LEPAUTE DAGELET AT BOTANY BAY (26 JANUARY–10 MARCH 1788) AND HIS ENCOUNTER WITH WILLIAM DAWES[1]

IVAN BARKO

> [Dagelet] wrote to me that at Botany Bay he had come across an English astronomer furnished with instruments who was preparing to carry out numerous observations and we may have the satisfaