaks made of skins to go up a river flowing from the inner regions of the American continent into the Bering Strait in order to locate this Russian settlement. The Cheuveren River made its way onto the Billings-Sarychev map and was preserved on many maps right up until the first two decades of the nineteenth century.[22]

Thus, the map of Cook's third voyage and Kobelev's map, united by Tatarinov, gave an impetus to new ideas, explorations and Russian discoveries. The map of the third voyage had a decisive influence on all subsequent Russian cartography of the northern basin of the Pacific Ocean.

James Cook's third voyage was also a floating academy which produced ten captains and two admirals. One of the "graduates" of this academy, Joseph Billings, in 1785 was appointed chief of a large Russian geographical and astronomical expedition to the Arctic and North Pacific oceans. He has a firm place in the history of explorations of Russian possessions in America, in particular--Chukotka.

In 1955-67, the New Zealand geographer and historian J. C. Beaglehole performed a truly scientific feat by consecutively publishing the ma-

[21]D. J. Ray, *The Eskimos of Bering Strait, 1650-1898* (London: University of London Press, 1975), p. 45.

[22]M. B. Chernenko, "Puteshestviye po Chukotskoy zemle i plavaniye na Alyasku kazachyego sotnika Ivana Kobeleva v 1779 i 1789-91 gg" (Travels in the Land of Chukotka and Voyage to Alaska of Cossack Lieutenant Ivan Kobelev in 1779 and 1789-91), *Letopis Severa,* II (1957), 121-41; S. G. Fedorova, "K voprosu o rannikh russikikh poseleniiakh na Alaske" (Concerning the Question of Early Russian Settlements in Alaska), *Letopis Severa,* 4 (1964), 97-113.

terials of all three voyages of James Cook on the basis of hitherto unknown original sources.

Within the last two decades, new meetings with Cook have taken place--meetings of Soviet readers with the Captain! In 1960, 1964, and 1971, the publishing house Mysl issued the journals of the first, second, and third voyages of Cook. The publications of J. C. Beaglehole served as the foundation for this work.[23]

This year, 1978, marks the bicentennial anniversary of Captain James Cook's voyage in the waters of northwest America and Chukotka. In summing up his discoveries in this part of the world, we especially note the close connection between the activities of Russian seafarers and the discoveries of the remarkable English navigator.

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[23]His third volume portfolio, containing eighty-eight reproductions of original charts and views drawn of the three voyages. Yakov M. Svet, "The Journals of Captain James Cook on his Voyages of Discovery. The Voyage of the *Resolution* and *Discovery*, 1776-80," *Sovietskaya etnografiya*, 5 (1968), 163-65.

APPENDIX A

Inventory of Artifacts collected by Captain James Cook on his third voyage of Discovery, delivered by Lieutenant-Colonel Behm from Kamchatka, 1780.

In the Leningrad archives, Department of the USSR Academy of Sciences, we found a manuscript "Inventory of Objects Delivered by Lieutenant Colonel Behm from Kamchatka, 1780," Stock 3 (Chancellery and Commission Academy of Sciences, Eighteenth Century), Inventory 8, Case 27 (On Receipt of Kunstkamera of materials, 1776-1803), sheets 43-44. This is the earliest historical source containing primary information about the Cook collection as a whole. We have not seen, however, any references to this manuscript Inventory in the scholarly works describing the ethnographic collection received from James Cook's third expedition.[1] Moreover, the *Inventory* contains a list of [some] objects which have never been in the Kunstkamera collection. The Inventory contains forty-eight ordinal numbers. Under Number 1 are enumerated prints depicting the inhabitants of various islands of Oceania: Tahiti, New Caledonia, Tierra del Fuego, New Zealand, as well as views of coastlines of the Marquesas, Tierra de1 Fuego, and the island of Tongatapu (Tonga). The prints were undoubtedly executed from the drawings made by the artist William Hodges who was a member of James Cook's second voyage. Numbers 2-48 give brief descriptions of various objects and details of clothing of the inhabitants of the island of Tongatapu [Of course, not all are Tongan] and that of Unimak (Aleutian Islands) and Kamchatka (one must assume

[1]For example, see the studies done by L. G. Rozina, "Kollektsiya Jemsa Kooka," *Sobranii Muzeya antropologii i etnografii,* 23 (1966), 234-53. [An English translation of this article appears in Adrienne Kaeppler, *Cook Voyage Artifacts in Leningrad, Berne, and Florence Museums* (Honolulu: Bishop Museum Press, 1978), 3-17. See the "Editor's Forum" on p. 94 for a discussion of the value of this document.] See also "Kultura i byt narodov stran Tikhogo i Indyiskogo okeanov," (Culture and Life of the Peoples of the Lands of the Pacific and Indian Oceans), *Nauka* (1966), 234-53; L. G. Rozina, "Kollektsiya Tretei ekspeditsii J. Kooka, khranyaschayasya v Muzeye antropologii o etnografii im. Petra Pervogo" (Collection of J. Cook's Third Expedition Kept in the Museum of Anthropology and Ethnology named after Peter the First), in the book *Tretye plavaniye Jemsa Kooka. Plavaniye v Tikhom okeane,* (Third Voyage of James Cook. Voyage in the Pacific Ocean), 578-94; S. A. Ratner-Sternberg, "Muzeinyye materialy po tlingitskomu shamanstvu" (Museum Materials on Tlingit Shamanism), *MAE Coll.* 6 (1927), 79-114, and 8 (1929), 270-301. R. G. Lyapunova, Yukov V. Ionova, Yukov V. Maretin, and L. G. Rozina, *The Ethnographic Collections on the Pacific Peoples in the Museum of Anthropology and Ethnography* (Moscow: Nauka Publishing House, 1966).

that the Kamchatka objects were the gift of Magnus Behm himself). It must be noted that the Inventory not only gives the place of origin of the objects, but groups clothing details according to social position. For example, Numbers 12-17, 47, and 48: "Attire of chief of Friendly Island, there called king;"Numbers 18-26: "Attire of warrior from same island." One expects that the *Inventory* will give researchers the opportunity to attribute more accurately individual objects of this unique ethnographical collection. The following is a transcription and translation of the manuscript:

INVENTORY OF OBJECTS DELIVERED BY
LIEUTENANT-COLONEL BEHM FROM KAMCHATKA, 1780

No.	Name of Object	Origin
1	Fifteen prints depicting inhabitants of various islands, as:	
	1 Ottagetsk [Tahitian] lady.	South sea
	2 Ottagetsk [Tahitian] king.	17.5° to south
	3 Ottagetsk [Tahitian] inhabitants.	
	4 Inhabitant of Amsterdam in the Friendly Islands.	21° south latitude
	5 Caledonian inhabitant.	23° south latitude
	6 Inhabitants of Maquisade [Marquesas].	13° south latitude
	7 Lady from same island.	13° south latitude
	8 Inhabitants of New Zealand.	40° south latitude
	9 Inhabitant of Fuego Land.	50° south latitude
	10 Picture showing view of Marquisade [island].	
	11 Picture showing view of Fuego Land.	
	12 Picture showing view of Friendly Island.	
	13 Maiden of Vostochnaya Eilandia [Easter Island?] The description is written in German.	22° south latitude
	[What 14 and 15 signify is written in pencil in English.]	

No.	Name of Object	Origin
2	Kamchadal festive and best dress, which is worn by both men and women.	Kamchatka
3	Skin of Kamchatka sea animal, seal, skinned in such a way that it can be inflated.	Kamchatka
4	Fishing net of bast [tapa] used by inhabitants of Friendly Island which is located	below 22° from north to south and does not belong to any power.
5	A wooden head-rest on 4 legs, resembling a bench.	Friendly Islands
6	Stone axe with wooden handle.	Friendly Islands
7	Large fan of long black feathers resembling a broom.	Friendly Islands
8	Large, round, motley fan of small red and yellow feathers.	Friendly Islands
9	Flat feather fan.	Friendly Islands
10	Stick for them with round wooden knob.	Friendly Islands
11	Wooden dagger, decorated on top with tail of an animal. Attire of chief of Friendly Island, called their king.	Friendly Islands
12	Morion of small black feathers, decorated with yellow.	Friendly Islands
13	Feather collar.	Friendly Islands
14	Feather Mentle [mantle or cape].	Friendly Islands
15	Wooden mace with carving.	Friendly Islands
16	Feather front-piece edged with white fur-like fringe.	Friendly Islands
17	Wooden dagger. Attire of warrior from same island.	Friendly Islands

No.	Name of Object	Origin
18	Morion of small yellow and red feathers.	Friendly Islands
19	Mantle of small yellow and red feathers.	Friendly Islands
20	Collar of same feathers.	Friendly Islands
21	Belt woven of roots.	Friendly Islands
22	Front-piece of blue feathers, edged with white fur-like fringe.	Friendly Islands
23	Mushelnyi [mussel] armlet.	Friendly Islands
24	Armlet of small red feathers with traced figures in yellow.	Friendly Islands
25	Armlet of animal fangs.	Friendly Islands
26	Wooden dagger with blade set with sharp teeth.	Friendly Islands
27	Fourteen pieces of fabric resembling printed sackcloth of bast [tapa].	Friendly Islands
28	Wooden roller used to make these fabrics.	Friendly Islands
29	Mat of woven leaves.	Friendly Islands
30	Double-weave for cape of dark red and yellow bast [tapa].	Friendly Islands
31	Three zephyrs [fans] of red and yellow feathers.	Friendly Islands
32	Coral string [beads].	Friendly Islands
33	Women's mother-of-pearl front piece.	Friendly Islands
34	Two reed and third wooden combs.	Friendly Islands
35	Five rods [hooks] of which one is large, of wood, four of bone, smaller.	Friendly Islands
36	Black wooden spade.	Friendly Islands
37	Instrument similar to comb, used by inhabitants of Friendly Island to carve [tattoo] various patterns on their face as to terrify.	Friendly Islands

No.	Name of Object	Origin
38	Kisa [purse].	Friendly Islands
39	Several strings of different beads,	Friendly Islands
40	Small round black stone on which paints are powdered.	Friendly Islands
41	Two musical instruments made of reed pipes.	Friendly Islands
42	Woman's woven grass epanechka [sleeveless shift with straps]	Friendly Islands
43	Rope woven of sinews.	Island of Unimak,
44	Aleut shirt made of bladders.	which lies across
45	Two knives made by Mr. Behm from Kamchatka iron by way of test.	from American cape Alyaska.
	In small box:	
46	Model of Aleut Kayak.	Unimak Island.
	In long case:	
47	Royal spear.	Friendly Islands
48	Royal hunting arrow.	Friendly Islands

Leningrad Department of USSR Academy of Sciences Archives, Stock 3 (Chancellery and Commission of Academy of Sciences, Eighteenth Century), Inventory 8, Case 27 (On receipt by Kunstkamera of materials, 1776-1803), sheets 43-44.

SIR JOSEPH BANKS AND THE BOTANY OF CAPTAIN COOK'S THREE VOYAGES OF EXPLORATION

by Phyllis I. Edwards

Joseph Banks (1743-1820) whose early youth was spent at Reevesby Abbey, near Boston, in Lincolnshire, was a member of a family who, for generations, had been deeply involved in public affairs and concerned with agricultural improvements. Banks' school days at Harrow and later Eton were undistinguished. From Sir Everard Home (1822) we learn how the young Joseph became suddenly aware of the beauty of a country lane in full flower and of his subsequent determination to learn botany. The women herb gatherers around Harrow gave him his first instruction, receiving sixpence for every piece of information. His mother's copy of John Gerard's famous *Herbal* (1598) with its woodcuts of the plants he was gradually beginning to recognize became his constant joy and companion. Another family friend, Lord Brougham (1845), states that his subsequent school holidays were spent collecting plants, insects, and other zoological specimens, the commencement of what was later to become a famous herbarium and natural history collection.

In 1760, Joseph Banks went up to Oxford and it was while there that his father died in September 1761. The inheritance of the family estates would appear to have enabled him to afford the botanical instruction he so desired and which was not being provided by Professor Humphrey Sibthorp at Oxford. Through Professor John Martyn of Cambridge University, Banks obtained the services of Israel Lyons, a young man distinguished in botany and who according to Nichols (1812) went to Oxford in July of 1764 to deliver a series of lectures which were attended by some sixty students.

On his father's death Banks' mother moved to Paradise Walk in London, close to the famous Society of Apothecaries Garden in Chelsea. The young Banks would have lost no time in becoming acquainted with its renowned superintendent, Philip Miller (1691-1771). Miller was not only an outstanding gardener but also a most able botanist and author of the celebrated *Gardener's Dictionary*, a work which met with universal praise as being a dictionary of both horticulture and botany. In the Chelsea Physic Garden and its stoves, Banks could have seen exotic plants from many lands and, I guess, would have felt the first stirring of a desire to visit these far away places.

While still at Oxford, Banks became acquainted with Daniel Carl Solander, the favorite pupil of the illustrious Swedish naturalist Carl Linnaeus. Solander initially came to London in 1760 to catalogue the plants in the garden of Peter Collinson and to assist John Ellis with his work on corallines. In 1764, however, he was offered an assistant's post at the British Museum and never returned to his native Sweden. At some period Solander would, no doubt, have recounted to Banks the exploits of various Linnean pupils and their contribution to the advancement of botanical science and thereby further whetted this budding naturalist's desire to travel on some expedition to places whose natural history was, as yet, unknown. The "Grand Tour of Europe," fashionable among men of Banks's social standing, had no appeal for him; instead, he joined an old Eton school friend, Lieutenant Constantine John Phipps on H.M.S. *Niger,* to go on a fishery protection patrol in Newfoundland and Labrador--an expedition which added the first foreign plants to his herbarium and taught Banks the difficulties of transporting living plants and seed from one place to another. Lysaght gives an excellent account of this voyage and reproduces the superb water color drawings that Banks had executed on his return,[1] the first indication of the importance that Banks was to attach to supplementing written descriptions with competent drawings made under supervision. When Banks returned from Newfoundland and Labrador and bought a house in New Burlington Street in 1767, it was Solander who introduced him to the London scientific community and other eminent naturalists such as Thomas Pennant, John Ellis, John Lightfoot, and James Lee. It was while he was away that Banks, a mere twenty-three years of age, was elected a Fellow of the Royal Society. He attended his first meeting of the Society in February of 1767 and perhaps heard of the projected voyage to the Pacific to observe the transit of Venus. His dreams of some grand expedition suddenly became clothed in reality. Here then was the opportunity for him to make his contribution to natural science. Detailed plans for his participation were discussed so that when the Royal Society in June of 1768 requested the Admiralty to have its observers conveyed to Tahiti, they also asked that Banks and his suite of seven be allowed on board, including Solander; Herman Diedrich Sporing, a son of a Finnish professor of medicine as amanuensis; Sydney Parkinson as botanical draughtsman; and Alexander Buchan as figure and landscape artist.

[1]Averil M. Lysaght, ed., *Joseph Banks in Newfoundland and Labrador, 1776: His Diary, Manuscripts and Collections* (London: Faber and Faber, 1971.

Cook's first voyage was something new, the first English voyage of both geographical and scientific exploration. The natural history and botanical collections brought back were the most extensive up to that date. They had tremendous public and scientific impact for long afterwards. The botanical collection was readily available for study in Banks' London home together with the various related manuscripts and drawings. The *modus operandi* on the voyage was as Banks himself states "we sat till dark at the great table with the draughtsman opposite and showed him in what way to make his drawings ourselves made rapid descriptions[2] [according to the Linnean method] of all the details . . . while the specimen was fresh." Spöring, the amanuensis, then made fair copies[3] of the species from a particular region arranging them according to the Linnean system. He also made the *Index speciminum plantarum Otaheite reliquarumque Insularum Oceani Pacifii, Index speciminum plantarum Insulae Otaheite and Index Plantae Novae Hollandiae bound with Solander's Plantae Otaheitenses and Plantae Novae Hollandiae* respectively. Spöring unfortunately died on the return journey. J. B. Marshall considers that the *Primitiae florae Novae Zelandiae* is in the hand of Sigismund Bacstrom another contemporary amanuensis and was thus made after the return of the *Endeavour*.[4] Two further amanuenses, A and B,[5] made a transcript of *Plantae Australiae (Novae Hollandiae),* with each species on a separate sheet, obviously ready to be arranged in Linnean order. It is these fair copies that have been referred to by some authors as "ready for the printer." In 1772, Reverend William Sheffield, keeper of the Ashmolean Museum in Oxford, wrote to Reverend Gilbert White, "and what is more extraordinary still, all the new genera and species contained in this vast collection described, and the descriptions fairly transcribed and fit to be put to the press."[6] Marshall quotes a letter from Banks to Clas Alströmer in Sweden, dated 1784, in which he refers to these "floras" as being finished and in the presses.[7] This reference to a press could mean the putting of these "floras" between cheek-boards and placing them in a press se-

[2]Initial descriptions still extant are *Plantae Terra del Fuego, Plantae Australiae (Novae Zealandiae), Plantae Australiae {Novae Hollandiae), Plantae Javenenses, Plantae lnsulae* (St. Helena), *Plantae Otaheitenses,* and *Plantae Insularum Oceani Pacifici.*

[3]Fair copies: *Primitiae florae Maderenses, Primitiae florae Brasilienses, Primitiae florae Terra del Fuego, Primitiae florae Insularum Oceani Pacifici.*

[4]J. B. Marshall, "The Handwriting of Sir Joseph Banks, his scientific staff and his amanuenses," *Br. Mus. (Nat. Hist) Bot. Ser.,* 6, No. 1 (1978).

[5]Marshall, 1978.

[6]Lysaght, 1971.

[7]Marshall, 1978.

cured by a screw and with straps. It most certainly has nothing to do with having them ready for the printer. Spöring also entered short diagnoses of new species collected in Solander's own copy[8] of the second edition of Linnaeus's *Species plantarum,* 1762. Reference is made to these annotations in the "fair copies," e.g. manuscript and page number. There are some further manuscripts in the British Museum (Natural History) relating to the Botany of this voyage. One is in Banks' hand and is entitled "Catalogue of the plants collected in Maderia, Brazil, Terra del Fuego, Society Islands arranged for each locality in the order of Linnaeus's *Species plantarum,* Ed. 2, 1762." Another is "A systematic enumeration of all the plants collected on Capt. Cook's first voyage prepared by Sigismund Bacstrom and Jonas Dryander"[9] [Monandria and Diandria only]; and a third, a list compiled by Solander of the plants obtained at the Cape "*Index plantarum Capensium.*" How the 360 Cape specimens were obtained is uncertain. Banks and Solander were only at the Cape for a month and as Banks states in his journal he did not have "an opportunity of even making one excursion owing in great measure to Dr. Solander's illness." Beaglehole states in a footnote: "While so many others were convalescing or drawing near their end; Lieutenant Gore, with one attendant, a slave belonging to Mr. Christoffel Brand . . . made an excursion . . . to the top of table-hill . . . and brought some curious plants . . . to Banks."[10] Brand may have arranged other such collecting trips. He was obviously anxious to assist Banks as later correspondence indicates; in March 1772, he sent plants collected by Skene, surgeon on the East Indiaman *Morse* and Captain Cook refers in November of 1772 to a fine collection made for Banks.

It is interesting to note that the paper used to dry and finally store the plant specimens was from a commentary on Milton's *Paradise Lost!* Banks and Solander kept a special reference collection during the voyage. These were small pieces of a considerable number of the species they had collected, several of which were mounted on one sheet, no doubt a device to enable them to obviate over duplication. They appear to have only maintained this particular collection up to New Zealand; if the practice was continued, then the specimens have not survived.

These sheets were later bound into a volume. As these specimens are rarely consulted, they are in a relatively good state of preservation. They

[8]Marshall, 1978.

[9]Jonas Carlsoon Dryander (1748-1810), curator-librarian to Sir Joseph Banks from 1782 to 1810.

[10]James Cook, *The Journals of Captain James Cook,* ed. J. C. Beaglehole, 3 vols. (Cambridge: The Hakluyt Society, 1955-1967). Hereafter referred to as "Beaglehole." See volume 1.

all bear a label in Bacstrom's hand with a reference to Solander's own copy of the second edition of the *Species plantarum* which I have mentioned earlier. The Banksian set of *Endeavour* voyage specimens is scattered through the herbarium of the British Museum (Natural History). Those voyage specimens mounted in Solander's life time bear a name in his hand, generally with the word "Mss" after it, this refers to his manuscript descriptions in the floras mentioned earlier but in some instances may refer to his extensive Slip Catalogue.[11] Some past authors have consulted the Solander manuscripts and have quoted data therein without acknowledging the source. The Slip Catalogue contains descriptions of *Endeavour* voyage plants from Brazil, Tierra del Fuego, New Zealand, and Tahiti, only a few from Java and South Africa and very few from Australia.[12] There is a fairly wide distribution of specimens from this voyage.[13] Banks himself, gave specimens to a number of eminent botanists to further their researches, such as Charles Louis l'Heritier de Boutelle and Joseph Gaertner for his important *De Fructibus et Seminibus plantarum*, (1788-1807). The British Museum (Natural History) has distributed duplicates on a number of occasions. Changes in the concept of a species has meant that some duplicates have later proved to be new species!

When Alexander Buchan, the figure and landscape painter, died in Tahiti, Sydney Parkinson was responsible for all the pictorial records made on the voyage. Spöring, who fortunately was a competent draughtsman, assisted Parkinson by making some zoological drawings. The added responsibilities and the extensive haul of plant species in New Zealand and Australia prevented Parkinson from making finished drawings of all the plants selected for illustration. In consequence he made a rough pencil sketch, adding sufficient color to enable a completed drawing to be made later. When Parkinson contracted a fever in Batavia and died on

[11]This "Slip Catalogue" also contains descriptions by Dryander, and in the hand of Bacstrom and other unknown amanuenses. Dryander also amends Solander's entries as he occasionally does Solander's flora descriptions. This is mainly to update them with reference to works published after Solander's death in 1782 but also sometimes to express his own personal view as to the genus to which the particular specimen belongs.

[12]Marshall, 1978.

[13]Found in the Auckland Institute and Museum, Dominion Museum (Wellington), National Herbarium (New South Wales), British Museum (London), Royal Botanic Garden (Edinburgh), Botanisches Museum (Berlin), Botanische Anstalten Universität (Halle), Botanical Museum (Copenhagen), Muséum National d'Histoire Naturelle (Paris), Naturhistoriska Riksmuseum (Stockholm), Naturhistorisches Museum (Vienna), Smithsonian Institution (Washington, D. C.), Missouri Botanic Garden (St. Louis), and the Indian Botanical Garden (Howrah).

the homeward journey, Banks had to employ a number of natural history artists[14] to make the finished drawings for his sketches. Parkinson made a total of 280 finished drawings and 679 pencil sketches.[15] Banks had grandiose ideas for the publication of folio size, illustrated floras of the areas visited on the voyage. He employed two engravers G. Sibelius and D. MacKenzie who made 742 fine engravings. A considerable number of these copper plates have survived and are in the British Museum (Natural History). There is a list, in Bacstrom's hand entitled "Catalogue of drawings of plants of Cook's first voyage," annotated by Solander and Dryander and including a list in Dryander's hand of the copper plates engraved and to be engraved. In 1973, twenty-nine engravings were recently used by the Royal College of Arts Lion and Unicorn Press for their sumptuous folio *Captain Cook's florilegium*. Between 1900-05, the British Museum (Natural History) published lithographs of the 319 Australian engravings as *Illustrations of Australian plants collected in 1770 during Captain Cook's Voyage.* The text by James Britten was based on the manuscript descriptions of Solander. Data on the finished drawings indicates that some were still being made as late as 1783 so it is not surprising to find Banks writing the following letter to a Swedish correspondent. "The botanical work with which I am at present occupied is nearing its conclusion. Solander's name will appear next to mine on the title page because everything has been brought together through our common industry. . . . Since all the descriptions were made while the plants were fresh there is nothing left to do beyond completing those drawings which are not yet finished, and entering the synonyms in the books which we did not have with us or have just come out. All that remains to do is so little that it can be completed in two months if only the engraver can be brought to putting the finishing touches to it."[16] There has naturally been

[14]James Miller, Frederick Polydore Nodder, Thomas Burgis, John Clevely, and John Frederick Miller.

[15]

Area Represented:	*Finished Drawings*	*Sketches*
Madeira	23	1
Brazil	35	--
Tierra del Fuego	78	--
Tahiti	114	14
New Zealand	30	191
Australia	--	330
Java	--	143

[16]Joseph Banks, "Über Solander," *Berlinische Monatsschrift*, 6 (1785), 247-48, and translated by R. Rauschenberg, "Daniel Carl Solander, the Naturalist on the *Endeauour* Voyage," *Isis,* 58 (167), 367-74.

speculation by Beaglehole and others as to why these volumes were never published.[17] It has been suggested that Banks lost interest and that he was not a professional scientist, but no one has considered the possibility of a purely economic cause as the reason for the failure to publish. Banks possibly spent around £l0,000 on having the finished watercolor drawings and engravings made. Could not the final cost of the projected ten folio volumes have finally been considered by Banks to stretch even his ample purse too far? Although the volumes would have appeared over a number of years, I doubt they would have found many purchasers in England and Europe, especially in view of the Anglo-French war. The publications of these volumes, I feel, could have only been made if Banks had been prepared to finance the project in the sure knowledge that he would recoup very little of the expense involved. To merely publish Solander's text which Dryander could easily have completed, would have been an alternative, but one, I suppose, not acceptable to Banks. I can hardly imagine it was not suggested to him as it would have met the wishes of those botanists eager to have the account of the results of such an important voyage. Further it would have prevented the derogatory remarks cast at Solander for not having finalized the texts of the floras and seen to it that these descriptive accounts at least were published, if need be, at his own expense. Today, such a suggestion appears unreasonable but somewhat later, in 1805, the Admiralty decreed that Robert Brown, the naturalist on Matthew Flinder's voyage that circumnavigated Australia between 1800-03, should publish his flora at his own expense, with a tragic result that only a part was printed! Failure to complete the publication of the floras was therefore not solely due to the cost factor. Stearn states "Failure to publish Solander's manuscripts as a whole soon after completion was a loss to science, for his descriptions are superior in detail and clarity to most of the descriptions of these plants published later and taken together they would have provided in one place a sound starting point for later investigation."[18]The plants described in Solander's "Flora" of Tierra del Fuego were eventually recorded by twenty-one authors between 1776 and 1846. The same is true regarding the plants described in Solander's "Flora" of New Zealand. A copy of Solander's "Flora" of Australia inscribed *"Plantae Novae Hollandiae"* was made by Robert Brown (d. 1858) and studied by him during the Matthew Flinder's voyage. Banks gave

[17]J. C. Beaglehole, ed., 2 vols. *The* Endeavour *Journal of Sir Joseph Banks, 1768-1771* (Sydney: Angus and Robertson, 1962).

[18]W. T. Stearn, "The Botanical Results of the *Endeavour* Voyage," *Endeavour,* 27 (1968), 3-10.

Brown permission to select a reference collection of *Endeavour* voyage specimens. These were small, but nevertheless representative pieces which Brown had roughly mounted onto sheets of tough brown cartridge paper. A number of these sheets have recently been located in the Herbarium of the British Museum (Natural History) by J. B. Marshall.[19] In 1810, when Brown was compiling his *Prodromus florae Novae Hollandie,* he not only recorded the plants he collected but also those collected by Banks and Solander.

Cook's second voyage (1772-75) was designed to prove the existence or nonexistence of Dalrymple's great southern continent, *Terra Australia.* Banks and Solander, with an even larger suite of assistants, were to have sailed with Cook. As the controversy leading to Banks' withdrawal has been well recorded, there is no need for me to discuss it here. The £4,000, which Parliament was to have given to Dr. James Lind, who also withdrew, was transferred to the naturalist John Reinhold Forster who was known to be willing to go and for whom the Royal Society signed a testimonial "recommending [Forster] as a proper person for going on the expedition." Forster's one condition was that he was able to take with him his eighteen year old son Johann George Adam. Forster senior appreciated the need for drawings to supplement his descriptions and since George was a competent draughtsman, George needed to accompany his father. Somewhat later, the Forsters realized their allotted task would be beyond their joint labors to perform satisfactorily, therefore, at the Cape of Good Hope, he engaged further assistance, that of Anders Sparmann, a Linnean pupil and a particularly able botanist. After the voyage, Forster's appointment was generally considered a great mistake. English writers of today continue in the same vein. Beaglehole refers to Forster as a "patently conspicuous phenomenon of Cook's second voyage" and "one of the Admiralty's vast mistakes." Forster's contemporaries concentrated on the quarrelsome, debt-ridden, hack-writing man and made little mention of his academic achievements. Happily, the recent commemoration of the Cook voyages has led to a re-examination of Forster by P. Gathercole, A. L. Kaeppler, P. J. P. Whitehead and now, in detail, by Michael Hoare. The discovery by Hoare of Forster's Resolution journal in the Staatsbibliothek der Stiftung Preussischer Kulterbesitz in Dahlem, Berlin, a transcript of which, will be published by the Hakluyt Society, will enable Forster to state his own account of events on the voyage and will go a long way to

[19]P. I. Edwards, "Robert Brown (1773-1858) and the Natural History of Matthew Flinder's Voyage in H.M.S. *Investigator* 1801-03," *Journ. Soc. Bibl. Nat. Hist.,* 7 (1976), 385-407.

rebalance the less than favorable account of Cook and the very damaging one of the astronomer William Wales. Hoare's new book, *The Tactless Philosopher: John Reinhold Forster,* establishes why Forster was chosen for the voyage and by detailing Forster's fundamental contributions to Antarctic, Pacific, and Australian natural history and the ethnology of the region, Forster was anything but "one of the Admiralty's vast mistakes."[20]

Forster senior, who was forty-five and often feeling the effects of the inclement weather and the cold and damp living conditions aboard the Resolution, left his son George and Sparmann to do the majority of the plant collecting. The herbarium collection made on this second voyage was less extensive than on Cook's first voyage, partly because there were far fewer land falls but also because it was sometimes the wrong time of the year for collecting plants in flower and fruit. Nevertheless, their collection contained the first examples of the flora of the New Hebrides, New Caledonia, Society Islands, Easter Island, Tonga, Cook, and Marquesas Islands. From a manuscript list in Banks's hand "List of plants given me by J.R. and J.G.A. Forster when I looked at their specimens in January 1778 and compared them with my herbarium" [236 species] one could infer that in January of 1778 was the first time the Forsters and their herbarium went to Banks' London home, 32 Soho Square. I shall refer to this list again later. A further undated list in J. R. Forster's hand is entitled "Catalogue of a collection of plants presented to Joseph Banks by J.R. Forster and G. Forster" [255 species]. A rough check between this latter list and the index to the Forster's *Characteres* volume shows that the majority of the genera are represented in this collection. These two lists relate to separate collections of plants. At the sale of the herbarium collection of Alymer Burke Lambert in 1842, the British Museum purchased the collection of G. Forster's plants in the possession of Professor Heyne of Göttingen, his father-in-law, from whom Lambert acquired it in 1798. When George Forster left England, which was in advance of the rest of the Forster family, the boat on which he was travelling sank off Jutland and George tells Banks "the loss of my herbal has never been replaced, as I had in it most of those specimens of which there are now no duplicates, except those that you had at the revisal of our herbals."[21] This could mean that the Banksian herbarium may contain the sole surviving specimen of some Forster species. Miller quotes Lambert as saying that he had ac-

[20]Michael E. Hoare, *The Tactless Philosopher: Johann Reinhold Forster, 1729-98* (Melbourne: Hawthorne Press, 1976).

[21]Dawson-Turner transcripts of correspondence of Sir Joseph Banks in the British Museum (Natural History), I, fo. 308-10.

qnired the entire herbarium of George Forster and, therefore, the types of George's *Prodromus.*[22] Lambert was mistaken. According to F. G. Schroeder of the Systematisches-Geobotanisches Institut, Göttingen, the holotypes of the *Prodromus* are in Göttingen.[23] At the Lambert sale, the Museum also purchased the herbarium of Peter Simon Pallas. Again, Lambert remarks, "George Forster sent Pallas fine specimens of all the plants gathered during the voyage,"[24] this, of course, is incorrect. In fact, Lambert adds, "I find several specimens not in his own herbarium which I purchased from Heyne." Regarding Forster types Carolyn states, "The situation is very confused, and it seems impossible to state, for sure, that any particular specimen was the one and only element used by J.R. and J.G.A. Forster in drawing up their various diagnoses."[25] Forster specimens are to be found in a number of other institutions. His personal herbarium was acquired by the Royal Botanic Gardens, Kew, from the Liverpool Corporation in 1885. It was initially purchased in 1808 by John Shepperd, Curator of the Liverpool Botanic Garden.[26] In 1885, Britten states that this collection of 785 species included a large proportion of the plants whose descriptions were published by the Forsters.[27] Liverpool Museum retained a few of the specimens from this Forster collection. The specimens in the Linnean Society of London are those given by George Forster to the younger Linnaeus and by his father to Abraham Bäck, J. R. Forster gave specimens to his pupil C. L. Willdenow and to K. P. J. Sprengel.[28] These were in the Herbarium of the Botanisches Garten and Museum, Berlin, but only the Willdenow herbarium, which was evacuated, survived the 1939-45 war. Meyer gives a general account of the Forster plants in the

[22]H. S. Miller, "The Herbarium of Aylmer Burke Lambert: Notes on its Acquisition, Disposal, and the Present Whereabouts," *Taxon,* 19 (1970), 489-553.

[23]Hoare, 1976.

[24]A. B. Lambert, "Some Account of the Herbarium of Professor Pallas," *Trans. Linn. Soc. London,* 10 (1811), 256-65.

[25]R. C. Carolin, "J. R. Forster and J. G. A. Forster and their Collections," *Proc. Linn. Soc. New South Wales,* 88 (1963), 108-11.

[26]H. Stansfield, *Handbook and Guide to the Herbarium Collections in the Public Museums Liverpool* (Liverpool: n.p., 1935). See also his article, "A Botanist with Captain Cook in the South Pacific, 1772-75," *Bull. Liverpool Public Library, Mus. Arts Comm.,* 2 (1953), 5-25.

[27]James Britten, "The Forster Herbarium," *Journ. Botany, London,* 23 (1885), 360-68.

[28]D. E. Meyer, "Über die beiden Forster und die von Ihnen Gesammelten Pflanzen in Herbar von Willdenowia," *Willdenowia,* 1 (1957), 778-80.

Willdenow herbarium[29] and Hiepko a detailed account with the current names of the species.[30] The specimens in the Botanisches Institute of Kiel University were given by G. Forster to J. J. P. Moldenhawer and those in the Institute of Systematic Botany, Uppsala by J. R. Forster to C. P. Thunberg. G. Forster gave a collection of 220 specimens to G. L. L. Buffon in 1779, specimens which were used in 1832-34 by A. Richard when writing his *Essai d'une flore de la Nouvelle-Zélande.*[31] Mitrofanova gives a brief account of the G. Forster collection currently in Moscow State University, which was transferred there from the Moscow Medical-Surgical Academy, in 1841,[32] and M. N. Karavaev records the Forster collections in the Akademija Nauk in Leningrad.[33] There are only twenty-four Forster specimens in the United States. These are in the type collection of the Academy of Natural Sciences in Philadelphia.[34] They would appear to have been donated in 1834 by Thomas Nuttal who acquired them from Lambert. Further Forster specimens are in the Botanisches Institut, Universität, Leipzig, and the Naturhistorisches Museum, Vienna.

A set of 301 drawings made by George Forster was purchased by Banks for £420. These are now in the British Museum (Natural History). According to Banks, his collection contained the original drawings for George's *Fasciculus plantarum magellanicum*, 1787. The preface to the *Characteres* volume states: "to assist our memory we began describing and illustrating the characters of the new genera in a separate book." Sprengel claimed he had the original drawings for the Forster's *Characterers*, possibly the separate book.[35] These characters are included in the Banksian collection of drawings. George Forster planned a major work on the voyage botany, *Icones plantarum in itinere ad Insulas maris Australis collectarum* but it was virtually stillborn. Some 131 engravings were made and pulls from them taken but it does not appear to have been published in the strict sense of the word. Only two copies are known. Lambert had a set of

[29]Meyer, 1957.

[30]P. von Hiepko, "J. R. and G. Forster *Gesammelte Pflanzen im Herbar Willdenow in Berlin,*" *Willdenowia,* 5 (1969), 279-94.

[31]Achille Richard, "Essai d'une flore de la Nouvelle-Zealande," *Voyage de découvertes de l'Astrolabe . . . Botanique,* I (1832-33), Paris.

[32]N. S. Mitrofanova, "On J. R. and G. Forster's Botanical Collections in Moscow," *Bot. Zhurnal,* 44 (1959), 135-37.

[33]M. N. Karavaev, "G. Forster as a Botanist and the Forster Collections in the Akademya Nauk," *Trudy Inst. Istorii Estestvoznaniji i Techniki,* 36 (1961), 176-201.

[34]Joan Apfelbaum, *Collections of J. R. and J. G. A. Forster in the Herbarium of the Academy of Natural Sciences of Philadelphia* (Philadelphia: Academy of Natural Sciences, 1971).

[35]Kurt Sprengel, *Geschichte der Botanik,* 2 vols. (Leipzig: F. A. Brockhaus, 1817-18), II, 342.

131 engravings, these were bought by Bolm for £1-2-0 at the Lambert sale and is probably the set sold by Friedlander in 1869 to the Botanic Garden in Leningrad.[36] The other set of 129 plates is bound in with the Banksian collection of Forster drawings. On J. R. Forster's death, seventy-seven pencil sketches of plants were sold to Duke Ernst II of Saxony-Gotha and Alternburg. These drawings form Chart A1212 in the Forschungs-Bibliothek, Gotha.[37]

The Forsters and Sparmann worked on describing and illustrating their plant collections in the manner of Banks, Solander, and Parkinson on Cook's first voyage. Their "*Descriptiones plantarum, quas in itinere ad maris australis terras suscepto collegit descripsit et delineat Johannes Reinaldus Forster"* form MSS 1303-5 in the Muséum National d'Histoire Naturelle in Paris. In a letter, George Forster informed C. F. Voss that his father had no part in the descriptions for the *Characteres genera plantarum,* but had merely written the preface and apologia. The work was hurriedly written on the voyage; the descriptions are short and inadequate, and the locality often omitted. Sprengel in his *Geschichte der Botanik,* states that Forster expressed his regrets at publishing the *Characteres* before he had obtained Banks's opinion and consulted his collections.[38] The work described a number of plants collected by Banks and Solander and Banksian jealousy was probably behind Cook's endeavor to persuade the Forsters to stop publication. Lord Sandwich, first Lord of the Admiralty, however, gave them his official support. E. D. Merrill and subsequent authors have accused the Forsters of botanical piracy.[39] Regarding the *Characteres,* Merrill states that George "not only ignored the long and detailed technical descriptions of Solander but published his own new binomials under absurdly short diagnoses." Since the work was compiled on the voyage, this is, of course, nonsense. The first edition of the *Characteres* was a folio edition of some six copies, published around December of 1775.[40] Copies of this edition are in the British Museum (King's Library) and in the Linnean Society of London. The octavo edition of 1776 is really a second edition.

[36]F. Herder, "Verzeichnis von G. Forsters Icones Plantarum in Itinere ad Insulis Maris Australis Collectarum," *Acta Horti Petrop.,* 9 (1884), 495-510.

[37]Gerhard Steiner and Ludwig Baege, *Vögel der Südsee* (Leipzig: Insel-Ferl., 1971), pp. 64 and 66, and footnote 47.

[38]Sprengel, 1818, p. 342.

[39]E. D. Merrill, *The Botany of Cook's Voyages and its Unexpected Significance in Relation to Anthropology, Biogeography and History, Chronica Botanica, XIV (5/6)* (Waltham, Mass., 1954).

[40]H. St. John, "The Date of Publication of Forster's *Charactares Generum Plantarum* and its Relation to Contemporary Works," *Nat. Canadien,* 98 (1971), 561-81.

The bitter controversy between the Forsters, the Admiralty and Banks, together with other more personal circumstances, led the Forster family to leave England in July of 1780 and prevented the more immediate publication of further botanical results of Cook's second voyage. It was 1786 before George Forster's *Florulae insularum australium prodromus* appeared, a work which was the chief cause for Merrill's claim of botanical piracy, a claim which hinges on Merrill's assumption that the Forsters had free access, between 1775 and 1777, to the Banksian collections. Hoare states that nowhere is there a shred of evidence that the Forsters were given access to Banks' collections.[41] In view of Banks' attitude before the voyage, when he refused to give the Forsters any information, though he was prepared to answer questions, such access, after the voyage, would seem even less likely to have been given. I have mentioned the list in Banks' hand "of plants given me by J. R. and J. G. A. Forster when I looked at their specimens in January 1778 and compared them with my herbarium." This comparison would have shown a number of specimens in the Banksian Collection to be represented by only imperfect ones in the Forster collection. Forster in a footnote to the *Plantae obscurae,* as he calls these imperfect specimens, states that he has added the names given by Solander to the Banksian specimen. Banks and Solander may have had no objection to the Forsters noting these names. The twenty-three Solander names with Forster descriptions, names credited to Forster, are more difficult to explain. Some may, however, refer to the duplicate specimens, "duplicates of your own collecting as you can conveniently spare," that George in November of 1780 asked Banks to send him to compensate for the loss of his own collection. "I do not mean species we did not find, but only such as were common to both our collections."[42] Especially requested were specimens of breadfruit, New Zealand flax, *Sophora tetraptera, Melaleuca,* and the winter's bark. Forster continues, "Only since my descriptions and Dr. Sparmann's must be put into some order, before they are published, I should be greatly assisted in this business, by specimens of the above plants." Banks sent him some specimens in May of 1782 saying, "I was sorry to find that Nelson had not brought me good specimens of the breadfruit and flax, and that those before in my possession which I can spare were not good, I shall send you however, such as I can part with,

[41]Hoare, 1976.
[42]Dawson-Turner ms., I, fo. 308-10.

but fear they will not be so good as I could have wished.[43] Here again these specimens could have had Solander names, to which Forster would naturally have added his description. Unfortunately, for my argument, the duplicates Forster specifically requested in his letter to Banks do not appear among Merrill's list of twenty-three Solander binomials used by Forster. Banks' reply does not indicate either the number of specimens or the names of the species he sent to Forster. Specimens of the three *Trichomanes* species listed by Merrill are in the British Museum (Natural History) and are at Göttingen and are, therefore, not species Forster would have requested. All the twenty-three species are from the Society Islands. The fair copy of the Solander descriptions for the Society Islands flora would have been available for consultation. So did the Forsters consult it without permission as Merrill states? George in his letter to Banks of November 1780, however, says, "It is not my inclination to interfere with the discoveries of others or to borrow feathers, and, if things had gone according to my wish, we might have made common cause in natural history and spared a premature publication [presumably the *Characteres*]." Is this the occasion when either George or his father did "borrow feathers?" It is interesting to note that there are no Solander descriptions of Forster plants, presumably because of their known intention to publish accounts of their collection.

The objective of the third voyage was to ascertain whether there was a Northwest Passage. "Curse the natural philosophers and all sciences" was Captain Cook's reply when asked about a naturalist accompanying the third voyage, probably the reason why no official naturalist or natural history artist was appointed. William Anderson (d. 1778), surgeon on the Resolution, acted as an enthusiastic and competent one. He had been surgeon's mate on the second voyage, and in all probability learned a considerable amount from the Forsters and from Sparmann. Anderson's herbarium collection which included plants from both voyages, came into the possession of Banks but the specimens were not incorporated into this herbarium. They suffered considerable neglect before the worthwhile remnants were rescued by James Britten (d. 1924) and incorporated into the herbarium of the British Museum (Natural History).[44] Anderson made Latin descriptions of the plants he considered new to science. His manuscripts entitled *"Descriptiones sue characteres specifiers"* and *"Genera*

[43]Dawson-Turner ms., I, fo. 132-33.

[44]James Britten, "William Anderson and the Plants of Cook's Third Voyage," *Journ. Botany, Lond.,* 54 (1916), 345-52, and also his "Short Notes, William Anderson and Cook's Third Voyage," *Journ. Botany, Lond.,* 55 (1917), 54.

nova plantarum seu descriptiones characterum naturalium plantarum adhuc incognitarum in itinero nostrovisa 1776, 1777" are in the British Museum (Natural History). Anderson's new genera were later published as *Eucalyptus, Goodenia, Coorea* and *Bauera.* L'Heritier de Brutelle for example described the genus *Eucalyptus* in his *Sertum anglicum,* 1788-1792, from a tree brought back by Anderson and grown at the Royal Gardens, Kew, and from herbarium material brought back by David Nelson. John Webber (d. 1793), the figure and topographical artist, made one plant drawing, *Pringlea antiscorbutica,* a genus named in honor of Sir John Pringle, President of the Royal Society, 1772-78. *Pringlea antiscorbutica* was a valuable anti-scurvy plant found on Kerguellen.

Anderson, who was consumptive, died in August 1778 through weakness engendered by the extreme cold of the conditions within the Arctic Circle. Anderson kept a very detailed journal that contained observations on every branch of natural history, folklore, and philology. When the official account of the voyage came to be written, Lord Sandwich directed that Anderson's journal be given to the editor who was authorized to avail himself of the information it contained.

The companion vessel *Discovery* had on board a young gardener, David Nelson (d. 1789) who was familiar with the plants growing in London nursery gardens and who Banks employed to collect herbarium specimens and seeds for the Royal Gardens at Kew. At the Cape, Nelson met another Banksian collector Francis Masson and together they went on his first collecting trip. After this expedition, Anderson wrote to Banks "Nelson is a person who understands botany, who will be able to procure for you every new article in that branch, a task I have not the vanity enough to expose myself again to, but shall nevertheless continue to collect whatever it presents itself." There is a list, in Solander's hand, of seeds collected by Nelson, arranged under locality and of the recipients to whom they were sent. Solander made a catalogue of plants collected on Captain Cook's third voyage, *Plantae Insula Desolationis, Plantae* Terra *Diemens, Plantae Novae Zealandae, Plantae Insulae Modoo, Plantae Insularurn Otakootae* and *Palmerston, Plantae Insulae Amicorum, Plantae Insularum Societatis, Plantae Tzchutski, Plantae Kamscatkensis, Plantae Macao, Plantae Pulo Condore.* Eleven species Nelson collected in Canton **and** Macao are recorded in Bretschneider's work,[45] while those from the Sandwich Islands were consulted by B. C. Leeman when writing his *Flora vi-*

[45] Emilii Bretschneider, *History of European Botanical Discoveries in China.,* 2 vols. (London: S. Low, Martson and Co., 1898).

tensis between 1865-73, and those from Australia by J. D. Hooker for his *Flora of Tasmania* (1860). More recently, Nelson's important collection from Hawaii is being studied by H. St. John.[46] Many new and interesting species were grown from Nelson's seed collection, including such well known plants as *Acacia verticillata* (Nelson's mimosa) and *Cordyline australis.*

What were the main influences of Cook's three voyages on Sir Joseph Banks? On the return voyage, the *Endeavour* called at the Cape of Good Hope. Although the Dutch introduced a number of Cape plants into cultivation in Holland, Banks soon realized that there were many more that would flourish in our gardens and stoves. The floral riches of the Cape, of course, were not unknown, but few actual plants had reached British gardens and greenhouses. Banks, who was unofficial Superintendent of the Royal Gardens at Kew persuaded George III to send a botanical collector to the Cape and Francis Masson sailed out with the Forsters, arriving at the Cape in October of 1772. His first tour lasted until March of 1775; his second one from 1786-95. Being suspicious of its real objective, the Dutch naturally did not take kindly to such British activity. Consequently, Masson's movements were restricted. In 1776, Masson published an account of three journeys on his first tour, but there is no similar record of those undertaken on his second tour. His letters to Sir Joseph Banks, however, in the Brabourne collection in the Mitchell Library, Sydney,[47] give some indication of the localities he visited and from which the consignments of seeds, bulbs, etc. were collected. Among the many plants Masson was responsible for introducing were a large number of Ericas, *Senecio* species from which the florists' *cineraria* has been developed and *Pelargonium* species from which horticulturalists have bred the geraniums which adorn our gardens in summer time. The extensive collection of interesting plants, collected from Botany Bay and the general topography of the region, would have influenced Banks during the discussions which lead up to the foundation of the penal settlement in 1788. The Parkinson sketches and later the finished drawings that Banks had executed stimulated interest in the Australian flora and the desire to successfully cultivate some of these strange plants.

The first plant introduced into cultivation from Australia was *Banksia serrata.*[48] The famous nursery firm of Lee and Kennedy of the Vineyard,

[46]H. St. John, "Biography of David Nelson and an Account of his Botanizing in Hawaii," *Pacific Sci.,* 30 (1976), 1-5.

[47]Vol. 18, 1789-96.

[48]A. M. Coates, *The Quest for Plants* (London: Studio Vista, 1969).

Hammersmith had six Australian species in cultivation around the time of founding of the penal settlement in 1788.[49] There would also have been a small number in cultivation in the Royal Gardens at Kew. The Mitchell Library correspondence shows that, after the foundation of the settlement, Banks received, for Kew, a continuous flow of small quantities of seed of interesting plants sent by such officials in the new colony as Governor Arthur Philip, Colonel William Paterson, and Governor Gidley Philip King. But it was the vast quantity of living material sent back by Peter Good (d. 1803), the gardener on Matthew Flinders's voyage, that circumnavigated Australia between 1801-03, which necessitated the provision of a special house to display the many unusual plants being raised and flowered for the first time. The Botany Bay House, as it became known, was for many years a special attraction in the Royal Gardens. The Department of Botany, British Museum (Natural History), has Good's copies of the lists of seed sent to Banks and Goods excellent journal kept on the voyage. The latter is being prepared, by me, for publication by the Museum. Peter Good has never been given the honor he so justly deserves and I hope this volume 'will rectify this sad omission. Such an interest was aroused among private gardeners that James E. Smith between 1793-95 published *A specimen of the botany of New Holland* which gave some cultural details and had illustrations by James Sowerby. Banks naturally realized that new plants of horticultural and economic value could be obtained from other regions under British influence.

Through the good offices of the East India Company, Banks received consignments of living material from a number of the Company's officers such as Dr. Alexander Duncan, Thomas Main and John Reeves in China, William Roxburgh in Calcutta, and Capt. M. Hogan in Bengal.[50] The Company also enabled him to send William Kerr to China in 1803. Many of the living plants put aboard the Company's East Indiamen did not survive the journey home. Kerr was, however, responsible for introducing such well known plants as the Banksian rose and the Tiger Lily.

The traffic in living material was, however, by no means one way. Between 1780 and 1787, some 15,000 slaves in the West Indies died of starvation or of diseases contracted by a scanty and unwholesome diet. Both Captain Cook and Banks had been most impressed by one of the Tahi-

[49]These were *Casuarina stricta (C. quadrivalvis)* (1775), *Banksia oblongifolia* (1788), *Banksia serrata* (1788), *Fabriciu laevigata (Leptospermum laevigatum), Lambertia formosa,* and *Melaleuca armillaris.* See E. J. Wilson, *James Lee and the Vineyard Nursery* (London: Hammersmith Local History Group, 1961).

[50]Brabourne Collection, Mitchell Library, Sydney.

tians' staple foods--the breadfruit. Planters in the West Indies had been for some time urging the government to relieve the disastrous situation existing in the islands. The King sought Banks' advice. Although the breadfruit had to be propagated by suckers, Banks's solution was to send an expedition to Tahiti to propagate a large number of young plants there and then to transfer them to the West Indies. We are all familiar with the tragic fate of Captain Bligh on the *Bounty* in 1787. The second attempt in I791 was, however, highly successful. "Wherever the breadfruit grows in the West Indies, it stands as a living token to those South Sea islanders whose participation in this historic venture continues to feed thousands in each succeeding generation of West Indians."[51] This is the most famous of such transfers. The Banksian correspondence in the Brabourne Collection in the Mitchell Library show such transfers had become, in fact, a commonplace procedure. Few vessels left England for New South Wales without supplies of seed and, whenever possible, living plants in pots and boxes to maintain and to augment the horticultural and economic wealth of the new colony. Peter Good on the Flinders voyage took out a number of berried fruits in a portable greenhouse. William Kerr took out with him a number of European fruit trees and other economic plants from Kew and established them on Portuguese Macao where Europeans were forced to reside outside the tea season. Plants were also sent to the East India Company's gardens in Calcutta and others to St. Helena to improve its ability to act as a revitualing station for British shipping. A large collection of plants, under the care of Christopher Smith and Peter Good went from Kew to Calcutta in 1796, and Good returned with an equally extensive collection for the Royal Gardens. In an undated memorandum from Reverend John Walker, F.R.S. (1731-1803), entitled "Essay on the translation of plants from the East to the West Indies," Walker stresses the importance of introducing spice plants into the West Indies, a suggestion that was carried through with great thoroughness by Christopher Smith at the time in charge of the Honorable East India Company's garden in the Mollucea islands occupied by the British from 1796 to 1802.[52] The nutmeg, for example, was first introduced into Penang and then to St.

[51]D. Powell, "The Voyage of the Plant Nursery, HMS Providence, 1791-93." *Bull. (Sci. Ser.) Inst. Jamaica*, 15 (1973).

[52]Short extract from one of Smith's lists in the Braboume collection in the Mitchell Library: "Dec. 1796, 1,827 one-to-four-year-old nutmeg trees collected in Banda Isles; Jan. 1797, 575 clove plants, 146 sago plants, 155 nutmeg plants (for Bengal) collected in Amboyna, 270 nutmeg and two large clove plants for St. Helena and Kew; Jan. 1798, 1,395 plants: nutmeg, clove, chocolate, lichi, sago (for Madras)."

Vincent in the West Indies in 1802. In some of these transfers, the Royal Gardens acted as a staging post, a role that was to be expanded when these gardens came under government control in 1841. At this later period, one of the major transfers was rubber from Brazil via Kew to the Malay peninsula. The Brabourne collection in the Mitchell Library also shows how eager Banks was to obtain information on economic plants and their culture and to follow this up by arranging with the King to send gardeners out from Kew to British possessions overseas to experiment on the culture of economic plants to be introduced from or to be introduced to other regions. The Polish-born gardener Anton Panteleon Hove (fl. 1785-98), for example, was sent out to India to study the cultivation and preparation of cotton and to obtain plants and seeds of the best varieties for introduction into the West Indies. Charles Favargill, Simon Benstead, Joseph Seymour, William Halgarth, and Mark Everson, in the employ of the Honorable East India Company, were sent to India to cultivate hemp. They had problems and it was to Banks that they wrote in June of 1803 for assistance! The Honorable East India Company was naturally interested in plants of commercial value such as hemp, but it was Banks who added another dimension, that of the importance to the expanding British Empire outside the control of the Honorable East India Company, such as the breadfruit to the West Indies. His personal knowledge of the use made by natives of endemic species enabled him not only to suggest possible introductions but to request information on useful plants in one area for possible introduction into another.

During the Banksian era the number of species introduced into cultivation in the Royal Gardens increased dramatically from 5,000 species listed in William Aiton's *Hortus Kewensis* in 1789 to 11,013 species in the second edition published in 1814. The Royal Gardens at Kew under Sir Joseph's guidance and the financial support of "farmer" George III were being converted from a purely Royal pleasure garden into a botanical one. Through the successful cultivation of a wide range of plants from many different climates and soil conditions, horticultural science made a substantial advance. This success was, in no small measure, due to the skill and devotion of the Royal Gardens' two head gardeners, William Aiton (d. 1793) and his son William Townsend Aiton (d. 1849). Banks thus laid the foundation for what had become the world's most famous botanic garden, the Royal Botanic Gardens at Kew.

The collection by Banks and Solander of so many unfamiliar plants on Cook's first voyage was a great stimulus to taxonomic botany. How many more strange plants remained to be collected from other regions? With

substantial financial assistance from George III, Banks was determined to find out. James Bowie and Francis Masson were sent to collect at the Cape. The latter collected later in the Canaries and the West Indies. In 1800, George Caley was sent to the new colony in Australia and remained till 1810. He made an extensive collection in and around Port Jackson. Scientifically, however, the most important collection of that period other than the Cook voyage collections was that made by Robert Brown, the naturalist on the Flinders voyage. Brown later became Banks' third curator-librarian and ultimately the first keeper of the Banksian herbarium at the British Museum. Brown's collections in Australia and Tasmania were, however, all made in coastal areas. It was Alan Cunningham, King's botanist, who first opened up the botanical riches of the interior. He arrived in Australia in 1816 just four years prior to Banks' death. Important herbarium collections were forwarded to Banks by the medical officers of the Honorable East India Company: Patrick Russell and William Roxbourgh, Superintendent of the Company's garden in Calcutta. Roxburgh and his successors at the garden, Nathaniel Wallich and John Forbes Royle, were to lay the foundations of Indian botany. Banks obtained further collections by purchase: important historic collections of Paul Hermann (d. 1695) made in Ceylon and the *Hortus cliffortianus,* the first major collection containing exotics studied by the famous Swedish botanist Carl Linnaeus. The Banksian herbarium was arranged according to Linnaeus's sexual system of plant classification by two of his famous pupils, Solander, and, when he died, by Jonas Carlsson Dryander. Solander, Dryander, and Banks's third curator, Robert Brown, named and described many of the new acquisitions. Their extensive manuscripts are in the Department of Botany, British Museum (Natural History). These three botanists were responsible for a large number of the descriptions of new species published in England during their terms of office. The two editions of Aiton's *Hortus Kewensis* were largely prepared by them. The Banksian herbarium was always available for study; many came and consulted it and discussed their problems with Banks and his curators. Few were debarred its use. By the establishment of this vast and historic collection and its study by his curators, Banks made an outstanding contribution to taxonomic botany. Had Banks not participated in Captain Cook's first voyage, he may only have formed a mainly European herbarium. Of course, he may have emulated his predecessor as President of the Royal Society, Sir Hans Sloane (d. 1753) and acquired what is now an historic collection in the Department of Botany, British Museum (Natural History), but this in itself would not have contributed in any substantial measure to the advancement of taxonomic research.

From around the mid-eighteenth century, there was a growing realization among zoologists and botanists of the value of having accurate drawings made of appearance and structure of new species, especially those likely to be designated type specimens. The drawings brought back from Captain Cook's first voyage had not only a tremendous impact scientifically but also among the intelligentsia in general and through them on the art and the literature of the period. Banks naturally stressed the importance of attaching artists to voyages of exploration. As I have stated earlier, Captain Cook persuaded the Admiralty to abandon this principle for the third voyage, but when Banks proposed the circumnavigation of Australia in 1798 the Admiralty again agreed to the appointment of scientific personnel and a natural history painter, Ferdinand Lucas Bauer, one of the finest botanical artists of all time. Unlike Sydney Parkinson, Bauer only made detailed pencil sketches on the voyage assisted by a unique system of color notes. On his return, Bauer was commissioned by the Admiralty to make a number of finished water color drawings which Banks stipulated were to be executed under the supervision of Robert Brown. These drawings were presented by the Admiralty to the British Museum in 1843 and are now in the Department of Botany, British Museum (Natural History). The officers of the East India Company followed this Banksian principle and there exist in the India office, Royal Botanic Gardens, Kew, and the Department of Botany, British Museum (Natural History), extensive collections of superb drawings made by native Indian artists from fresh material and under supervision, Only a very small selection, however, have been published. Banks acted as technical advisor for the publication of *Plants of the Coast of Coromandel,* 1795-1820, a sumptious folio describing 300 plants collected and described by William Roxburgh. Banks also received a small but continuous flow of drawings from those resident in New South Wales, Norfolk Island, and Tasmania. A number of these are currently in the Thomas Watling and Port Jackson painter collections in the British Museum (Natural History).[53] Some of these drawings are important, being all that remains of the type on which the description was based. A study of Banks's scientific papers, especially those in the Mitchell Library, may establish the artists of some of these drawings who were responsible for forwarding them to Banks and where the plants and animals were collected. As I have stated earlier, many new species of plants were grown and flowered in the Royal Gardens at Kew. It is not surprising, therefore, that Sir Joseph should have wished to install a resident artist there to record some of them, and who better than Franz An-

[53]Banksian Ms. 34, British Museum (Natural History).

dreas Bauer, brother of Ferdinand, and perhaps the finer artist of the two. Bauer thus became the first of a continuous line of famous resident artists working at this garden. In 1796, Bauer published his *Exotic plants cultivated in the Royal Gardens, Kew*, depicting plants introduced from the Cape and from Australia, the latter largely due to living material sent to Banks by Governor Arthur Philip. The drawings made by Francis Bauer, both during Banks's lifetime and afterwards, were presented to the British Museum by Queen Victoria in 1841. They are now in the Department of Botany, British Museum (Natural History).

So far, I have made no mention of the North American continent because living plant material already reached England during the previous century and a large number of east coast American plants had already been introduced into cultivation in England prior to the Banksian era. James Petiver (1658-1718), an apothecary of Aldersgate, and Peter Collinson (1694-1768), a cloth merchant, were the English importers. John Bartram (1699-1777) and his son, William Bartram (1739-1823), were the initial suppliers of seeds and root stock. They founded the first "nursery" in America on their property on the Schurrykill river, near Philadelphia. In spite of the American War of Independence one finds the Aitons requesting Banks to order, for the Royal Gardens, a list of species from the nurseryman, Moses Marshall (1758-1813), operating in Chester county, Philadelphia! Although the west coast of America was opened up by the Lewis and Clark expedition, 1805-06, neither George III nor Banks sent a collector to this part of America. After Banks's death in 1820, the Horticultural Society of London took over Banks's role of sending out botanical collectors and it was to this particular part of America that David Douglas (1799-1834), "Douglas of the Fir," was sent to explore in 1832. And what a harvest he reaped!

I think this very brief sketch indicates ways in which participation in Captain Cook's first voyage influenced Banks. It also shows, though I have only dealt with the botanical aspect, why Banks can, in fact, be considered as England's scientific director of the period for botany, the prototype of the Director of the Royal Botanic Gardens, Kew, of today. No more fitting memorial could be devised for Banks, who from the very outset, was determined to study botany and for the rest of his life was to contribute to the advancement of this science. I do not agree with Beaglehole that Banks had an amateur's approach to science and, even if this were true, some of the great advances in science have been made by amateurs, so the term should not be applied to Banks in any disparaging sense, which is what Beaglehole appears to imply.

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LAPEROUSE'S EXPEDITION TO THE PACIFIC NORTHWEST, 1785-1788

by Rear Admiral C. R. Maurice de Brossard

The contributions of Jean-François Galaup, Count de Lapérouse, to Pacific exploration are generally spoken of in terms of navigation and discovery. Lapérouse's voyage which sailed somewhat in the path of Cook's last voyage, ended much like Cook's--in tragedy. There were considerations other than just discovery, however, that motivated Lapérouse's expedition. Certainly he was commissioned to discover all he could in the Pacific using Cook's third voyage as a guide, but this was only one aspect of that expedition. Foremost, was the desire on the part of the French government to gather information for possible whale fishing in the Pacific and for fur trade between the American northwest and China.

The aspect of discovery indeed took place, thanks to the combined efforts of the naval minister of Louis XVI, the Maréchal de Castries; his chief of ports and arsenals; the Captain of the king's vessels, Claret de Fleurieu; and of Lapérouse himself. Furthermore, the king and his ministers felt a need to set up a world-wide maritime operation in which the French could win the same glory that England had won with the voyages of Captain Cook, but all of this was only one aspect of Lapérouse's voyage.

In 1784, ideas surrounding the French plan of navigation in the Pacific were still quite vague. "There was discussion, but no decision," as Lapérouse himself put it. It was, however, a commercial proposition that finally set things in motion. A Dutch merchant by the name of Bolts,[1] who had traded from one Indies to the other, knew the Chinese markets. He was not really attached to any company, but had spent many years in the Far East and was now living in France. Bolts had undoubtedly picked up his information concerning Cook's last voyage at the Cape of Good Hope. He had concluded that the fur trade, which he had tried himself, could become highly lucrative for whoever would secure a supply of pelts in Alaska and on the northwest coast of America and bring them to the rich Chinese market at Canton. He suggested to the Maréchal de Castries that he should fit out an expedition for Alaska and Nootka (British Columbia). In 1784, the official account of Cook's last voyage was finally published

[1]William Bolts (1740-1800) was a Dutch navigator and merchant who served successively the British East India Company, the Dutch and the Austria Company.

and it contained details of his visit to Nootka.[2] In it, attention was drawn to the possibility of building up a very profitable trade on the basis of trading posts along that coast, especially for sea otters whose skins were then worth 100 piastres each at Canton. This proposal was studied at Versailles[3] particularly because France had just lost her Canadian fur trade in the Treaty of Paris, 1763, and London was receiving considerable revenues from it through the Hudson Bay Company.

France was not alone in coveting this market. Spain also was a rival. Because of their position on the west coast of Mexico (New Spain) with their base at Monterey, the Spaniards intended to set up trading posts and thus outstrip the activity of the Russians on the coast of the Great North. When Cook left on his third voyage, July of 1776, Don Juan Perez had already, according to reports, reached the 55th parallel, halfway between Nootka and Bering Bay, but the Spaniards, jealous of their own discoveries, had released no exact information on this voyage. In 1775, Don Juan Francisco de Bodega y Quadra and his pilot, Maurelle, had progressed as far as 58°, the "Cape Cross" of Cook. (There is some doubt, however, surrounding the copy of the Spanish voyage.) The Spanish names of some notable points along the coast are to be found on the map set out by Lapérouse, who verified their latitudes, although their longitudes were generally erroneous.

Finally, a third Spanish voyage had been undertaken by Don Ignaz Arteaga on the Princess while Don de la Bodega accompanied him on the *Favorite* with Don Maurelle, now a frigate ensign and second-in-command on the latter. They had left 11 February 1779 from the Port of St. Blaize (21°30' N) and their object was to reconnoitre the coast from the 58th to the 70th parallel north. Their longitudes were just as wrong as those on the previous voyages: they thought Port Bucarelli was at 55°18' North and 139°15' west of Paris. Cook saw this coast from a fair distance in April of 1778, and he put it at 135°20'. Lapérouse who saw it at close hand on 8 August 1786, fixed it at 136°20'.[4] It appears that this Spanish voyage went as far as 60° north to Montague Island. In his publication on the voyage of Lapérouse, Milet-Mureau hoped that "this work will be useful in comparison with those of the Englishmen Dixon, Cook, and Lapérouse."

[2]James King, *A Voyage to the Pacific Ocean* (London: G. Nicol and T. Cadell,.1784).
[3]Archives de France, Marine, 3JJ386, p. 1.
[4]Lapérouse, Archives de France, Marine, MS 3JJ386.

In 1789, Captain Dixon had published an account of his voyage in that area with the object of buying furs for resale in China, not specifically of making discoveries.[5] Thus, England wished to control at least part of the Alaska market as a natural complement to their Hudson Bay activity. Such is indeed the case, when in 1784 four expeditions were preparing to leave from the Indies and England for Nootka.

These undertakings along the northwest coast (especially the Spanish) were to clash with Russia who had already added Alaska to her profitable Siberian sea otter trade. The Russians had been in Kamchatka since 1645. The Aleutians were added to this sea otter trade in 1742 through Chirikov's expedition aboard the *St. Peter* (accompanied by the French scientist Delisle de la Croyère). The Russian move to Alaska came soon afterwards.

By the end of the eighteenth century, two powers thus lay claim to the Northwest coasts: Russia by decree, and Spain by reason of the division of the world in the Treaty of Tordesillas, 1493, and by reason of being the first discoverer. The scholars of the day desired to send out navigators to solve the riddles of the great sea of the northwest, the Northwest Passage, but the straits of Juan de Fuca and de Fonte were less attractive than the search for sea otters. In 1783, Chilikhov was at Kodiak, where he established a fortified trading post at the port of Three Saints, and from there he followed Cook's route of 1778. "We are creating an American Russia," he said in 1786 on his return to Okhotsk, a few months before the arrival of Lapérouse; but the Russians would not get as far as Sitka until 1800. In that competition, England attempted to have a part. Vancouver's voyage in 1791 is clear proof of that.

We have gone far beyond the period of Cook and Lapérouse, if only to show the basis for the interest of the courts of Madrid, London, and Versailles in the northwest American coast. It is thus not surprising that Master Bolts' proposal was well received by the French in 1784. Initially, the object was to be nothing more than a commercial enterprise. The expedition was to consist of three merchant ships under the command of the king's officers; then, in view of the risk of conflict with foreign expeditions, it was increased to two merchantmen accompanied by a man-of-war.[6]

Because of his experience in his recent Hudson Bay campaign, Lapérouse was summoned by the ministers to study this expedition.[7] Con-

[5]George *Dixon, Voyage autour du monde et principalemente à la côte Nord-ouest de l'Amérique 1785-1788* (Paris: Maradan, 1789).

[6]Archives de France, Marine, B^4 319.

[7]Archives de France, Marine, B^4 319.

sidering the danger of an offense against the Flag and the prestige of the nation should they encounter aggressive competition, they decided on a force of two armed vessels of the king charged with orders to study the fur market.[8] Through the influence of Claret de Fleurieu and Lapérouse, additional support was given to the scientific aspect of the voyage. Astronomers, physicians, engineers, physicists, and botanists were all added to the expedition although priority was still to be given to the commercial objective and the North American fur trade. The expedition had now become a broadly-based program of geographical discovery and diplomatic and commercial exploration which would extend over the whole of the Pacific from the northwest coast of America to the coasts of China, Japan, and Kamchatka. They planned two landings at Kamchatka where it was expected that information might be available about Russian activities in Alaska and the Aleutians. Afterwards, Lapérouse should then go to Micronesia, Australia, New Caledonia, and Santa-Cruz.[9]

In defining their particular objective, information taken from Cook's journal as recounted by James King at the time of the landings in Kamchatka carried a great deal of weight. It is not surprising, therefore, that, on the basis of Cook's itinerary, two landings were planned at Petropavlovsk. In view of the difficulties experienced by Cook's successor Captain Clerke in communicating with the Russians, Lapérouse was assigned a Russian interpreter in the person of the young de Lesseps, son of the French consul in St. Petersburg.

It is surprising that the itinerary planned for Lapérouse to go directly from Cape Horn to Australia via Tahiti. It was arranged this way so that the frigates would be in each theater of operations at the most favorable time. Clearly, Lapérouse's itinerary as finally conceived was definitely modeled on Cook's experience during his third and final voyage.

An exhaustive list of Cook's great discoveries was drawn up by Buache, first geographer to the king, and the navy's office of maps, plans, and journals. Cook's great South Sea route on his third voyage was exactly set out. King Louis showed himself to be an informed geographer on this occasion. He studied the 1784 edition of Cook's voyage and discussed the details of Cook's operations and those intended for Lapérouse in special meetings with the Maréchal de Castries and Fleurieu. Louis exhibited a geographical knowledge and good sense that many seamen and experts

[8]The file among the expedition's papers is important. Archives de France, Marine, 3JJ386 n°2 f°22. Project de Fleurieu et Instructions du Roi.

[9]Archives de France, Marine, 3JJ386-3JJ389.

might have envied. A single example was when he reduced the separation of the ships to a single occasion--from Pitcairn to Tahiti. In fact, he did not go there. As a result, the planned itinerary matched Cook's voyage completely in the exploration of the different areas. The most striking example of this is to be found in the reconnaissance of the northwest coast of America from Mount St. Elias to Monterey.

Once he was under way, Lapérouse, who was empowered with discretion to alter his route whenever he found it necessary, changed his plans completely! "I had thought of another itinerary," he wrote, "but I could not decide until I had rounded Cape Horn."[10] When he entered the South Pacific he, therefore, gave up Australia for the northwest coast of America which he believed he could reach in a favorable season. His new route took him via Concepcion in Chile, Easter Island, and Maui (Hawaii), though on two occasions he had to change his plans because of foul weather. On 23 June 1786, he came in sight of Mount St. Elias and moved southward, hugging the coast as far as possible.

After the Sandwich Islands which he had left on the 30th of May, he followed Cook's path. In seeking the famed Northwest Passage, Cook had travelled from Cape Gregory (44°15' North, 234°30' East) in a general north-northwest direction and had stopped and noted the resources of Nootka. The lateness of the season, however, compelled Lapérouse to begin his exploration from the most northerly point reached. And there, pursuing a different objective, he did a remarkable job modeled exactly on Cook. Cook, who was in a hurry to reach the higher latitudes so he could enter the Bering Sea and try to penetrate the Arctic ice packs, was not able to follow his own inclination and was often out of sight of the coast hidden in mist or driven off course by winds and bad weather. Lapérouse had no time to waste either, and he stuck to the coast seen for the first time in the history of European discovery in those regions.[11]

Comparing the routes is fascinating, especially if we study the map kept in the cabinet of Louis XVI on which Lapérouse's route was charted as each of his dispatches came in. The routes of Lapérouse, charted on the king's map now in the National Library of Paris (Maps and Plans SH 174/2), goes only as far as Macao, but the part which concerns us is the most interesting. On the northwest American coast where Cook's fairly

[10]Archives de France, Marine, 3JJ386 n°l, p. 1 and B^4 319, letter of Lapérouse 19 September 1786 and L. A. Milet-Mureau, *Voyage de Lapérouse*, 4 vols. (Paris: Imprimerie de la République, 1797-1798), I, chapter 11.

[11]Dixon's voyage was unknown at this time. Dixon saw the northwest coast in 1786, approximately one month after Lapérouse.

simple course was charted, a fold is attached on which is shown in detail the routes and the lie of the coast seen by Lapérouse, drawn on the basis of the journals brought back by de Lesseps in 1788. This piece of work won the highest approval of geographers. Bancroft, for example, called it a "remarkable work, quite superior to anything done before 1787."[12]

Time was pressing and Lapérouse had spent more time than anticipated in Frenchmen's Harbor (Lutuya Bay), where the wreck of two yawls delayed him for ten days beyond the planned departure date. After this episode in which he lost six officers and fifteen men, he had to make haste for Monterey since he had to get there by the 14th of September if he was to begin the long crossing to Macao at the right time. In spite of this, he accomplished a great deal. He was far from Nootka to land, but he recognized the main points of the outer islands and guessed the extreme complexity of the channels separating the island group from the mainland. Cook was of the same opinion that it would require much more extensive hydrographic work. Vancouver spent three periods at it on an expedition which lasted from 1792 to 1794 during which time he was able to map out these regions completely.[13]

The main geographical areas mapped by Lapérouse were from Mount St. Elias, Boussole's point, and after, the same as Cook eight years earlier: Bering Bay in which he anchored, Cape Fairweather, Frenchmen's Harbor and Mount Crillon, Cape Cross. He verified the Spanish positions of Port de los Remedios, Port Guadelupe, Cape Engano and Mount Hyacinth which correspond to Island Bay (Baie des Iles) and Cape Chirikov at 56°10'. There the routes part company. In the area between 56° and 50°) Lapérouse's work is completely original since Cook had been too far away from the coast to see anything but its general direction.

Lapérouse, on the other hand, saw Spaniards' Islands, Port Buacrelli, where he corrected its longitude, Cape St. Augustine, and named Clonard Bay at 54°. Thenceforth, he scarcely travelled more than thirty miles from the coast. Although he was further away from this cape, he charted land precisely at 53°20', then hugged the coast again and named La Touche Bay and Mount La Touche, then Cape Hector at 52°, 131°40' west of Paris on the edge of a small island group which he called by the same name, as well as the mountain visible at 51°30' N and 130° 30' west.

[12]George Bancroft, *History of the Northwest Coast* (New York: D. Appleton & Co., 1884).

[13]George Vancouver, *Voyage de découvertes à l'Océan Pacifique du Nord* (Paris: Impr. de la République, 1800).

He charted a stretch of coast from north to south behind the Fleurieu Islands (131° west); then he named St. Louis Bay, and saw Cook's Woody Point at 50°15' and saw Nootka on 25 August, but was driven off his course from it by winds.

Where Cook travelled almost in a straight line from Nootka to Cape Edgecombe, Lapérouse kept close to the outer islands and was able to chart precise reference points before Vancouver penetrated the coastal archipelago. In fact, at 51°50' he had entered Hecate Passage; he placed his north-south stretch of coast too far west, joining it to Cape St. Louis which corresponds in latitude to Cape Scott, and he reached the entrance of Queen Charlotte Strait but he did not discover this although he had guessed a highly complex coastal archipelago since St. Elias mountain.

His hasty passage to Monterey is less interesting. It was down a coastline whose features had already been charted by Cook. He added, however, Cape Round before Cape Foulweather, and Cape Blanc, at 42°50'. He then entered Spanish waters and reached Monterey via Port San Francisco on 13 September 1786.

The commercial enterprise which had spurred the expedition in the first place turned out to be a fiasco for the French. They had obtained about 1000 skins at Frenchmen's Harbor, however, at Macao, where they arrived on 3 January 1787, the news of the English voyages had brought the market cost for sea otter skins from 1000 down to 10 piastres! It had been a deceptive market. The sale which was accomplished with great difficulty raised only 9,000 piastres; this money was given to the ships' crews.

Similar to Cook's second voyage, Lapérouse introduced the use of accurate marine chronometers on board ship. There were four of them from Berthoud, one of which was of particular interest. The astronomer Lepaute d'Agelet, who was the youngest member of the Academy of Science in Paris, took it over and inspected it constantly. This notable astronomer had accompanied Kerguelen on his second voyage to the Antarctic in 1773 and 1774.

These were then the contributions of Lapérouse to the discovery of the northwest coast of America. His work fully complements the achievements of Cook who was always an inspiration to Lapérouse. His admiration for his British predecessor is seen from extracts of his journal: "Captain Cook, first among navigators . . ." he wrote at the beginning of his journal. Of Cook's inclination compasses which were lent Lapérouse by Sir Joseph Banks, he says: "I received these instruments with a feeling of religious awe for the memory of this great man." This was his feeling all

through his voyage, for he refers constantly to the immense achievement and how little was left to be done by other discoverers. These quotations reveal not only the attitude of Lapérouse, but also that of the French Navy and Louis XVI. In 1778, during the height of the American War of Independence, the French King even issued an order to all ships at sea that if they encountered Captain Cook's ships they were to regard and treat them as a neutral and friendly power![14]

Similar to Cook's last voyage, Lapérouse's also ended in tragedy. His ships struck the reef of Vanikoro in the Santa Cruz Islands and sank. Since 1964, we have succeeded in reconstructing exactly Lapérouse's journey after he left Botany Bay, but that is another part of the story.[15]

REAR ADMIRAL DE BROSSARD belongs to an old Norman family whose roots trace back through a long line of royal seamen to Pierre de Brossard who accompanied Lapérouse on his famous expedition. Admiral de Brossard entered the *Ecole Navale* in 1928 and served in military operations in France, Indochina, and Algeria. From 1957 to 1960, he headed naval operations in New Caledonia and there he became interested in the Pacific. Afterwards, he headed the *Service Historique de la Marine* and directed the expedition sent out to uncover the wreckage of Lapérouse's ship the *Boussole.* He was promoted to rear admiral in 1965 and retired from active service in 1965. He has authored many books dealing with the sea and its history, among which are: *Océan des Français--Tahiti* (Paris: Editions France-Empire, 1963), two volumes of the *Histoire Maritime du Monde* (Paris: Editions France-Empire, 1974 and 1978), and his latest work Lapérouse: *des combats à la découverte* (Paris: Editions France-Empire, 1978) details the life and achievements of Lapérouse. Admiral de Brossard is a member of the *Académie de Marine,* the *Académie des Sciences d'Outre-Mer,* and the Hakluyt Society.

[14]Arcives de France, Marine, B^4 313 and B^4 315.

[15]Admiral de Brossard, *Rendez-vous avec Lapérouse à Vanikoro* (Paris: Editions France-Empire, 1964) and *Lapérouse, des combats à la découverte* (Paris: Editions France-Empire, 1978). See also for the northwest coast, Gilbert Chinard, *Voyage de Lapérouse sur les côtes de l'Alaska et de la Californie en 1786* (Baltimore: John Hopkins Press, 1937).

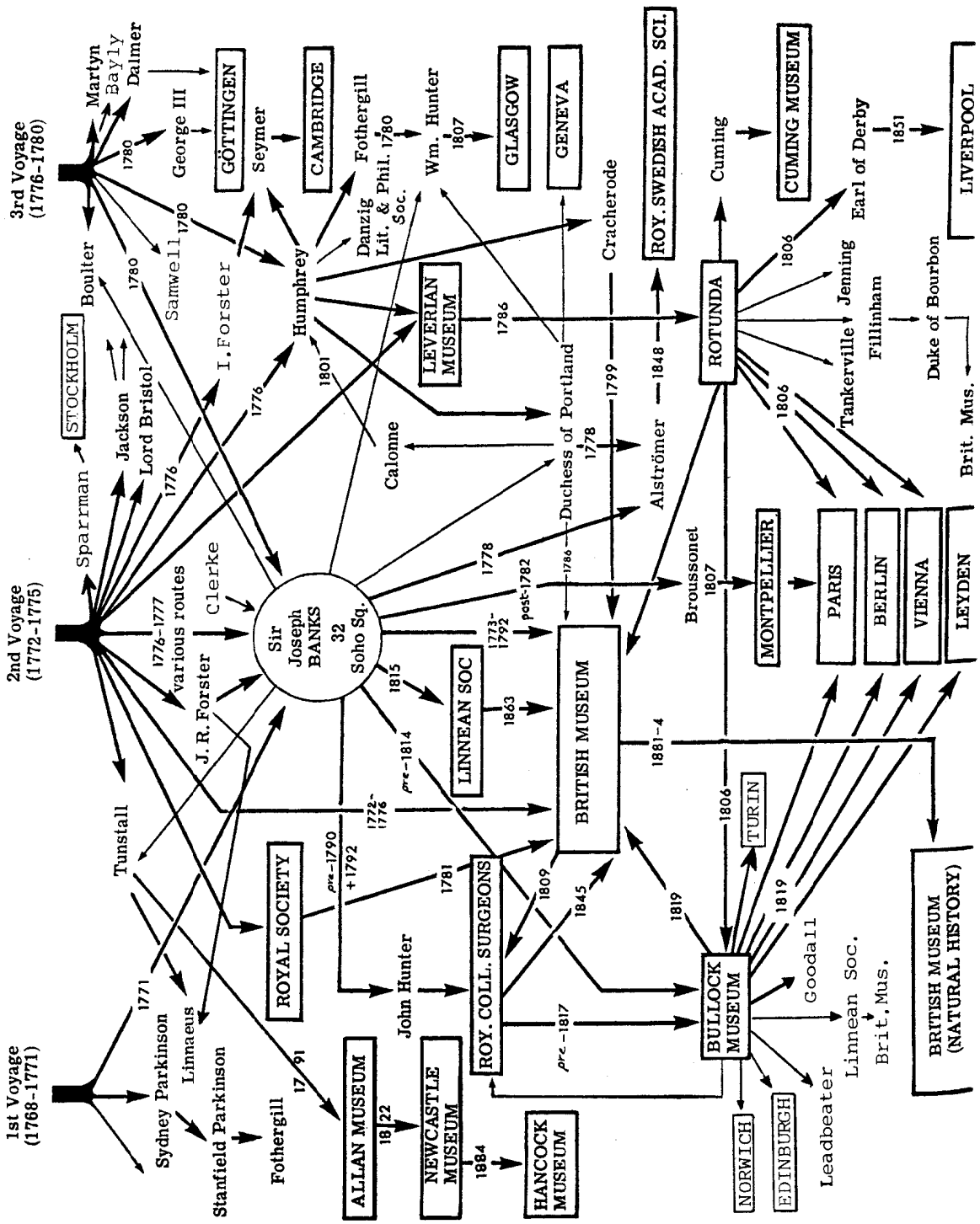

Figure 1. Dispersal routes of the zoological material from the three Cook voyages (modified from Whitehead, 1969). Some minor routes are not shown and others have had to be necessarily simplified.

A GUIDE TO THE DISPERSAL OF ZOOLOGICAL MATERIAL FROM CAPTAIN COOK'S VOYAGES*

by P. J. P. Whitehead

For eighteenth-century zoology, the material brought back from Cook's three voyages was the most extensive yet collected and available for study from the Pacific region. With the natural world now neatly ordered by Linnaeus, and with such capable naturalist-collectors as Banks, Solander, Sparrman and J. R. Forster, one might have expected grand tomes on the zoological and other scientific results. In fact, Banks' primary interest in botany, Solander's early death, and Forster's dispute with the Admiralty were important factors in the dwindling interest in the zoological material and its gradual dispersion to numerous museums and small collections. The market value of these exciting natural and artificial curiosities speeded the dispersal.

As a result, the modem specialist trying to trace type or figured specimens must explore such famous old museums as the Leverian or Bullock's and he must probe the many small and ephemeral collections that time and again changed hands, at each step with some loss of material and of the information that accompanied it. A complex web of sales, loans, gifts and transfers must be unravelled if the specimen is to be located or its provenance authenticated. The task is time-consuming, and it is often held that such "historical taxonomy" is an old-fashioned and expensive luxury in modern systematic work. Yet the stringent rules of zoological nomenclature insist that such care be taken lest any ambiguity come between the name of an animal and its true identity (more fully elaborated in Whithead, 1978b).

For Pacific ethnology, the Cook artifacts form a critical base-line. For zoology and botany the specimens are equally important. They serve to confirm the identity of the material reported; they offer evidence of for-

*We are pleased to print the definitive study on the dispersal of Cook's zoological specimens. For convenience, we have deviated from our usual method of footnoting in this article and have adopted the system used by most scientific journals.

mer distribution patterns before European interference with biotopes; they can help to date introductions; and they provide clues to species now extinct. In an earlier paper (Whitehead, 1969a), I made a preliminary study of the dispersal of the Cook voyages animal specimens, but a decade has passed and much has been published in the meantime. Adrienne Kaeppler's painstaking searches for Leverian, Bullock and other artifacts from the voyages, Michael Hoare's definitive biography of J. R. Forster, Harold Carter's immense study of Banks and a host of papers stimulated by the renewed interest in Cook have filled many gaps. The picture is by no means complete, but there is now need for a summary of the people and institutions involved in the zoological dispersal and the literature around it.

The extent of the zoological collections made on the three Cook voyages can be explored in various ways. Information can be culled from the accounts of the voyages by participants, from contemporary treatises on the zoology (Fabricius for insects, Latham for birds, Pennant for various animals and especially Forster in his *Descriptiones animalium* for all second voyage animals), or from later works in which Cook material finds mention. Another route is through the drawings made on the voyages, of which the vast majority were acquired by Joseph Banks, passed to the British Museum in 1827, and came to the Natural History Museum at South Kensington in 1881 (see summary in Whitehead, 1978a, with list of all non-avian drawings by George Forster; all bird drawings from Cook voyages listed by Lysaght, 1959). Of great value are some contemporary lists of Banksian drawings, also at South Kensington (Dryander, MSS l-5. See Whitehead, 1978a for contents). Nearly 750 zoological drawings were made on the three voyages. The animals can also be located in the various lists made by Solander (MSS. 1-4 and Slips), again at South Kensington, as well as in some notes by George Forster. Titles of the Dryander, Forster, and Solander MSS., as well as those of Anderson and Clift, are given in the list of references below. Other documentary evidence comes from sale catalogues (see compilation by Chalmers-Hunt, 1976) and from the letters exchanged by those involved in the flurry of buying and selling while Cook material still commanded high prices.

I wish to express my very warm thanks and appreciation to all those who contributed data for this study. It would be impossible to list them all and invidious to select just some.

Because of the complexity of the dispersal, numerous cross-references have been made, shown by an asterisk *. These should be checked since they usually lead to fuller information. The following abbreviations have been used throughout:

BM.	British Museum at Bloomsbury
BMHN.	British Museum (Natural History) at South Kensington
DNB.	Dictionary of National Biography
Linn. Soc.	Linnean Society, London
LPL.	Liverpool Public Library
RCS.	Royal College of Surgeons

ALLAN, George, who bought the Tunstall Museum*.

ALSTRÖMER, Johan (1742-86), half-brother of Clas, Patrick and August, who continued the large museum at Alingseas in Sweden begun by their father Jonas (d. 1761). Johan visited England in 1777-78 and acquired Cook shells from the Duchess of Portland*, probably Solander* and certainly Banks*, who also gave him "a *superb* insect collection" (Rydén, 1960, with portrait; also, 1963, a fuller account, with excerpts from Johan's London Letters to his sister-in-law, now at Östad the provincial records office in Gothenburg). In 1787 the caretaker, Dr. Fragraeus, reported part of the collection destroyed by fire. A collection owned by Clas Alströmer at Kristinedal (Gamlestadsbro in Gothenburg) was reported to contain Cook voyages artifacts, especially from Tahiti, being duplicates presented by Banks to Clas (*Upfostrings-Sälskapets Tidningar* for 1784. See Larsson, 1961); it is not clear if these were in fact what Johan got from Banks. Another Clas collection was seen by General Francisco de Miranda (1752-1816) of Venezuela, this time at Gåsevadholm near Kungsbacka south of Gothenburg, in 1787, where he saw an herbarium and also "countless curiosities from Otahity, New Holland, etc." (Rydén, 1950, 1960; Larsson, 1961). In 1848 Jonas and Oscar Alströmer presented the herbarium and ethnographic objects to the Swedish Royal Academy of Sciences in Stockholm (Rydén, 1960; Lindroth, 1967); if zoological specimens were present, no Banks/Alströmer material can now be identified in the Naturhistoriska Riksmuseet in Stockholm (Per Inge Persson, *in litt.*). The second collection of Clas, which may have contained natural history materials from the first, was for the most part sent in 1790 as a gift to Åbo University, but in 1827 all was destroyed by fire (Löwegren, 1952:336).

ANDERSON, Robert, quartermaster on the *Endeavour* and gunner on the *Resolution* (second and third voyages), who collected material for sale, e.g. a colorful sea urchin sold to Lever* and painted by de Barde* (pl. 6,

No 56 in Bullock, 1814, with data); it was sold at the Leverian sale of 1806 to a Mr. Jenning*. Anderson also contributed to a gift of "natural and artificial curiosities" to the British Museum * .

ANDERSON, William (1748-78), Surgeon's Chief Mate on Cook's second voyage and Chief Surgeon on the third, who compiled a small notebook of animal descriptions from both voyages (Anderson, MS.). He died at sea and *fide* David Samwell's journal (3 August 1778) left his "collection of Plants & other Curiosities which he had procured this Voyage both natural and artificial to Mr. Banks" (Beaglehole, 1967: 1130). Biographical data in Keevil(1933), also Whitley (1970: 55).

ANGUS. Mrs. Angus sold her collection in 1821, including Cook shells, probably from Calonne* (Dubois, 1821--annotated copy in Linn. Soc.).

ARENBERG, Duc d', who received first-voyage "curiosities" (? zoological specimens) from Banks according to a letter to Banks from João Magalhães (1722-90), physician and botanist (Paris, 28 December 1778--BM. Add. MS. 33977.86-87; copy in Banks corr., 1: 243 in BMNH.). A postscript states that the duke accompanied the writer to Banks' house shortly after the return from the first voyage and "You [Banks] made a present of various curiosities to the Duke, which he deposited in the Cabinet of Prince Charles of Bruxelles." I am indebted to Dr. Adrienne Kaeppler for chancing on this information.

ATKINSON, Arthur John, of The Downs, Bowden, Cheshire, who had two fine collections of shells about 1810, including a *Haliotis gigantea* once the possession of J. R. Forster, to whom it had been given by Catherine the Great when he was in Russia; it appears to have been bought by Atkinson from Parkinson, owner of the Leverian, for fifteen guineas. An Atkinson MS. of August 1826 in the Manchester Museum, entitled "The elements of conchology" states this and also reports on the shell collection of Swainson* (I am indebted to Mrs. Nora McMillan for drawing my attention to this). Kaeppler (1974: 75) identified as Thomas the Atkinson who bought ethnographic material for Banks at the Leverian sale (based on a letter in the Cuming Museum), but assumed from Mullens (1915: 166) that he was an eminent naturalist; Mullens gave no first name, but was evidently referring to Arthur.

BAILLIE, Mathew (1761-1823), nephew and pupil of William Hunter*, who inherited the use of the latter's museum before its eventual transfer to Glasgow*; some £8000 was left for maintenance and acquisitions (DNB), hence "Bailey" at the Portland sale of 1786 may have been responsible for the Portland material at Glasgow; Laskey* may also have brought Leverian items into the collection.

BANKS, Sir Joseph (1743-1820), the "hub around which the natural history of the voyages revolves" (Whitehead, 1969: 162) kept his own first-voyage material and acquired much of that from the other two voyages, storing it at his house at 14 New Burlington Street (South side, from April 1767 to April 1777) and then at 32 Soho Square (April-September, the move--Harold Carter, pers. comm.). Of his numerous but poorly documented acquisitions and subsequent donations, the following can be reported:

In 1772, a purchase of Sydney Parkinson's first-voyage drawings and some shells (Preface to Parkinson, 1773).

20 January 1773, presented New Zealand birds to BM. *(Book of Presents)*.

1 August 1775, letter Solander to Banks: birds in spirit from Cook to Banks (Dawson, 1958: 772).

22 August 1775, letter Solander to Banks: four second-voyage casks of fishes and birds addressed to Banks and sent by Cook to BM. (Dawson, 1958: 772).

5 September 1775, letter Solander to Banks: insects brought to BM. by J. R. Forster* for Solander to distribute, some to Banks (Dawson, 1958: 772).

31 July 1776, letter Solander to Banks: the assistant Baker will bring the plants and animals to Banks' house (Dawson, 1958: 772).

9 August 1776, letter J. R. Forster to Banks: the Forster drawings bought by Banks (Dawson, 1958: 339).

In 1776, a Banks note copied out by Robert Brown: the Forsters "did me the favour to present me with very many specimens, both of plants and animals which they had collected in the different countries they had visited." (Britten, 1885).

26 September 1778, letter to J. R. Forster to Banks: Banks had refused to buy Forster's shells (Dawson, 1958: 339).

23 October 1778, Banks presented Cook artifacts to BM. *(Book of Presents)*.

1 November 1780, letter David Samwell* to Mathew Gregson: Banks monopolized the "very few natural curiosities" from the third voyage (Gregson corr., LPL.); Banks inherited specimens from William Anderson* and Captain Clerke*; some 220 birds of 159 species acquired (Dryander MS. 4), some being from Captain Furneaux*.

In 1787, presented shells and insects to Johan Alströmer*, the boxes of shells being opened for the first time since the voyage.

In 1790, Banks presented a kangaroo skull to John Hunter*.

In 1792, presented a large collection of spirit material to John Hunter, being apparently all the 344 items of the New Holland Division catalogued in 1806 for the Royal College of Surgeons by Shaw (Clift MSS. 1, 2); a similar collection was presented in 1792 to the British Museum*.

In 1815, presented insects, crustaceans and shells to the Linnean Society* (whence to British Museum in 1863); possibly Solander's also.

In 1806, perhaps acquired natural history specimens as well as artifacts at Leverian.

In 1820, his herbarium and library (including drawings) inherited by his third librarian, Robert Brown (1773-1858) and thence to the British Museum in 1827.

Banks' specimens and drawings were examined by numerous naturalists including Broussonet*, Pennant* and Latham* who made copies of a number of the bird drawings; his house acted as a virtual natural history museum.

BARDE, Alexandre Isidore Leroy, Chevalier de (1777-1829), artist, who fled France for England during the Revolution and painted, among other works, six large and exquisitely detailed gouaches of objects in various collections, including the Leverian* (birds l-10 in first painting, all in fourth and all shells in sixth); also tiger and boa constrictor in Bullock's Museum* (fifth). Bullock exhibited the six gouaches in 1814, with an illustrated catalogue with data on specimens (Bullock, 1814--shells 1, 2, 25, 56, 69 all from Cook voyages, also sea urchin collected by Robert Anderson*). The gouaches, now in the *Cabinet des Dessins* at the Louvre (colored photos in BMNH.), were exhibited at the Paris Salon in 1817. (For a biography of de Barde, see Braquehaye, 1896).

BAYLY, William (various spellings) (1737-1810), astronomer on the *Discovery,* who sold a collection of third-voyage specimens and artifacts in October 1780 (Beaglehole, 1967: 1560), some being bought by Samwell* and also by the Reverend John White* for Anna Blackburne*. Bayly had apparently "saved a few tolerable good articles," of which Lever received some birds (Medway, 1976: 50). Bayly sold again in May 1799 (Chalmers-Hunt, 1976: 66), including "91. A large and fine sun shell, from New Zealand."

BERLIN. The Zoologisches Museum may have acquired Cook material bought by Lichtenstein* at the Bullock sale of 1819, but no extant specimens (in particular birds) are recorded.

BLACKBURNE, Anna (1726-93), amateur naturalist and first cousin to Ashton Lever*, who had a private collection at Orford Hall and later Fairfield near Warrington (Wystrach, 1974, 1977). She was offered and perhaps bought a collection from the third voyage by David Samwell, while the Reverend John White* bought some third voyage birds for her at Bayly's sale* (White to Mathew Gregson, 18 October 1780, Gregson corr., LPL.). She bequeathed her entire collection to her nephew John Blackburne, but it seems to have been dispersed (Wystrach, 1977: 162).

BONELLI, Franco Andrea (1784-1830), Director of the Turin Museum* from 1811, who bought at Bullock's sale in 1819.

BOULTER, Daniel (1740-1802), of Yarmouth, private collector, whose *Museum Boulterianum* (1793) lists Humphrey* and Lever* as donors and contains a number of specimens with Cook localities (e.g. 10, 16, 30, 31, 53--birds; also many shells); Hawaiian material was surely from the third voyage (Southwell, 1891). The collection was later dispersed to members of the family. (See also *Gent's Mag.,* **76** (1):432 for 1806.)

BOURBON, Duke of, who acquired the celebrated pink variety of the Imperial sun shell that had been bought by Fillinham* at the Leverian sale of 1806 (Donovan, 1822: pl. 11 and text); it was lot 84 in the Duke's sale of 13 April 1815, conducted after his return to France at his former residence in Orchard Street off Portman Square, and it was later acquired by the British Museum.

BRISTOL. Augustus John Hervey, Lord Bristol (1724-79), collector, to whom after the second voyage "All shells are to go" (Solander to Banks, 22 August 1775--Dawson, 1958: 772).

BRITISH MUSEUM. In existence for only twenty years at the time of the first voyage, it did not establish a solid reputation for natural history until revitalized by J. E. Gray from the 1830s (Gunther, 1975); the period from Solander's death (1782) to 1837 (Gray's registration system for specimens) was particularly bleak for records of zoological material. Some more specific indications can be found in the volumes entitled *Book of Presents* (of which vol. 1, for 1756-1823, was copied out as a vellum book entitled *Benefactions Book*) all in BM. archives; microfilms of vols 1-4 for 1756-1845 in BMNH. The following Cook material has been noted:

3 April 1772, received a Holland parrot from Dr. William Watson* *(Book of Presents).*

20 January 1773, Banks presented New Zealand birds *(Book of Presents).*

5 September 1775 (see Banks), Forster insects received; also Forster fishes and birds (6 September), mammals and birds (8 September) and insects (20 September) (all in *Book of Presents*).

7 June 1776, specimens from Cook* and Clerke* *(Book of Presents).*

23 October 1778, Cook artifacts presented by Banks *(Book of Presents).*

11 November 1780, *fide* Solander's diary (BM. Add. MS. 45, 874, p. 25): donation by Banks*, possibly including his inheritance of specimens from Anderson* and Clerke*. The *Book of Presents* records "several natural and artificial curiosities from the South Seas; from John Gore, James Burney, Lt. Phillips, Lt. Roberts, Mr. William Pickover and Mr. Robert Anderson*, gunners, and Mr. Thomas Waling, quartermaster", to which Banks' name is associated in the *Book of Presents* for 10/24 November 1780. Banks "deposited at different times in the Museum numerous collections of natural and artificial curiosities from the newly discovered islands in the South Seas." *(Synopsis of the contents of the British Museum,* 11th ed., 1811: xxiv).

In 1781, transfer of Royal Society's museum, which included Cook material (e.g. second voyage specimens from J. R. Forster*).

In 1792, Banks' donation of about half his spirit-preserved animals, the remainder going to William Hunter*; much Cook material.

In 1809, sale of a large collection of unwanted material to the Royal College of Surgeons* for £175. 10s (half refunded later), including a selection supervised by Banks of "all the Articles of Natural History in the Basement Story of the Museum [except the horns] . . . and all Duplicates of Natural History" *(Special Reports,* 2 vols, 1805-7 and 1809, in BM. archives, with xeroxes of natural history pages in BMNH.; these are copies from the series *Original Papers,* l743- -, and *Official Reports,* 1805-67, also in the BM. archives). The transaction was reported on by Clift*; some of the specimens transferred will have been donated by Banks* in 1792.

In 1845, receipt of 348 animals from the Royal College of Surgeons*, some being from the New Holland Division (the Banksian gift to the College in 1792) and others perhaps from the Banksian gift to the British Museum in the same year, transferred in 1809. Seven are marked "JB" in the BM. Register (BMNH. 1845.2.21.1 and 3, 9, 40, 187, 281, 384--fishes and birds), none matching "JB" specimens in Shaw's 1806 catalogue for the College (Clift MSS. 1, 2). However, two birds in spirit from this collection are cook specimens, the Hawaiian drepanid *Vestiaria coccinea* and the New Zealand callaeid *Creadon carunculatus,* both with painted Clift numbers (Burton, 1969).

In 1863, receipt of Linnean Society collections (except those of Linnaeus), including Banks' collection of insects, crustaceans and shells (some of the latter surely Solander's--Dance, 1971: 367); the insects were incorporated by Butler (1870), while the shells, labelled "Hanley," were rediscovered by Wilkins (1955).

The BM. collections were transferred to the British Museum (Natural History) in 1881-3, together with most of Banks' collection of natural history drawings.

BRITISH MUSEUM (NATURAL HISTORY). Collections include the drawings of Parkinson*, Herman Spöring and Alexander Buchan (first voyage), George Forster (second voyage, also William Hodges and Johannes Schumacher), and William Ellis (third voyage), as well as invaluable documentary material (Anderson MS., Dryander MSS. 1-5, Solander MSS. 1-4 and Slips). Some Cook specimens still exist, notably fishes (about fifty); birds (see British Museum*; also skins labelled *Cynorhamphus ulietanus* and *Nestor meridionalis* and a hummingbird nest); possibly crustaceans (about forty marked "Banks Coll."); insects (fifty drawers of Banks' specimens), including butterflies studied by Butler (1870), Watkins (1923--who believed the low-written labels to be Forster's) and Corbet (1941), also cicadas studied by Dugdale & Fleming (1977--two first-voyage specimens which are labelled "Forster"); and the Banks collection of shells (Wilkins, 1955). Of secondary material are the Latham bird drawings (some being copies of Cook voyages drawings) and ninety-three drawings by Sarah Stone* of objects in the Leverian*.

BROUSSONET, Pierre Marie Auguste (1761-1807), naturalist and rural economist, whose career has been described by Carter (1964), Granel (1967) and Caillé (1972). In 1780, he spent two years working on fishes at Banks' house and the British Museum, publishing on dogfishes from the first and second voyages (Broussonet, 1780a, b) and on ten bony fishes from various voyages, being the first decade of a projected larger work (Broussonet, 1782); he also described a sailfish (third voyage) seen on a further visit to London in 1786 (Broussonet, 1786--type of *Xiphias platypterus* Shaw & Nodder, 1792, see Whitehead, 1964). He took Banksian specimens back to Montpellier*, of which Cuvier (1828: 126) later received from the Faculty of Medicine; Bauchot (1969) found forty-four out of forty-six of these in the Muséum National d'Histoire Naturelle in Paris (twenty-three Banksian, fourteen types). Broussonet unpublished names are pencilled on some Parkinson and Forster fish drawings and on a list of the drawings (Dryander MS.1), possibly by Broussonet himself; a number of these names were published (as *nomina nuda)* by Gmelin (1789, especially *chaetodon*, p. 1269; he must have seen Broussonet's manuscripts, now apparently lost).

BULLOCK, William (fl. 1795-1845), jeweller, silversmith, toyman and, from about 1795, owner of a museum in Sheffield (Bullock, 1799--first *Companion).* He then moved to Liverpool, the museum being in his house at 24 Church Street until 1805, when he installed it at his shop in Church

Street (museum handbill in Merseyside County Museums) and in 1809 he moved to London, where his collection was housed from 1811 at the famous Egyptian Hall at 22 Piccadilly (Egyptian facade by P. F. Robinson, figures of Isis and Osiris by Sebastian Gahagan. See Honour, 1954; similar façades at Devonport, Oddfellows Hall, by Foulson, 1823, and at Penzance, 1830. See *Sunday Times*, color suppl., 19 March 1972). Bullock published seventeen further *Companions* (seven Liverpool, ten London) in two sizes, occasionally two in one year or one reprinted the next (almost complete set in BMNH. See Kaeppler, 1974). Offered entire museum to Edinburgh via Robert Jameson, Professor of Natural History, in September 1818 since his son had no interest in it; also approached Banks, as Trustee of the British Museum (January 1819), then made a final offer to Edinburgh (£9000), with a list of 2,485 birds, 429 amphibians, and 232 mammals (1 February 1819), tried Banks again (31 March) and finally put it up for auction (26 April-11 June 1819, 3342 lots over 26 days. See Sweet, 1970a, chiefly on Jameson's correspondence, Pollok-Morris MSS.). Portrait of Bullock in Rowley (1822, **2:** 101, pl. XLVIII, reproduced by Sweet, 1970a) and accounts of his museum by Mullens (1917-18) and Iredale (1948); his American sojourn and return to England in Shepperson (1961). Interior of museum with and without exhibits shown in *Ackerman's Repository* (pls. 35 and 45, the first reproduced by Sweet, 1970a), as also the exterior; interior shown on frontispiece of sale catalogue and much later photo in Shepperson (1961). Bullock exhibited the de Barde gouaches* with catalogue (Bullock, 1814), some showing Cook specimens in Leverian, also the Bullock tiger and boa constrictor exhibit (now at Rawtenstall Museum*--donated by Lord Hastings to the Norwich Castle Museum*, but originally bought by Crossas lot 98 of tenth day at Bullock's sale of 1819). Bullock frequently boasted Cook material, especially birds (Bullock's 16th *Companion*, 1814: 53; Bullock, 1817: iv; sale catalogue of 1819, parrots on 14th day), but his claims may have been exaggerated (Clift, MS. 3, Bullock birds from Royal College of Surgeons*; Medway, 1976: 18) he acquired most of the Cook birds from the Leverian (Stresemann, 1951), as also perhaps some Forster insects, of which one, a dipteran, may be the specimen labelled "S. Seas 1775 Forster" in Norwich Castle Museum*. Substantial purchases at Bullock's sale were made by the British Museum*, Edinburgh*, Paris*, Berlin*, Leiden* and Vienna*; also the Linnean Society* and the Earl of Derby (and thence to Liverpool*). Annotated sale catalogues in BMNH. and Zoology Department Library, Cambridge, the latter believed by Newton (1891: 42) to have been annotated by Latham*.

CALONNE, Charles Alexandre, Duke of (1734-1802), collector, who bought many shells through his agent Dillon at the Portland sale* of 1786, some being Cook specimens and listed in the "specification" of George Humphrey (1797); sale 25 May-22 June 1801 (priced catalogue in BMNH.).

CALVERT, John, who was said by his grandson (Calvert, 1893) to have been shown by Robert Brown artifacts and instruments donated by Cook, stored in a cupboard at 32 Soho Square; having bought Banks' house some years later, Calvert found the objects still in the cupboard, by then papered over, and he sold them to the Australian Museum. Their authenticity has been strongly doubted (Kaeppler, 1978); the painting of a black swan (Calvert, 1893) is quite erroneously implied to represent a Cook specimen (presumably from the cupboard), but no mention was made of black swans on Cook's voyages and they were first recorded from the eastern coast of Australia by the First Fleet (Disney, 1969).

CAMBRIDGE. Birds from the collection of William Swainson* may have gone to Cambridge, possibly including Cook material. The Imperial sun shell bought by Seymer* from Ingham Forster* is in the Museum of Zoology. The Sedgwick Museum of Geology has twenty-eight watercolors by Sarah Stone* depicting shells, fossils, etc. in the Leverian*.

CHAUNCEY. In the Naturalist's repository Donovan (1822: pl. 34) claimed that Dr. Chauncey acquired (at least) one Cook shell *(Terebratula sanguinea).*

CHICHESTER, Arthur, Baron Fisherwick and Marquess of Donegall (d. 1799), at whose sale in September 1800 were some probable Cook artifacts, also zoological specimens (e.g. p. 42, No. 129 "The Imperial sun shell, from New Zealand, *very rare").* Another sale in March 1801.

CLERKE, Captain Tobias (1741-79), who died at sea on the third voyage, bequeathed his artificial and natural curiosities (birds specifically mentioned) to Banks (Clerke's final letter to Banks, Beaglehole, 1967: 1543); possibly Banks gave these to the British Museum* in 1780 (Kaeppler, 1978). Daines Barrington claimed (mistakenly) that Clerke's third voyage natural history specimens, in addition to Cook's, were destined for the Leverian (his letter to Lord Sandwich, Beaglehole, 1967: 1558).

CLIFT, William (1775-1849), the conscientious curator of John Hunter's museum and later that of the Royal College of Surgeons, whose career was traced by Dobson (1954). Two of his catalogues provide useful clues to Cook material donated by Banks to Hunter (Clift MSS. 1, 2) and a report (Clift MS. 3) describes in scathing terms the material bought from the British Museum in 1809*, whose intrinsic value "lay principally in the quantity of useful stoppered bottles . . . of every shape and degree of thickness and thinness, from almost the origins of Glassblowing," but of the specimens "great numbers had become quite dry mouldy and shrivelled, and utterly spoiled."

COOK, Captain James (1728-79), frequently cited as donor of objects, did in fact co11ect natural history material as well as artifacts. He presented, with Captain Clerke, "a collection of natural and artificial curiosities" from the second voyage to the British Museum*; these included birds in alcohol, destined for Banks (Solander to Banks, 1 August and 22 August 1775, see Dawson, 1958: 772), following an earlier gift of artifacts alone (6 October 1775). Cook also presented objects (? specimens also) to George III. He sent "six Birds [second voyage] from the Cape to Leicester Fields" i.e. to the Leverian (Daines Barrington to Lord Sandwich. See Beaglehole, 1967: 1558) as well as at least one shell (Donovan, 1822, 1: pl. 34), and his third voyage material (but not that of Clerke*; which went to Banks) also went to the Leverian Museum (newspaper article, 31 January 1781, Perceval corr., Fitzwilliam Museum, Cambridge, cited by Kaeppler, 1978: 47).

COSTA, Emanuel Mendes da (1717-91), naturalist, Clerk of the Royal Society and, after four years in prison, dealer, who illustrated Cook shells in his *Conchology* (1770-71) and may well have bought second or third-voyage specimens. For biography, see Whitehead (1977).

CRACHERODE, Reverend Clayton Mordaunt (1730-99), Trustee of the British Museum (to which he bequeathed his collection and books), possessed at least three Cook shells, perhaps bought through George Humphrey* (Nos. 80, 204, 396. Whitehead, 1969a: 173); these were perhaps the first Cook shells to come to the Museum (Wilkins, 1957).

CROSSTHWAITE, Daniel (? or his son), who founded a museum at Keswick in 1780 and died about 1810, the museum being sold up in 1870, the

BM. buying thirty ethnographic objects, of which five or six were from Dixon (BM. Day Book and catalogue); Crossthwaite may also have had Cook voyages natural history material.

CUMING, Richard (1777-1870), amateur scientist and collector (cousin of Hugh Cuming the "Prince of shell collectors"), whose collection contained fifty-eight lots from the Leverian sale of 1806, as well as specimens from Goodall* and Leverian material from Fillinham*; a Cook fish, *Balistes vetula*, from the Leverian (lot 5077) is still extant (Whitehead, 1969a: 168). The Cuming Museum is now at Walworth Road, Southwark, London. Obituary in Anon. (1871).

DALMER. Unknown donor of at least three third-voyage birds to Göttingen* (Streseman, 1950: 79, or Merrem).

DANZIG. The Gesellschaft Naturforschender Freunde (founded 1743) elected J. R. Forster* as first honorary member (1776), and later Banks and Solander. Forster may have donated second-voyage material and Humphrey* certainly sold second-voyage shells, which were later described by the curator Friedrich August von Plobsheim (1711-89), being the first report on Cook voyage shells (Zorn, 1778; see also Dance, 1971: 371).

DANTZIGER, J. W., natural history dealer of 35 Wardour Street, London, who might be confused with the above in sale catalogue annotations.

DERBY, Lord Edward Smith Stanley, 13th Earl of (1775-1851), who possessed one of the most important private collections of the period (twenty to 30,000 specimens in 1851), especially rich in birds (over 300 types, Brennan & Morgan, 1977: 20, with excellent summary of donors, including Banks, Bullock, Donovan, Latham and others known to have had Cook material). Known as the Knowsley Museum, it was presented to the City of Liverpool by the 14th Earl and formed the basis of the Free Public Museums (now Merseyside County Museums); the birds survived but some mammals were destroyed in the bombing of 1941 (Allan, 1941). The MS. inventory of whole museum 1822-23 by Sherlock and the 6 vol. MS catalogue in 1848-50 (incomplete) by Louis Fraser provide clues to Cook material. Leverian material bought through the London dealer Thompson, including lot 2698 of 23rd day, a New Zealand *kokako (Callaeas cinerea)* and lot 44 of penultimate day, two New Zealand *tui (Prosthemadera*

novaeseelandiae); as noted by Newton (1891: 42), the Liverpool specimen of an *akialoa (Hemignathus obscurus)* bought at the Leverian was the one painted by Sydenham Edwards and reproduced by Audebert & Vieillot (1802: pl. 55); the same bird (?) was also figured in Latham's *General synopsis* (vol. 1, pl. 14, fig. 1) and in Shaw's *Museum Leverianum* (pl. 36. See Medway, 1976: 128, pl. 4). At least three Bullock birds from the Cook voyages went to Liverpool (lots 32, 33 of 14th day, lot 109 of 15th day); see Whitehead (1969a: 95), Medway (1976) and work in progress by Morgan and Wagstaffe.

DILLON. Acted as agent for the Duke of Calonne* at the Portland sale of 1786*.

DISCOVERY OFFICER. Recently found to have been David Samwell*.

DONEGALL. See Chichester.

DONOVAN, Edward (1768-1837), naturalist, also illustrator and author of popular zoological works, who compiled the Leverian sale catalogue (Donovan, 1806). He later made reference to a number of Cook specimens (and illustrated some) in his *Naturalist's repository* (1822-27, 1834--e.g. vol. 1, pl. 11, the famous pink variety of the Imperial sun shell bought at the Leverian sale by Fillinham*).

EDINBURGH. Robert Jameson, Professor of Natural History, corresponded with Bullock (September 1818-February 1819) over purchase of the latter's museum for the university (for £9000), with list of vertebrate specimens (except fishes), but declined (Sweet, 1970a). Some Bullock material was bought for Edinburgh by Walter Adam (1792-1857), assisted by William Leach*, and nearly £350 was paid (Sweet, 1970a). Cook birds were present but destroyed by 1780 (A. S. Clarke, *in litt.*).

FABRICIUS, Johan Christian (1745-1808), who studied at Uppsala under Linnaeus, examined numerous Cook specimens during his many visits to England (1772-1791); in his autobiography he spoke of visiting Banks, Solander, William Hunter and Dru Drury (Fabricius, 1784; see Hope, 1845). Of approximately 1500 new species in his *Systema entomologiae* of 1775, about a third were based on Banksian specimens, although not all from the first voyage (Zimsen, 1964). There is also frequent reference to "Mus. Dom. Banks" in his later works *(Genera insectorum,* 1786; *Species in-*

sectorum, 1781; *Mantissa insectorum,* 1787; *Entomologia systematica,* 1792-94). Fabrician specimens in BMNH. and in Glasgow* include Cook material.

FICHTEL, Leopold von, was commissioned to buy at the Leverian sale of 1806 for the Imperial Collections at Vienna* (Pelzeln, 1873), where he acquired 204 birds, some from the Cook voyages (Stresemann, 1949; Medway, 1976); also fishes (one Cook specimen extant. Whitehead, 1961a: 169, pl. 2).

FILLINHAM, J. J. A., who knew Lever well and may have had a connection with the auctioneers King & Lochée (Seymer Cuming to Perceval, Perceval corr., Fitzwilliam Museum, Cambridge). He bid at the Leverian sale of 1806, including lot 81 (last day), the pink variety of the Imperial sun shell (twenty-three guineas), which Lever had bought from George Humphrey* for ten guineas; it later appeared in the collection of the Duke of Bourbon* and was acquired by the British Museum; it was a second-voyage specimen and was painted by de Barde* (Bullock, 1814: pl. 6, No. 25; Whitehead, 1969a: 190-191, pl. 2) and illustrated by Donovan in his *Naturalist's repository,* (vol. 1, pl. 11), who recounted its history. Fillinham's own annotated copy of the Leverian sale is owned by Jonathan King (BM).

FORDYCE, George (1736-1802), physician in Aberdeen and later at St. Thomas' in London, who had a fine shell collection, including Cook material from the third voyage (Martyn, 1780; also, Dance, 1971: 368: 369).

FORSTER, Johann George Adam (1754-94), natural history artist on second voyage, most of whose drawings are in the BMNH., having been bought by Banks in 1776* (2 vols. botany, 2 vols. zoology) the latter with 271 drawings, listed by Lysaght (1959, birds only) and Whitehead (1978a, all non-avian); also, six drawings at Weimar, two at Jena and twenty-six gouaches (copies) at Gotha (Steiner & Baege, 1971; Whitehead, 1978a, listed, mostly birds) and 131 drawings of plants in Botanical Institute, Leningrad. A notebook of zoological observations from the second voyage (13 July 1772-1 January 1773 and 26 March-3 May 1773) in the Bibliothèque Centrale of Muséum National d'Histoire Naturelle, Paris (MS. 189, xerox in BMNH.).

FORSTER, Ingham (1752-82), dealer, brother of Jacob Forster* and brother-in-law of George Humphrey* (Whitehead, 1973), who acquired some second voyage material, e.g. an Imperial sun shell sold to Henrey Seymer*. His collections sold in 1783-84 (See *Gent's Mag.,* 82 (1): 515 for 1812).

FORSTER, Jacob (1739-1806), dealer and mineral collector, brother of Ingham Forster* and married to George Humphrey's sister* (Whitehead, 1973), who must have handled Cook material and may be the "Forster" in some annotated sale catalogues. His own sale in 1808.

FORSTER, Johann Rheinhold (1727-98), naturalist on the second voyage, with his son George* as natural history artist, whose collections were widely scattered. His *Descriptiones animalium* (Lichtenstein, 1844, MS. Lat. qu. 133-136 in Staatsbibliothek Preussische Kulturbesitz, West Berlin; also MS. Germ. qu. 222-227, his voyage *Journal)* includes all second-voyage animals and reference to George's drawings (Whitehead, 1978a). Definitive biography by Hoare (1976), as well as publication of the voyage *Journal* (Hoare, 1978). Forster brought insects to the British Museum* in early September 1775 for Solander to select for the BM., Royal Society*, Banks*, Tunstall* and Lever* (Solander to Banks--see Dawson, 1958: 772); insects accepted 20 September *fide Book of Presents,* which also shows presentation of 141 fishes and sixty-two birds (6 September) and Cape mammals and birds (8 September), the mammals also mentioned in Forster (1781). To Banks* he presented "very many specimens, both of plants and animals" from the second voyage (MS. note by Banks, copied out by Robert Brown. see Britten, 1885). He also made an unsuccessful attempt to sell shells to Banks which were claimed unique to his collection (Forster to Banks, 26 September 1778--see Dawson, 1958: 339). He sent some second-voyage MSS. and "Natural curiosities" to Johann Karl Phillip Spener in Hamburg to forward to Linnaeus* (Forster to Spener, 10 November 1775 and Spener to Linnaeus, 10 December 1775, Linnaeus corr., Linn. Soc.); he had already sent more than 150 specimens to Linnaeus in 1772, at least twenty-seven of which are in the Linnean Society (Day & Fitton, 1977. Not Cook specimens, but such may also be there). A Forster insect (dipteran labelled "S. Seas 1771 Forster") in the Joseph Sparshall collection in the Norwich Castle Museum* is from the second voyage. Forster may also have sold specimens to Göttingen* and other German universities, also Danzig*. Drawings by George for J. R. Forster's projected *Icones plantarum* are in Leningrad and 196 plants

(possibly those sent to Pallas*) are at the Moscow State University, while a further 220 plant specimens and a list by George Forster were given by Buffon in 1799 and are at the Muséum National d'Histoire Naturelle in Paris.

FOTHERGILL, John (1712-80), Quaker physician and owner of a large shell collection (reputed second only to the Duchess of Portland's*), who acted as mediator over publication of Sydney Parkinson's posthumous *Journal* and the disposal of his collections and papers; as a result he acquired some of Sydney's first-voyage shells (Explanatory remarks in Parkinson, 1773: 7). In 1781, Fothergill's shells, corals, and insects were bought by William Hunter* for £1100 and eventually came to Glasgow*; Hunter intended selling Fothergill's duplicate shells, flies and perhaps corals after they were arranged and labelled by his assistant William Cruikshank (Hunter to Hugh Cuming, December 1781, Pulteney corr., Linn. Soc.). Fothergill's coral collection, basis for John Ellis and Solander's *Natural History of many curious and uncommon zoophytes* (1786), was claimed "'the foremost in Europe" (Lettsom, 1784: Liii). Fothergill undoubtedly had many Cook specimens. Biographical data in Lettsom (1784: iii-cxciii) and Fox (1919), also many of his letters in Corner & Booth (1971).

FURNEAUX, Captain Tobias (1735-81), who commanded the *Adventure* and seems to have donated a number of second-voyage birds to Banks* (Dryander MS. 5).

GENEVA. Musée d'Histoire Naturelle, which has almost intact the shell collection of Christian Hwass*, which contained Cook material.

GENTLEMAN. There were many sales by "Gentleman" (Deceased, Foreign, Going Abroad, etc.). At one such sale, of "A Gentleman, (Deceased)" in June 1798, there were probable Cook specimens (e.g. p. 27, No. 113 '"The Imperial sun shell, from Dusky Bay, New Zealand, very scarce.").

GEORGE III. Received from Banks and Solander late in 1772 "Some beautiful birds from the South Sea Islands" (Rauschenberg, 1968: 41); apparently presented two third-voyage birds to Göttingen*.

GLASGOW. William Hunter* bequeathed his museum to the University after a period of use by his nephew William Baillie* and his anatomical assistant William Cumberland Cruikshank (Gunther, 1925; also DNB un-

der Hunter); it came to the University in 1807, with the zoological material transferred to the Zoology Department in 1923. There is a MS. list of Hunter's collection, made by the Trustees just after his death, and a 2 vol. catalogue in pencil of shells to 1885 (none marked as Hunter, however). Five cabinets of insects extant (probably labelled by William Cruikshank, not Fabricius), but localities usually given only for non-descripts (*Dermestes felinus*, possible Cook specimen, an exception, as noted by Staig, 1931, 1940, coleoptera only) including twenty-six other insect specimens first described from Banks, Solander or Forster material, hence these are possibly syntypes. The named insect species bear references (? by Cruikshank) to the *Species insectorum* of Fabricius*. Kerr (1910) listed over 150 species in this collection, including the corals (with reference to Ellis & Solander's *Natural history . . . of zoophytes*, 1786); he also mentioned 200 insects (but 2000 intended). Of shells, at least fifty specimens have Cook localities, some being from Fothergill's collection*, bought by Hunter in 1781; if the MS. catalogue by Lettsom* of Fothergill's shells could be found, many would surely match. Laskey (1813) recorded such Fothergill shells, but Wilkins (1955) said none could be recognized. Data on collection kindly supplied by Dr. Helen Brock, who plans to publish on it. The description by Laskey* is still useful.

GOODALL, Joseph (1760-1840), Headmaster and later Provost of Eton, who bought at the Bullock sale of 1819 and may have had Cook shells (Wilkins, 1955). Some of Goodall's specimens went to Richard Cuming*.

GÖTTINGEN. The Göttingen Naturalienkabinett is said to have had three examples of the Hawaiian *'i'iwi (Vestiaria coccinea)*, acquired from a Mr. Dalmer, one being illustrated by B. Merrem (Stresemann, 1950; also 1949 and 1951); four further specimens of this bird, the basis for George Forster's description, were brought to Cassel by Bartholdi (or Bartholemi) Lohmann, a sailor on the third voyage. Another Hawaiian bird, the now extinct 'o'o *(Moho nobilis)*, was presented by George III*, Elector of Hanover (Streseman, 1950: 80); it is perhaps the one listed, together with an *'i'iwi*, in an ethnographic collection sold by George Humphrey* on the suggestion of Johan Blumenbach in 1782 (the list and the *'i'iwi* now in the Institüt für Volkekunde, together with the ethnographic items). A second collection of Cook artifacts reached Göttingen from J. R. Forster's widow in 1799 (matching the Forster collection at Oxford. See Gathercole, n.d.), but it probably did not contain Cook natural history material. A set of Forster second-voyage plants is in the Botanisches Institüt, perhaps donated during George Forster's time in Göttingen.

GREENE. See Litchfield.

HANCOCK MUSEUM. See Tunstall.

HESLOP. As yet unidentified purchaser at Leverian sale, who bought lot 5264, three Cook voyages fishes.

HUMPHREY, George (1739-1826), London dealer and collector of natural history and ethnographic objects, also amateur conchologist, who lived at 48 Long Acre and later 30 St. Martin's Lane, where his Museum Humfredianum flourished for a year before its sale in 1779 (Humphrey, 1779; see Whitehead, 1977). He catalogued many natural history sales (e.g. Fothergill in 1781 and Calonne in 1797) and in about 1786 moved to 4 Leicester St., off Leicester Square; his final sale (shells) was in 1823. He bought first-voyage shells (Humphrey to da Costa, ? July, 1771, da Costa corr., BM. See Whitehead, 1977: 18) and also large numbers of second-voyage shells directly from the crew of the *Resolution* (for nearly £150), some of which were sold to the Duchess of Portland* (Pulteney corr., BMNH., with numbered list sent by Humphrey to Henry Seymer, 29 September 1775); some of these shells were sold to Danzig*. For third-voyage shells, he spent only £20, buying direct from the crews of the *Resolution* and the *Discovery* (Thomas Martyn* to Seymer*, Pulteney corr., BMNH.). He sold artifacts which reached Göttingen* *via* George III, the collection also including two Hawaiian birds. Humphrey's sister, Elizabeth, married Jacob Forster*, brother of Ingham Forster*. A fairly detailed genealogy was required for litigation by one of Humphrey's grandchildren and is now in the Supreme Court papers in the Tasmanian Archives, Hobart (I am indebted to Tom Vallance for this information).

HUNTER, John (1728-93), surgeon-anatomist who, after some years in partnership with his brother William*, decided about 1763 to form a museum at his house in Jermyn Street, moving it in 1785 to the area between Castle Street and his Leicester Square house. It was opened for teaching purposes in 1787 and on his death was bought by the nation and became in 1800 the Museum of the Royal College of Surgeons. In 1790, Hunter received from Banks (or possibly prior to this) the skull of a Great grey kangaroo (first voyage; see Hunter in White, 1790: 272), but this was not the model for the drawing by Nathaniel Dance among the Parkinson drawings* (Morrison-Scott & Sawyer, 1950, Dance drawing and photo of skull, the later destroyed in Second World War). In 1792, Hunter re-

ceived a large collection of Cook specimens in spirits from Banks*, which were kept separate, labelled "J.B." and numbered by the curator William Clift*. A catalogue of these was made by George Shaw in 1806 after Hunter's museum had passed to the Royal College of Surgeons, Hunter may have bought shells (possibly Cook specimens) at the Portland sale*, some of which later came to Glasgow* (Laskey, 1813). In 1802 a "collection of mammals brought back from the South Sea Islands by Captain Cook" was seen in the museum by Louis Dufresne of Paris (Sweet, 1970b). See also Royal College of Surgeons*.

HUNTER, William (1718-82), brother of John and Court Physician to Queen Charlotte, who in 1770 founded a lecture theatre, dissecting rooms and museum in Great Windmill Street (site of a later famous theatre, also with an emphasis on anatomy). Hunter's collection was bequeathed to Glasgow* after a period of use by his nephew William Baillie* and his anatomical assistant William Cruikshank. A MS. list of purchases of his museum was in the BM., Department of Antiquities (DNB.), but cannot be located.

HUNTERIAN MUSEUM. Both John Hunter* and his brother William* formed important museums, the first becoming the Hunterian Museum of the Royal College of Surgeons* in London, the second the Hunterian Museum at Glasgow*. Both contained material from the Cook voyages.

HWASS, Christian (1731-1803), conchologist, whose large shell collection is preserved almost intact at the Musée d'Histoire Naturelle in Geneva* (Dance, 1971: 374), including at least one Cook specimen, the type of *Conus caledonicus* Hwass, bought at the Portland sale* (Mermod, 1947).

JACKSON, George, carpenter's mate on the *Resolution*, who may have been the one who sold Cook material (Henry Seymer to Richard Pulteney, 28 November 1775. Pulteney corr., Linn. Soc.).

JACKSON, Samuel, dealer, said to have purchased second-voyage specimens from the *Resolution* at Portsmouth; both Lever* and Humphrey* bought at Samuel Jackson's sale in March 1776 (Kaeppler, 1978).

JENNING, H. Constant (1732-1819), who bought a colorful sea urchin (lot 56) at the Leverian sale, which had been sold to Lever* by Robert Anderson*.

KEATE, George, whose sale catalogue of 5 April (? 1802 *fide* Chalmers-Hunt, 1976: 179) has possible Cook specimens (e.g. 3rd day, No. 21 "Ostrea malleus, *very large and fine,* from the South Seas, *rare*" and other shells from Otaheite, etc.). Some 1440 lots over twelve days, thus, a large collection.

LASKEY, Captain John, author of the account of the Hunterian Museum in Glasgow* (Laskey, 1813), who bought for that museum (and possibly for himself) at the Leverian sale of 1806 (e.g. lot 5277 on 44th day, a spotted shag. Medway, 1976: 121). Laskey's own collection was sold in July 1808 (Chalmers-Hunt, 1976: 71).

LATHAM, John (1740-1837), ornithologist, whose 3 vols. *General synopsis of birds* (1781-85) described numerous new species based on Leverian and Banksian material (vernacular names, given binomials by Gmelin in 13th ed. of *Systema naturae* of 1788-93, although some already named by Sparrman in his *Museum Carlsonianum* of 1786-89). Medway (1976: 52) was perhaps the first to note that Latham claimed *(General synopsis,* **3:** i-ii) a personal collection containing Cook specimens (e.g. the *kaka, kokako* and *tui*). He bought at the Leverian sale of 1806 (e.g. lots 2790, 3070, the Hawaiian *mamo* and *'i'iwi*). Most of his birds were dispersed when he left Kent in 1796 (Mathews, 1931: 473). In addition to using Cook specimens, Latham had copied some of George Forster's drawings*(e.g. the South Island bush wren. Medway, 1976: fig. 2), now in BMNH.

LAUGIER, Baron Mieffern, de Chartrouse, ornithologist, who bought at the Bullock sale of 1819, for Paris* as well as perhaps for himself (e.g. lot 4, 11th day and lot 115, 14th day--Cook birds). Part of his collection (309 birds) was bought by the British Museum in June 1837 (Sharpe, 1906: 409).

LEACH, William Elford (1790-1836), zoologist at the British Museum, who offered to act as agent for Edinburgh* at the Bullock sale of 1819 and assisted Walter Adam in that capacity (Sweet, 1970a); he also bought for himself (e.g. two Banksian petrels from first voyage on 11th day). It was Leach who urged members of the Linnean Society to black-ball Bullock*, but without success (Linn. Soc., Minute Book).

LEADBEATER. Leadbeater & Son, leading London natural history agents at Brewer Street (Sharpe, 1906: 411), who bought at the Bullock sale of 1819 (Sweet, 1970a: 27-28), possibly for the British Museum.

LEIDEN. Bullock material was bought for Leiden by Temminck* and at least five Cook birds are in the collection of the Rijksmuseum van Natuurlijke Historie (Whitehead, 1969a: 195); in all, 536 birds of 363 species were bought (Stresemann, 1951). Bullock specimens in Leiden mentioned in *Mus. Hist. nat. Pays-Bas,* Leiden, **2:** 2 *(Perni),* 12 *(Circe),* 25 *(Astures);* **3:** 88, 95 (*Psittaci,* possible Gmelin type); **6:** 13, 14 *(Procellaria),* 30 *(Pelecani);* **9:** 127, 153; **11:** 7; **12:** 93; also Cook material in **4:** 162 *(Columbae)* and **5:** 26 *(Ralli).*

LEROY. See Barde, Chevalier de.

LETTSOM, John Coakley (1744-1815), Quaker physician and friend of John Fothergill, also his biographer (Lettsom, 1784), who apparently made a MS. catalogue of his shells (possibly left with his books to the London Medical Society). He greatly admired Fothergill's "accurate knowledge of shells", to which da Costa* was much indebted in his *British Conchology* of 1778 (Lettsom, **1:** 52). Portrait in Wellcome Institute (with his family, artist unknown).

LEVER, Sir Ashton (1729-88) formed a small museum and aviary at his home Alkrington Hall near Manchester (*Gent's Mag.,* **43:** 219-221 for 1773), bringing it to London in 1775, where it was housed at Leicester House, Leicester Square and was known as the Leverian Museum or Holphusikon (Mullens, 1915; also Smith, 1960 and *Europeans Mag.,* **1:** 17-21 for January 1782). Biographical data in Smith (1962). For his efforts, Lever was knighted in 1778, but by 1781 could not afford upkeep of the museum and appealed for public support, offered it to the Empress of Russia and petitioned the Government to purchase it (but Banks seems to have advised against it--*Farringdon Diaries,* BM. **12:** 3352). Lever finally sold it by lottery in 1786 (Ashton, 1893; Smith, 1960) and it was acquired by James Parkinson, who moved it to the Rotunda* in Albion Street on the south side of Blackfriars Bridge. Entrance to the Rotunda in watercolor, possibly by Sarah Stone, now in Bishop Museum, Honolulu (reproduced in color by Kaeppler, 1978) and the interior by Sarah Stone* as engraving in the *Companion* (Anon., 1790); another version of interior in Ella (c. 1805). In 1806, the museum was auctioned (64 days, 5 May-18

July) and at least 135 people bid for the 7879 lots (catalogued by Donovan, 1806); its dispersal was much regretted (e.g. Shaw, 1805). Annotated sale catalogues in BM., BMNH., Linn. Soc., Cuming Museum*, Cambridge* and Liverpool* (the Earl of Derby's copy); the copy annotated by William Clift* in possession of Jonathan King (BM). Cook material came to the Leverian by many (mostly unrecorded) routes. Insects from Forster* came via the British Museum* in 1775, and six Cape birds (second voyage) came from Cook*, as also his third-voyage material (ethnographic, but possibly also natural history). Some Cook voyages animals can be located in contemporary accounts of the museum (Anon., 1790 and Shaw, 1792-6; but not in Ella, c. 1805, useful room-by-room-description, with mention of Cook artifacts but not animals) and also in certain zoological works, either before or after the transfer to Parkinson; these include Audebert & Vieillot's *Oiseaux doré* (2 vols., 1802, a number of birds illustrated from paintings by Sydenham Edwards of Leverian specimens, also some owned by Humphrey*); Shaw & Nodder's *Naturalist's miscellany* (24 vols., 1789-1813); Shaw's *General Zoology* (14 vols., 1800-26); Donovan's *Naturalist's repository* (5 vols., 1822-34); Latham's *General synopsis of birds* (3 vols., 1781-85 and Supplement 1787); Latham's *Index ornithologicus* (2 vols., 1790, Supplement 1801); Pennant's *Histoy of quadrupeds* (2 vols., 1781; preface, p. 8); and Pennant's *Arctic zoology* (2 vols., 1784-85). Contemporary accounts of the museum include that of Robert Jameson (1774-1854) of Edinburgh*, who visited the museum about a dozen times in 1793 and recorded his impressions (Sweet, 1963). Visual records of Leverian zoological material include ninety-three watercolors by Sarah Stone* of 1781-85 (BMNH.) and twenty-eight watercolors and pencil drawings in the Sedgwick Museum of Geology, Cambridge; also, her Sketchbook No 1 with 132 watercolors is in the Australian Museum, Sydney (Anderson, 1928; Hindwood, 1964) and Sketchbooks 2 and 3 (Cook artifacts, but also three Hawaiian birds) are in the Bishop Museum, Honolulu (Force & Force, 1968). A bound volume of watercolors by Thomas Davies (1737?-1812), once owned by Lady Brassey and now in the Hastings Museum, shows Cook artifacts in the Leverian, but the fifty-one animals are probably all non-Leverian. Another visual record is the gouaches by de Barde*, exhibited and catalogued by Bullock (1814). Owner of Leverian in 1790 is still James Parkinson (*Companion*, title), but his son John probably took over later.

LICHTENSTEIN, Martin Heinrich Karl (1780-1857), director of the Zoologisches Museum in Berlin, who bought artifacts for the Königlichen

Preussische Kunstkammer at Bullock's sale of 1819 (Kaeppler, 1974: 80-81) and may well have bought zoological specimens also. He edited J. R. Forster's *Descriptiones animalium*, which had already been seen in MS. by J. G. Schneider in the Königlichen Bibliothek and used in his *Systema ichthyologiae* of 1801 (Whitehead, 1978a).

LINNAEUS, Carl (1707-78), whose 12th edition of the *Systema naturae* (Stockholm, 1766) was the essential *vade mecum* for all Cook voyages naturalists. He was sent a parcel of manuscripts and "natural curiosities" by J. R. Forster* after the second voyage; some of the latter may be in the Linnaean collections bought by J. E. Smith in 1784 and now in the Linnean Society*; amongst these may also be some of the 200 shells sent to Linnaeus by Tunstall* in 1772 from the first voyage (Linnaeus corr., **15:** 395, Linn. Soc.; Dance, 1967: 3). Solander* had studied under Linnaeus, as also had Fabricius* and Alströmer*.

LINNEAN SOCIETY. Possessed an important museum until it was given to the British Museum in 1863 (except for Linnaeus' material). Banks was never a Fellow but assisted in various ways and in 1815 donated a collection of insects and crustaceans (Anon., 1815), where they were seen and some illustrated by Swainson (1820-23, e.g. pl. 23, a first-voyage specimen) and later by Donovan (1822-34. Banksian insects figured, also some Leverian specimens); Solander's shells from the first voyage were also present (seen by Leach*). The presence in this collection of Forster insects sent to Linnaeus in 1772 (thus pre-voyage) and brought back to London with the purchase of the Linnaean collections by J. E. Smith in 1784 (Day & Fitton, 1977), suggests that the Forster's specimens sent to Linnaeus in 1775 may also be present.

LITCHFIELD. Litchfield Museum, Staffordshire, begun by Richard Greene (1716-93), a surgeon, and said to contain Cook voyages specimens (*Gent's Mag.*, 1788 (2): 477, interior of museum shown, with glass case on left "A collection fo South-sea rarities brought over by Capt. Cook"); some Cook objects may have come from David Samwell* via the writer Ann Seward (Kaeppler, 1978), but perhaps these were only artifacts. The museum passed to Greene's son and on 29 June 1803 (and two following days) at least a part was sold, including possible Cook artifacts and (2nd day, p. 17) "Preserved birds in glass case" containing "No 5. Cinereous hawk from New Holland, *rare*" (catalogue not listed by Chalmers-Hunt in 1976, but John Laskey's copy in possession of Jonathan King, BM., not an-

notated). At this time (? at this sale) part of the museum went to Sir St John St Aubyn (minerals only), part to Bullock (armor), and the rest to Walter Honeywood Yate, this latter part subsequently being bought by Greene's grandson Richard Wright in 1805. In August 1821, it was sold and scattered (catalogue at Royal College of Surgeons). Succinct history of museum by Torrens (1974, with interior shown).

LIVERPOOL. Lord Derby's Knowsley Museum formed the basis for the Free Public Museums in Liverpool (now Merseyside County Museums) and some Cook specimens can still be located amongst the material left by Lord Derby*.

MARRA, John, gunner's mate on the *Resolution,* who addressed Banks with an offer of second-voyage material, stating "I have procured your Honour a few curiosities as good as could be expected from a person of my capacity. Together with a small assortment of shells, Such as was esteemed by pretended Judges of Shells". (Smith, 1911). Banks* must have been offered many such collections.

MARTYN, Thomas (fl. 1760-1816), dealer and author of the *Universal conchologist* (1784-87), who claimed to have bought two-thirds of the third-voyage shells (for 400 guineas) from the crews of *Resolution* and *Discovery* (Martyn to Henry Seymer, copy of original, Pulteney corr., BMNH.).

MOLINARI. Unidentified purchaser of at least one Cook bird (lot 104, 17th day) at Bullock's sale of 1819.

MONTPELLIER. Banksian fishes, mostly from the Cook voyages, were brought to the university by Broussonet* and some forty-six specimens were in the Faculty of Medicine until transferred (prior to 1828) to Paris* (Cuvier, 1828: 126).

NEWCASTLE. Nearly a century after its foundation, the Hancock Museum acquired the large collection of Marmaduke Tunstall*, important for its Cook birds and perhaps insects.

NORWICH. Norwich Castle Museum has at least one second-voyage insect, a dipteran labelled "S. Seas 1775 Forster," which was found in one of the three cabinets of insects formerly owned by Joseph Sparshall; the

provenance of this specimen is not Clear since Sparshall bought an insect collection from W. J. Hooker, while the Sparshall collection was subsequently augmented by other specimens at Norwich. (See *Trans. Norfolk Norwich Nats Soc.,* **13:** 91 and the *Annual Report of the Norwich Castle Museum* for 1845, pp. 10, 15).

OXFORD. The Ashmolean Museum received in November 1775 or later a collection of 177 artifacts from the second voyage from J. R. Forster (perhaps at the time he received his honorary degree at Oxford); these are now in the Pitt Rivers Museum (Gathercole, n.d.), but there is no indication that he parted with natural history specimens (list still extant, all ethnographic).

PALLAS, Peter Simon (1741-1811), naturalist at St. Petersburg, who was offered second-voyage plants and shells by J. R. Forster in exchange for Siberian material, but refused, telling Pennant* that "I would rather choose to send a collection to Mr. Banks himself, than through the mediation of Mr. Forster's . . ." (undated, No. 4 in Urness, 1967). However, Forster later sent to Pallas "a collection of between four and five hundred specimens of Plants fr. the Cape & South-Sea-islands" (17 August 1780, Urness, 1967). These are perhaps the specimens in Moscow State University, said to be Forster's*.

PARIS. In the collection of the Muséum National d'Histoire Naturelle, Bauchot (1969) discovered forty-four of the forty-six fishes which had been brought from Banks' collection by Broussonet* to Montpellier*; at least twenty-three were definitely Banksian, many being from the Cook voyages and fourteen being types. See also Laugier and Bullock (birds), and Forster (plants).

PARKINSON, Stanfield, who after the first voyage claimed his brother Sydney's collections, drawings and manuscripts, as well as the right to publish his *Journal of a voyage to the South Seas;* Banks held otherwise, since he had employed Sydney. John Fothergill acted as mediator (see below).

PARKINSON, Sydney (1745?-71), natural history artist (specifically for botany *fide* his brother Stanfield in Preface to Parkinson, 1773), who died on the first voyage and whose drawings were bought by Banks (now in BMNH., eighteen botanical and three zoological volumes, the latter with

301 drawings, of which eleven are by Alexander Buchan, nine by Herman Spöring and one by Nathaniel Dance. But 377 zoological drawings by Parkinson and thirty-three by Buchan listed by Dryander, MS. 1, therefore some missing). Among Parkinson's effects was "A very large parcel of curious shells, corals, and other marine productions, many of them beautiful and rare," from which Stanfield Parkinson selected for Banks "such as he might not have in his collection" (Preface to Parkinson, 1773: xii-xiv); Fothergill* later bought some of the shells and the rest seem to have been sold by Stanfield (Explanatory remarks in Parkinson, 1773: 7). Some Parkinson fish drawings reproduced by collotype in Whitehead, *Forty drawings of fishes . . . by Captain Cook's artists* (1969b, erroneously 1968 on title page).

PENNANT, Thomas (1726-98), naturalist and author of the *History of quadrupeds* (2 vols., 1781) and *Arctic zoology* (2 vols., 1784-85) in which Cook voyages specimens are mentioned, some in the Leverian Museum*. Pennant acquired Cook artifacts (e.g. a Maori shell trumpet. Gathercole, 1977) and with his interest in zoology must surely have had Cook animals as well.

PORTLAND, Margaret Cavendish, Duchess of (1714-85), who had at Bulstrode House one of the foremost private collections of the time, chiefly of shells, which were arranged and labelled by Solander*, the information being added to his projected 13th edition of the *Systema naturae* (Solander, MS. Slips) (see Dance, 1966). The collection was sold after her death to meet debts, the *Portland catalogue* being compiled by her chaplain, the Reverend John Lightfoot (1786, 4156 lots in 39 days); annotated copies owned by Gilbert Whitley and Tom Iredale, also in BM., and others with inserted printed list of purchasers e.g. in Fitzwilliam Museum, Cambridge. The highlight was the Portland vase (see frontispiece); many Cook voyages specimens were present, some apparently bought by John Hunter*, the Duke of Calonne*, Christian Hwass*, "Bailey" (perhaps Mathew Baillie*, hence Portland shells and possibly insects in Glasgow*), Humphrey* and others. The Duchess had earlier paid £15 for second-voyage shells from Humphrey* and in 1787 she apparently gave shells (and a hundred live goldfishes) to Johan Alströmer*, some of the shells being from the Cook voyages.

PRINGLE, Sir John (1707-82), President of the Royal Society, who received third-voyage artifacts from Cook's widow (? also some natural his-

tory specimens) and donated them in 1781 to the Society of Antiquaries of Scotland, Edinburgh (see Society's records and *An account of the institution and progress of the Society of the Antiquaries of Scotland*); nine artifacts now in the Royal Scottish Museum.

PULTENEY, Richard (1730-1801), physician and botanist, as well as shell collector, whose correspondence is an invaluable mine of information on Cook material (BMNH. and Linn. Soc.).

RAWTENSTALL. The museum has the tiger and boa constrictor exhibit from Bullock's Museum, which was painted by de Barde* (engraving 5 in Bullock, 1814) and was lot 98 of the 10th day of Bullock's sale in 1819 (bought by Cross). Its history will be published by Geoff Hancock, to whom I am indebted for information.

ROTUNDA. The building in Albion Street to which James Parkinson moved the Leverian Museum after 1784. It lay just across Blackfriars Bridge, on the southern (Surrey) side, beyond Albion Place and on the right, later to become the Surrey Institution, then the Rotunda Wine Rooms (1826), then the Globe Theatre (1833), and finally (as 3 Blackfriar's Road) Burn Bros. Engineers (site now built over). For contemporary pictures, see Lever*.

ROYAL COLLEGE OF SURGEONS. On the death of John Hunter*, his museum was offered to the nation, but Banks was not in favor and Pitt exclaimed: "What: Buy preparations: I have not money enough for gunpowder!" [many modern parallels] (Cole, 1944: 460-463; Dobson, 1959). In 1795 the Government relented and it was bought for £15,000, some 13,682 specimens being handed over to the Company of Surgeons four years later, the whole becoming the museum of the Royal College of Surgeons on its incorporation in 1800; in 1806 it was moved to its present site in Lincoln's Inn Fields. Very shortly before this the natural history specimens were catalogued by George Shaw (1757-1813), then Assistant Keeper at the British Museum (Best, 1829; also *Gent's Mag.*, **83** (2): 290-292 for 1813), the catalogue later to be copied out by Clift (MSS. 1, 2), who stated that Shaw adopted the numbers that Clift had painted on the tops of the jars shortly before Hunter's death in 1793. Banks' gift to Hunter of 1792 was dubbed the 'New Holland Division' and comprised 344 items, all of which were said to be marked "J.B." (although only twenty-nine are stated as such in Clift MS. 1, and only two in MS. 2,

hence the great difficulty in tracing Cook specimens in the Banks donation). Banks also donated about two dozen specimens to the College after 1800 (Clift, MS. 4), among which three bottles were possible Cook material, listed as "small specimens of reptiles &c from the South Seas." In 1809, the College bought from the British Museum* for £175.10s, but half refunded later) a collection of unwanted or duplicate specimens, a number of which must have been those donated by Banks in 1792, thus possible Cook material; Clift reported the gift with mounting indignation at the state of the material (Clift, MS. 3, which gives some data on the Banks gift to Hunter of 1792). In 1845 the College donated 348 natural history specimens to the British Museum, some being from the New Holland Division (thus some from Banks to BM., to RCS., and back to BM.!). Of about six hundred wet preparations catalogued in 1830, all but sixty-five were destroyed by the bombing in May 1941. Two extant Cook specimens are a tunicate, *Boltenia reniformis,* given in the 1830 catalogue as "collected by Sir Joseph Banks in his voyage round the world with Captain Cook;" and the remains of a large calamary (mouthparts, sagittal section), named *Enoploteuthis cookii* by Richard Owen, then Assistant Conservator at the College, being almost certainly the moribund cuttlefish collected (and partly eaten) by Banks on 3 March 1769 (Beaglehole, 1962, 1: 236).

ROYAL SWEDISH ACADEMY. See Alströmer.

ROYAL SOCIETY. Some of the insects brought to the British Museum* by Forster* in September 1775 were intended for the Royal Society, presumably on Forster's instructions (Solander to Banks, 5 September 1775-Dawson, 1958: 772). Evidence of second-voyage material (not only insects) in the Society's collection occurs in Peter Brown's *New illustrations of zoology* (1776, e.g. pl., 35 caption). The Society's collections came to the British Museum in 1781, where they seem to have lost their identity (and were probably later mixed with the Banks donation of 1792). See also *Gent's Mag.,* 82: 514 for 1781.

SAMWELL, David, surgeon's mate on the *Discovery* (third voyage), who made a collection of natural and artificial curiosities, some of which he later offered for £l00 to Anna Blackbume* (Samwell to Mathew Gregson, 1 November 1780, Gregson corr., LPL.); it is not known if she accepted. In 1780, he bought at the sale of William Bayly* (Samwell to Gregson, as above), but the following year sold his own collection, under the name "Discovery Officer" (14-15 June 1781, 248 lots--only recently identified as Samwell's sale by Kaeppler, 1978); the collection consisted of fifty-six

natural history lots (nine birds, of which two Hawaiian; forty-six lots of shells) and buyers included Lever*, Humphrey* and John Hunter*. He also gave specimens to the author Anna Seward, who passed some to Richard Greene* (Kaeppler, 1978). Samwell studied at the Hunterian school in 1780-81 (5 February 1781, Gregson corr., LPL). For biography, see Kaeppler (in prep.).

SEYMER, Henry (1745-1800), naturalist and collector, who acquired at least one of the celebrated shells from the voyages, an Imperial sun shell (second voyage) bought for £2. 17s from "Forster" (probably Ingham Forster*); he had been offered a similar shell for £5. 5s by Humphrey* (Seymer to Richard Pulteney, Pulteney corr., BMNH.). The Seymer shell is now in the Museum of Zoology, Cambridge* (Dance, 1966: pl. XV; also Whitehead, 1969: pl. 2). Portrait in Linnean Society.

SOLANDER, Daniel (1733-82), pupil of Linnaeus, assistant to Banks on the first voyage (apparently no journal kept) and assistant and librarian to Banks on the latter's return (as well as Assistant and later Keeper at the British Museum). His manuscripts (in BMNH.) are invaluable for Cook specimens (Solander, MSS. 1-4 and Slips, the latter being notes for a projected 13th edition of the *Systema naturae*). His receipt of Forster's insects* in September 1775, as well as the official material brought to the British Museum* in August (including that intended for Banks*) have been described above. In 1778-81, he arranged and labelled the shells in the collection of the Duchess of Portland*. In his official diary (BM. Add. MS. 45, 874, p. 25 for 11 November 1781) he noted a Banksian donation to the British Museum*, but the diary is disappointing for the most part. In 1787, he may have given Cook-voyages shells from his own collection to Johan Alströmer* (Rydén, 1963); the remainder of his collection apparently went to the Linnean Society together with that of Banks, where it was seen by Leach prior to 1821 (*Molluscorum Britanniae synopsis*, ed. J. E. Gray, p. 254) and by Swainson (1820-23), thence passing in 1863 to the British Museum* and losing its identity in the Banks collection (Dance, 1971: 367). For biographical data see Iredale (1913) and especially Rauschenberg (1968).

SONNERAT, Pierre (1749-1814), naturalist, who for the first time illustrated an Australia kookaburra, erroneously as a New Guinea bird, in his *Voyage à la Nouvelle Guinée* (1776); in fact he had received the specimen among "some new birds" given to him by Banks at the Cape in 1770 (letter Sonnerat to Banks, cited by Whitley, 1970: 48).

SPARRMAN, Anders (1748-1820), Swedish naturalist and pupil of Linnaeus, who was residing at Cape Town when he joined the *Resolution* in November 1772 as paid assistant to J. R. Forster. He was promised "part of such natural curiosities as they might chance to collect" (Sparrman, 1786: pt. 1, 84). He left the ship at Cape Town in April 1775 and arrived back in Sweden in July 1776. Some of his bird specimens were acquired by Johan Gustav von Carlson and were later described by Sparrman (1786-89) in his *Museum Carlsonianum.* In 1801, about one hundred of Carlson's birds went to the Kungl. Vetenskapsakadamiens in Stockholm and the remainder to A. U. Grill and Gustaf Paykull, as well as Uppsala University. Many of the surviving Carlson (and also Paykull) specimens came to the Naturhistoriska Riksmuseet in Stockholm, where some Sparrman specimens are still extant (e.g. Spotted shag *Sticticarbo punctatus.* See Medway, 1976: 53,121).

STOCKHOLM. See Sparrman.

STONE, Sarah (by 1806, Mrs. Smith, still active in 1830), a talented artist whose watercolors of specimens and artifacts in the Leverian* are often the only extant record or means of authenticating objects in that museum, particularly those from the Cook voyages. She exhibited over a thousand "transparent drawings in watercolours" at the Leverian (*Morning Post*, 25 March 1784). Her watercolor with C. Ryley of the interior of the Rotunda, on which was based the engraving in Part 1 of the *Companion* (Anon., 1790), was lot 887 in the Leverian sale of 1806 (bought by "Oliphant"); watercolor of entrance to Rotunda possibly also by her (se under Lever*). Three sketchbooks exist depicting objects in the Leverian; vol. 1 in the Australian Museum, Sydney, showing 132 plants and animals (Anderson, 1928; Hindwood, 1964); vols. 2 and 3 (164 drawings) at the Bishop Museum, Honolulu, mainly showing artifacts but including three Hawaiian birds (*ʻoʻo, ʻiʻiwi, ʻakialoa*--reproduced in color by Force & Force, 1968: 47, 49, 51); a collection of ninety-three natural history watercolors in BMNH., based on Leverian material of 1781-85, and twenty-eight similar watercolors and pencil drawings of 1780 and 1782 in the Sedgwick Museum of Geology, Cambridge (possibly part of the series of "transparent drawings in watercolours," as perhaps also those in the three sketchbooks; a few are known to be in private hands, but surely many more remain to be discovered). Some of her drawings were published in the *Journal* of John White, Surgeon General to the First Fleet (White, 1790).

SWAINSON, William (1789-1855), naturalist and author of a number of popular zoological works, who had a fairly large collection that contained Bullock material, including possibly some animals from the Cook voyages (Kaeppler, 1974). He illustrated Cook specimens formerly owned by Banks and by then in the Linnean Society* (Swainson, 1820-23). He had a very poor opinion of the state of the British Museum collections, which he likened to the catacombs at Palermo (Swainson, 1840: 237-240) and he sold what he called "our first collection . . . more than 2510 species, and about 6150 specimens" to the Manchester Natural History Society in 1826 (Swainson, 1840: 78); a report on the shells in this transaction (sold for £650) was made by Arthur Atkinson*, a copy of which exists in his MS. "The elements of conchology" in the Manchester Museum (which eventually received Swainson's collection, but did not label the items as such). Swainson's birds may have gone to Cambridge. He put an earlier collection up for sale in June 1823 (part 3, birds and insects from New Holland); Humphrey* bought at least one shell from Swainson (*Voluta nodosa*, which appeared in his own sale of the same year); Swainson had a second sale in July 1840 before leaving for Tasmania, but took a large collection with him (his books and drawings were sent in the *Prince Rupert* and only some books survived shipwreck--Nora McMillan, pers. comm.).

TANKERVILLE. The Earl of, acquired Calonne* shells via the collection of the Duchess of Portland*, some of which may have been from the Cook voyages (Dance, 1966). At 'least one third-voyage shell was bought by Tankerville at the Leverian sale of 1806 (lot 87 of antepenultimate day. Dance, 1971: 370).

TEMMINCK, Coenraad Jacob (1770-1858), who bought for the Leiden Museum at Bullock's sale of 1819 (Sharpe, 1906: 409), purchasing over five hundred bird specimens (Stresemann, 1951). See Leiden*.

THOMPSON. A London natural history dealer who bought for the Earl of Derby* at the Leverian sale of 1806.

TUNSTALL, Marmaduke (1743-90), naturalist, who had a large natural history collection (especially birds-second only to Latham's), which he housed in the 1770s at Welbeck Street, London, but in 1780 or 1781 he moved it to his country house at Wycliffe, Yorkshire. At his death, the Tunstall or Wycliffe Museum was bought by George Allan, continued by

his son, then sold in 1822 to the Newcastle Literary and Philosophical Society for £400; from 1820 the collections were shared with the Natural History Society, which in turn housed them from 1835 until transfer to the Hancock Museum building in 1884. Some second-voyage Forster insects' were intended by Solander for Tunstall (Solander to Banks, 5 September 1775--see Dawson, 1958: 772). Tunstall received from Banks at least three first-voyage birds (*kokako, tui* and Rainbow lorikeet. Medway, 1976: 133; Whitehead, 1969a: 175). In 1772, Tunstall sent about two hundred shells from the first voyage to Linnaeus*. In a catalogue of the "Newcastle Museum," Fox (1827) claimed that Tunstall's catalogues could not be found, but that one volume had described "a large collection of curiosities, brought by Capt. Cook from Otaheite, &c."

TURIN. Franco Andrea Bonelli, Director of the Regio Museo di Zoologia, bought eighty-seven zoological specimens at the Bullock* sale of 1819 (three fishes, nine mammals, seventy-five birds). For twelve birds of nine species a Cook voyages provenance is indicated in the catalogue and four are still extant (*Vestiaria coccinea, Picus varius* 0, *P. erythrocephalus* and *P. pubescens* ♂). Information most kindly supplied by Dr. Pietro d' Entrèves *(in litt.).*

VIENNA. Purchases for the Imperial Collection at the Leverian sale of 1806 were made by Leopold von Fichtel*, the most important being the 204 birds and the Cook artifacts. Lot 5078, a Cook voyage surgeonfish, is still extant (Whitehead, 1969a: pl. 2), as well as at least nine birds (Whitehead, 1969a: 195, and Medway, 1976: 121-131). The purchases are reported by Pelzeln (1873).

WATSON, Dr. William (1717-87), a Trustee of the British Museum, who presented to the museum a New Holland parrot early in April 1772 *(Book of Presents),* apparently the first Cook specimen to be incorporated.

WHITE, Reverend John, brother of Gilbert and Benjamin, who bought a few third-voyage birds for Anna Blackburne* at the sale of Bayly's collection* in October 1780, although White himself had been on board one or both ships and saw "but one baskett of shells and not a Single bird' (letter to Mathew Gregson, 18 October 1780, Gregson corr., LPL).

WRIGHT. See Litchfield.

WYCLIFFE MUSEUM. See Tunstall.

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British Museum (Natural History)

EDITOR'S FORUM

THE 1780 RUSSIAN INVENTORY OF COOK ARTIFACTS

by Robert D. Craig

Yakov M. Svet and Svetlanda G. Fedorova have presented us with a valuable piece of Cook historical evidence--the manuscript *1780 Inventory,* reproduced on pages 16-19 of their article. As they point out, the ethnographical collection listed in the *Inventory* [erroneously attributing almost all of them to Tonga] came from the Pacific Islands. It was given to the Russians in 1779 by the English seamen anchored at Kamchatka as a token of their gratitude for the Russian hospitality afforded Cook's ships after his death. This two-page manuscript lists forty-eight Cook artifacts that arrived back in Leningrad in 1780.

During the past year, an interest in Cook artifacts has again been heightened in Hawaii as a result of the excellent exhibit at the Bishop Museum, brought together under the expert guidance of Adrienne Kaeppler. Artifacts from museums throughout the world were on display. Kaeppler's resulting folio catalog, *Artificial Curiosities,* carefully documents work that took her eight years to collect.[1] The importance of accurately dating ethnographical pieces now appears vital to Pacific cultural history. Kaeppler's *Artificial Curiosities* has shown that what we have generally accepted as "classical" Hawaiian art, perhaps did not develop until after Cook (and subsequent) navigators introduced the use of iron tools into their society. "It appears that 'classical' Hawaiian forms," she says, "evolved from specific traditional forms in the immediate post-contact period."[2]

For each entry in her *Artificial Curiosities,* Kaeppler has attempted to give ample proof that each article is indeed a "Cook artifact." Where questionable, it is noted: "The following objects are probably from Cook's voyages, but are not traceable by documented links."[3] Such is the case with the artifacts from the Leningrad museum. Documentation is weak: "Given by Captain Clerke to the Governor of Kamchatka . . . Rozina [as source], 1966 . . ."

[1]Adrienne Kaeppler, *Artificial Curiosities* (Honolulu: Bishop Museum Press, 1978) [Pp. xiv, 292, illustrations, paperback, $27.50].

[2]Adrienne Kaeppler, "The Significance of Cook's Third Voyage for the Study of Hawaiian Art and Society," paper presented at the Captain James Cook and His Times conference held at Simon Fraser University, Vancouver, 28-29 April 1978, p. 2.

[3]Kaeppler, *Artificial Curiosities,* p. 5.

Kaeppler's second valuable folio volume, *Cook Voyage Artifacts,*[4] that appeared in November of this year, examines in detail the three major collections in Leningrad, Berne, and Florence. The Leningrad portion consists of a translation of an article written by L. G. Rozina in Russian in 1966.[5] In this article, Rozina gives no first-hand evidence that the artifacts in Leningrad are actually attributed to Cook. The first written account cited is the *Catalog* of the former Peter the First Museum of Natural History (the *Kunstkamera*) which was published in 1800. Since that time, authority of identifying these as Cook artifacts has apparently only been through this *Catalog.* No scholar until now has cited the *1780 Inventory* manuscript, nor has it ever seen print.

A close comparison of the *1780 Inventory* and the descriptions by Kaeppler and Rozina confirms that the *Catalog* of 1800 (and, therefore, all subsequent references) is indeed correct. Almost all of the objects in the *1780 Inventory* can be located in the 1978 Kaeppler/Rozina work as shown in the following table.

1780 Inventory		Kaeppler/Rozina, 1978		
Number	Description	Description	Page Reference	Leningrad Museum No.
4	Fish net of tapa.	Tongan mat?	8	505-3 1
5	Wooden head rest.	Tongan head rest.	13	505-1
6	Stone axe with wooden handle.	Stone adze From Hawaii.	14	505-28
7	Large fan of long black feathers.	Hawaiian *kahili* or feather fans.	11-12	505-2 and 4

[4] *Cook Voyage Artifacts in Leningrad, Beme, and Florence Museums* (Honolulu: Bishop Museum Press, 1978) [Pp. x, 186, illustrations, paperback, $15.00].

[5] L. G. Rozina, "Collektsiya Jemsa Kooka," *Sobranii Muzeya Antropologii i etnografii,* 23 (1966), 234-53, and pages 3-17 in Kaeppler's English translation, footnote 4 above.

1780 Inventory		Kaeppler/Rozina, 1978		
Number	Description	Description	Page Reference	Leningrad Museum No.
11	Wooden dagger with tail of an animal.	Hawaiian "tabooing" wand with white dog's tail pulled over stick.	12	505-6
12, 18	Morion (helmet) of feathers.	Hawaiian helmets.	6	505-7 and 11
13,20	Feather collars.	Society Island gorgets.	15-16	505-10 and 14
14,19,22	Feather mantles.	Hawaiian *'ahu'ula.*	4-5	505-9, 12, 505-17-19
17	Wooden dagger.	Hawaiian *pāhoa.*	15	505-33
24	Armlet of small red feathers.	Hawaiian bandlike object.	7-8	505- 15
25	Armlet of animal fangs.	Hawaiian boar tusk bracelet.	8	505- 16
26	Wooden dagger with blade set with sharp teeth.	Hawaiian dagger with shark's teeth.	15	505-5
28	Wooden roller to make tapa.	Hawaiian *kapa* beater.	14	505-29

1780 Inventory		Kaeppler/Rozina, 1978		
Number	Description	Description	Page Reference	Leningrad Museum No.
29	Mat of woven leaves.	Probably woven mat.	12-13	Lacking
31	Three zephyrs [fans] red and yellow feathers.	Hawaiian feather fans.	11-12	505-4
33	Women's mother-of-pearl front piece.	Tahitian mother-of-pearl breast apron.	9	505-20
34	Reed, wooden combs.	Tongan combs.	9	505-22 and 23
35	Five fish hooks.	Hawaiian & Tahitian fish hooks.	14-15	505-24, 25,26
37	Tattooing instrument.	Object labeled as tattooing instrument but doubted.	16	505-27
38	Kisa [purse].	Tongan basket?	13	505-32

The importance of this *1780 Inventory,* therefore, gives documented proof that those articles in the Leningrad collection that appear on the *Inventory* are truly those that were collected by Cook on this third voyage around the world.

Fergus Clunie, *Fijian Weapons and Warfare.* Suva: Bulletin of the Fiji Museum No. 2, Fiji Times and Herald Ltd., 1977. Pp. 121. Fijian $6.50.

Some years ago, when I was examining some weapons at the Fiji Museum the late Director, Bruce Palmer, made the comment that he hoped he would be able to contribute something significant to the understanding of Fijian warfare which he was then researching. Two years later, while hosting him to some events at the Polynesian Cultural Center's tenth anniversary in 1973, I noted with interest that his research in this area was continuing. Unfortunately he was to die suddenly in 1974, his warfare research incomplete. It was thus with interest that I noted this new title for sale in bookshops in Fiji last year.

Fergus Clunie, acknowledging Bruce Palmer's initiating role, began the present work as "a weapons section" for the overall work on Fijian warfare envisaged by Bruce Palmer. He has, however, developed a valuable reference work (which largely fills the lacuna Bruce had himself intended to fill) by bringing together the scattered references and related works which already exist discussing aspects of these subjects. While Mr. Clunie would be the last to claim this as a definitive, exhaustive study, it does the great service of clarifying the philosophy behind Fijian warfare dispelling the many misconceptions and what he calls, "moralistic nonsense" which has hitherto been written about the nineteenth-century Fijians and their generally warring society.

Apart from performing this service, Mr. Clunie hopes to stimulate the Fijian public--particularly the elderly--to clarify further, correct, or otherwise supplement his efforts. To accomplish this, he proposes a Fijian language version which would certainly be read by more Fijians than would one in English only. (Indeed, were it a standard practice to publish vernacular versions of all researches, the process of our learning and knowing might well be greatly hastened.)

Part I, humbly entitled "Background Notes on Fijian Warfare," actually provides us with rather detailed annotated information which has obviously taken some effort to gather. Subjects he considers include the causes of war, fortification, man traps, naval warfare, ceremonial, training, and he spends over six pages discussing the relationship of cannibalism to warfare, using contemporary European accounts with great effect. I would, however, like to have seen more than the bare two pages spent on "Training in Warfare and the Use of Arms," some space also being spent on exploring the relationship between the *meke* with various weapons and actual training drills, as well as weapon "etiquette."

Part II is an annotated cataloging of weapon types which will, no doubt, prove invaluable to the curators of various collections of Fijian weapons. Not only are the drawings by Kolinio Moce and others explicit enough for use for identification of artifacts and their types, but they have also (in good academic manner) been drawn to scale so that some realistic conception of the actual artifact's size is possible to the general reader. An especially good, but hitherto neglected, feature of this study is the inclusion of all the known past European contact weapons also used by Fijians, namely cannons, shotguns, pistols, revolvers, and the ammunition employed for them. Mr. Clunie's comments and quotations regarding the effect of firearms upon Fijian culture are enlightening. One I must quote: ". . .certain Europeans . . . followed up the retreating and beaten enemies of Thakombau, and with muskets, powder and lead purchased the lands from which they were being driven." [A.H.C. Gordon, *Fiji. Records of Private and of Public LIfe,* Vol. I (Edinburgh: 1897), p. 232.]

Warfare being such a significant part of the nineteenth century Fijian life, there are literally multitudes of extant Fijian clubs of all types in many museum collections. The irony is, as Mr. Clunie observes, that some types are not represented in the Fiji Museum collection which is quite limited as far as many Fijian artifacts are concerned. Nevertheless, this has not prevented the comprehensive cataloging for the first time of all known Fijian weapons.

I would be remiss not to mention the fine plates (some hitherto unpublished) which include reproductions by Thomas Williams, Sir Arthur Gordon, Percy Spence, and especially interesting, J. Glen Wilson whose 1850s period sketches are in Mr. Clunie's opinion, "the most accurate and reliable."

Written in an easily-read style and clearly illustrated, *Fijian Weapons & Warfare* is a very useful contribution to our understanding of nineteenth-century Fijian culture and the role of warfare in it. Although a fairly considerable amount can yet be said on this subject, I feel Bruce Palmer himself would commend the result of that research he himself initiated. The pity is that he did not live to see it through. Fergus Clunie in carrying it to this point has thus made a fine tribute to Bruce Palmer's memory.

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Neil Gunson, ed., *The Changing Pacific--Essays in Honour of H. E. Maude.* New York: Oxford University Press, 1978. Pp. 360. $39.50.

Gunson has drawn together a collection of essays which are useful not only because they add to the small body of existing literature on the Pacific, but also because they reflect Maude's vast scholarly contributions to Pacific studies. Thus Maude as a focus has drawn in a collection of papers by scholars from several disciplines preeminent for their work in the Pacific.

Three themes pervade this collection--themes which are also found throughout Maude's work. Firstly there is a concern for time depth as an important facet of understanding some aspect of society in the present. Secondly, some papers reflect a concern for the data to show itself rather than to fit any a priori structural principles. This often means that a central topic is examined from a broad viewpoint with minimal emphasis on either functional integration, psychological, material or political as a theoretical stance. Thirdly there is a concern with the indigenous view of life rather than with the outsider's analytical concerns. The geographical spread of these essays is somewhat wider than Maude's own geographical coverage of the Central Pacific, an area which might have remained unknown had it not been for his stimulation.

The importance of consideration of both past and present is the pervading feature of a great number of papers in this collection. Spate looks at the issue of whether history starts with European reports. Lundsgaarce examines changes in Gilbertese *maneaba* (meeting house) organization up to the present, though he fails to point out that this is not a feature of all Gilbertese island communities now. Oliver's paper also covers the salient changes in the organization of land tenure in Tahiti over the last 150 years. He presents an alternative structure of Polynesian land-holding groups to the Sahlins (1958) and Goldman (1970) pyramidal model by focusing on the integration with one another of groups holding land, rather than focusing on the internal divisions of the groups themselves. However, this structure has been drastically affected by French registration and codification of lands which divides lands per nuclear family thereby leading to individual control.

Dening also shows how early accounts report on violence in the Marquesas which he argues was integral to that society. The search for sacrificial victims led to raids on enemy groups. These were usually fellow-Marquesans but occasionally outsiders. Dening's viewpoint is that as life as an ancestor follows death, so peace (temporarily) followed these

upheavals. Another view of violence shows it as encapsulated in symbolic slaying of an effigy on Niue as discussed in Luomala's paper. Also following the ethnohistorical line, Shineberg shows how missionary medicine was practiced alongside local medicine in pre-Christian Tonga, so a little bleeding, potions and pills matched local treatments and thus became part of the notion that faith is the strongest healer. McArthur's discussion of mortality rates on Aneityum follows in similar vein, subtly suggesting that the congregating of people in a restricted space such as a church may have accentuated the spread of disease.

Following one of Maude's own themes quite closely is the paper by Hezel on beachcombers in the Carolines. He sees them as agents of cultural change but having fairly minimal impact as they tended to "go native" and lacked for the most part the material accouterments of western society. Nevertheless, in Ponape and Truk they did influence trading and political alignments for a brief period in the 1850s. Lambert also discusses political change in his paper on chiefs in Butaritari and Makin in the Gilberts. West selects an alternative approach to change through the concept of a moving frontier in New Guinea. He shows that missions and mining and later Government law and order moves had differential impacts on bringing New Guinea society into wider contacts.

Yet another ethnohistorical approach, this one emphasizing the impact of the conquest culture on Marianas' society is raised in Spoehr's paper. He shows how the structural form of family and kinship organization in that society is a particular product of conquest culture. An important consideration he raises concerns the cultural affinity of the Marianas because if we accept that the source of change is the Philippines and has a major molding effect, then the Spanish influence puts the Marianas in a closer relationship with the Philippines and Spanish America than with the rest of the Pacific societies. Lessa also raises the question of cultural affinity and origins for the Mapia Islanders, inhabitants of a group of islands off the northern coast of West New Guinea. This paper is valuable both for bringing to light a little known group through survey of European and Japanese records of shipwrecked sailors, travelers, and German ethnologists, and also for the concern as to whether Mapia Islanders should be classified as Melanesian, Micronesian, or Indonesian.

Another aspect of Maude's work brought out in this collection is his concern for the people's own view of the development of their culture, and this is underlined by his demands that students have a rigorous control of the language in order to understand the changing pattern of any Pacific society. Such an inside/outside view shows in some of the papers

mentioned above but also in Kaeppler's paper on Tongan funerals where she usefully combines descriptive details of people's reasons for being present at a particular funeral and the gifts exchanged with the structural details of the importance of the *fahu* and other status factors in Tongan social relationships.

The inside/outside view is also combined in Chowning's paper on changing ceremonies, i.e. those borrowed through trading connections with neighbors among the Kove of West New Britain. This paper also highlights the trading of ideas along with goods. Emory's paper on food division and Freeman's on a struggle between two aspiring Samoan *Matai* both provide outsider's descriptions of details of an inside event. Similarly, Lewis, as a very experienced navigator but interested in alternative means of navigation, gives us a detailed account of marine technology and its importance in the changing Pacific.

Perhaps the most different paper in this collection is the one by Silverman on understanding Oceanic kinship, not only because it is more abstract than the rest but because it raises some real issues as to how outsiders can ever come to grips with understanding something so different as another culture. Having a grasp of the language may help a little, but how can we as outsiders ever understand the intricate conceptualization of something so vital as the relationship between people and their land? Silverman points out that the reality of relations needs points of positive reinforcement like getting together at weddings, funerals, etc., but at the same time we must appreciate that the intricacy of social relations leads to different pictures of the social structure.

This is an exciting set of papers, well set out, with few glaring misprints or errors. The papers are brief and succinct; the major omission is that each paper has only a very short or sometimes no conclusion at all. Some papers rely too heavily on indigenous terms for the new Pacific scholar. But the collection stands as a worthy testament to the man it sets out to honor.

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Bernice Judd, Janet E. Bell, and Clare G. Murdoch. *Hawaiian Language Imprints, 1822-1899, a Bibliography*. Honolulu; Hawaiian Mission Children's Society and the University Press of Hawaii, 1978. Pp. xxix, 247. $12.00.

"This bibliography includes all known titles published in the Hawaiian language anywhere in the world between 1822 and the end of the century. The only items not listed are one-page broadsides, government documents, serials, sheet music, and programs for events such as concerts, royal functions, and the like." With this concise introductory statement in a four-page preface by Janet Bell, the extensive scope and boundary lines of this bibliography are clearly drawn. By "anywhere in the world' is meant the current holdings of at least fifty combined library and private collections located in the Hawaiian Islands, the United States, New Zealand, Australia, Italy, and Belgium. These have been identified in a three page section on "Libraries and Collections" (xxiii-xxv) with abbreviations used in references to holdings per 654 entries arranged in the main text.

In a four-page brief "Historical Note" the authors highlight the salient historical facts about the establishment of the first Sandwich Islands Mission press in 1820 on Oahu and another in 1834 at Lahainaluna. Underscored in the note is the interesting fact that "printing in the Hawaiian language was by no means restricted to the Sandwich Islands," as the American Tract Society and American Bible Society, suppliers of Hawaiian catechisms, primers, bibles, and tracts were based in New York. From Valparaiso and Macao at opposite ends of the Pacific came Catholic writings in Hawaiian until the Catholic press was set up on the local scene between 1840 and 1899. For services of the Church of England in Hawaii, the *Book of Common Prayer* translated by King Kamehameha IV was issued from far-away London and Oxford, and between 1855 and 1899 the Mormon texts cited in the bibliography were distributed from Salt Lake City and San Francisco.

For those who require more history and details on this topic, the authors have recommended a convenient thirteen-item "Selected Historical Bibliography" for background reading. The reader's understanding of the technique of entering the publication data has been significantly eased by a three-page "Explanatory Notes" section which gives a thorough descriptive style sheet breakdown. The items are entered chronologically by year and alphabetically by title, adding name of author, place of publication, publisher, date, pagination, size, English translation, variant titles, editions, size of press run, and current library holdings. This bibliography is,

therefore, not a mere reference list but also a catalog of holdings arranged within the context of history. In this sense, the historical one, it is a fine achievement of definitive library scholarship that increases its reference value above that of ordinary, annotated subject bibliographies. The catalog value of its format distinctly succeeds in bringing the comprehensive Hawaiian *world collection* within reach of reference librarians, catalogers, scholars, historians, linguists, writers, and language specialists whose specific concerns embrace the Pacific and its cultural attractions.

The style and emphasis of this particular work is reminiscent of an earlier bibliographical publication by George L. Harding and Bjarne Kroepelien, *The Tahitian Imprints of the London Missionary Society, 1810-1834* (Oslo: *La Coquille Qui Chante,* 1950) to which it bears some resemblance. After twenty years of painstaking research the authors documented 118 entries of the Tahitian, Rarotongan, Samoan, Fijian, and Marquesan language imprints with English translation in a bibliography of three sections: "Imprints of London and Sydney (1823-1831);" "Imprints of Huahine (1819-1834); " "Imprints of Taha'a (1823-1826)," including a list of libraries (with abbreviations), an introductory history of printers and presses, as well as a complete list with birth dates and service dates of all London Missionary Society personnel from 1797 on, "hoping thereby to obtain further information for a final and we trust definitive edition to be published in the not too far distant future."

With this bibliography to complement the Harding-Kroepelien, a marvelous opportunity for comparison is afforded between the Hawaiian and Tahitian experience of intercultural communication in early contact times. One is reminded vividly of the Tahitian-Hawaiian exchange, academically speaking, if he has ever forgotten that the first sixty-page Hawaiian hymnal, *Na himeni Hawaii* (1823), and early speller, Ku *be-a-ba,* which increased in print from 7000 to 27,000 copies between 1824 and 1825, was a joint effort of Rev. Hiram Bingham of the pioneer company and Rev. William Ellis of the London Missionary Society. Of such importance is this minute detail that makes a list of books and their facts of publication the means by which the character of an entire "missionary" age can be more fully understood.

The forte of the missionaries was clearly in the realm of language learning, teaching, and grammatical description, notwithstanding the religious emphasis of their objectives. Today's students may disregard their moralistic endeavors, charging them with a puritanical bias typical of their times and origins, but almost no serious or alert student of literature can ignore the superb achievement of the 887-page *Ka Paiapala Hemoleie*

(1838) translated into Hawaiian from the Greek and Hebrew texts rather than from the King James version. Nor, from the evidence carefully weighed from the bibliography, can they be faulted for neglecting the intellectual education of native Hawaiians. Their textbooks in arithmetic computation, mental and written in method, algebra, geometry, trigonometry, surveying, navigation, astronomy, and geography, history, biography, with lessons for children on quadruped animals of the world, the art of drawing, the art of penmanship, spelling primers, readers, English and Hawaiian grammars, phrase books, and dictionaries of the Hawaiian language say otherwise. Neither was the authorship all missionary; much of it was native Hawaiian in the recording of historical traditions, songs, poetic compositions, and treatises on the laws of the kingdom. As the bibliographers have noted, they printed in the short span of twenty years of the early mission press (1822-1842), "more than one hundred million pages" of Hawaiian materials.

Tremendous though that effort may seem to have been, then how equally serious and intense was the determination required of Bernice Judd's colleagues to faithfully and conscientiously effect the completion of the bibliographical work she started forty long years ago. Most certainly do they deserve a round of applause for this fine piece of work by all who shall chance to earnestly need its expert and convenient guidance.

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David Lewis, *From Maui to Cook: The Discovery and Settlement of the Pacific.* Sydney: Doubleday, 1977. Pp. 212. $9.95.

Usually books about the "discovery" or "exploration" of the Pacific focus solely on the efforts of Western navigators from the sixteenth to the nineteenth centuries. Although Lewis devotes the largest portion of this book to the Western navigators, he breaks from the usual formula by describing the exploration and settlement of the Pacific by Pacific islanders, and by discussing recent experimental canoe voyages and their impact of the consciousness of Pacific peoples about their voyaging past. Lewis's account of Western exploration is lively, but it is the more unique parts of his book that merit discussion here.

In Part I, “The Founding Fathers,” Lewis expands the time perspective on Pacific discovery by 50,000 years! He credits the ancestors of the Australian aborigines and New Guineans with taking the first step in Pacific exploration--by making the sea crossing (on bamboo rafts, he guesses) from the Indonesia area to the great continent formed during this glacial era when lowered sea levels made New Guinea and Australia into one land mass. After paying his respects to these pioneers,, Lewis focuses on the Austronesian speaking peoples who, starting several thousand years before Christ, moved beyond New Guinea out into the Pacific proper. This section is to be recommended as a synthesis of recent linguistic, archaeological and voyaging research on Pacific migrations, particularly those of the Polynesians. The pity is that Lewis cannot infuse his synthesis with details on actual navigators and voyage that would bring these migrations alive. But these details are largely lost, although it might be possible to reanalyze the oral traditions of voyaging and migration to bring the needed islander perspective into focus.

Lewis is of course uniquely qualified to write about the original exploration and settlement of the Pacific for he has made major contributions to our understanding of the non-instrument navigation systems used. His research efforts have also had an unusual modem impact. In 1969 while studying the traditional navigation system of Puluwat Atoll of the Caroline Islands, Lewis had a traditional navigator sail Lewis’s yacht to Saipan and back, following the old voyaging route that had been abandoned in the European era. Partially because of this stimulus, the Carolinians have started sailing their canoes once more over this 1,000 mile round-trip. In Part III, titled “Fa’a Pasifika” (“Pacific Way”), Lewis tells about this revival in Micronesia canoe voyaging, and also about the recent effort to sail a large outrigger canoe from the Gilberts to Fiji as well as about the voyage of Hokule’a from Hawaii to Tahiti and return in which Lewis was involved. His thesis is that the revival in canoe voyaging seen in these and other modern attempts to recreate the ancient canoes and retrace old voyaging routes is part of a cultural renaissance that promises to restore pride lost to Pacific Islanders with the Western discovery and settlement of the Pacific.

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H. M. Voyce, *Design Work as Shown on Bougainville Arrows and Spears.* Rabaul, Papua New Guinea: Trinity Press, 1973. Pp. 34, illustrations. US $5.00.

The increasingly long list of publications dealing with art and ethnographica from the Solomon Islands has been handsomely augmented by the portfolio of design work on arrows and spears from Bougainville Island (now part of Papua New Guinea) produced by Mr. H. W. Voyce. Meticulously rendered drawings of arrows and spears from Bougainville make up the major portion (thirty pages) of the book. The weapons were collected in the 1920s and 1930s by the artist's son, the Reverend A. H. Voyce, who first came to Bougainville in 1926 as a member of the Methodist Missionary Society of New Zealand. Arrows and spears represented in this publication comprise only part of the vast collections of ethnographica accumulated by the Reverend Voyce during his travels throughout Bougainville. (The bulk of the Voyce collection is contained in the Otago University Museum in Dunedin and the Auckland War Memorial Museum; the Ethnography Department of the British Museum also possesses a comprehensive collection of Voyce material.)

H. W. Voyce made the drawings for this publication while living with his son for nine years at Tonu, Siwai, Bougainville. We are told in an introductory essay that the senior Voyce started the project at his son's suggestion despite personal misgivings about his own lack of artistic training: ". . .having been a gardener all his life, he protested that he couldn't draw." He worked with pencil rather than the more difficult medium of India ink and began by drawing the simplest specimens first, then progressed to the more complicated examples. Drawings in the book are arranged accordingly, resulting in what appears to be an attempt to demonstrate an evolutionary sequence of weapon types.

Artistic training notwithstanding, A. H. Voyce demonstrates considerable artistic talent, and his technical skill in draftsmanship leaves little to be desired. Voyce's interest is in the decorative features of the weapons; consequently, he depicts only the heads of the arrows and spears alongside ornamented sections of the shafts. From six to ten or more weapons appear on each page. Those decorated with closely related patterns are grouped together, allowing the reader to study subtleties of design variation in a degree of detail not possible in the sparsely illustrated accounts of weapons contained in older ethnographic writings on Bougainville. Information about provenance, dimensions, color, and other technical features is handwritten beside or beneath the drawings. Perhaps

of greatest potential significance are the recorded provenances which may facilitate the localization of designs on other weapons and artifacts from Bougainville that lack such precise collection data.

The three-page introductory text of the book was written by Voyce's son, the Reverend A. H. Voyce. Here we are told about the Voyce collection and how the drawing project originated. Reverend Voyce also includes historical quotations that refer to arrows and spears in the contexts of battle, trade, and ritual as evidence of the traditional importance of these weapons on Bougainville.

The text furnishes adequate supplementary information relevant to the drawings, but somehow one wishes for more ethnographic information. Voyce says in his text that ". . . all the design work on plaited 'King' spears, or on bundles of arrows, had meaning, and was not merely decorative art . . . each design had a traditional significance . . ." (page 3). What sort of significance? Perhaps Voyce felt that this was his father's book, essentially a design portfolio rather than a scholarly study of ethnographica, and that to have included too much of his own material would have been inappropriate. (It is also possible that the amount of information about design interpretation in Voyce's possession may not have been as copious as his collections.) This publication is, first and foremost, a portfolio of beautifully executed drawings. Its primary value lies in the presentation of such a large quantity of weapons with geographic attributions and in the precise rendering of decorative details which reveal so vividly the richness of variation in design work utilized for arrows and spears. Both scholars and artists will find the book extremely rewarding.

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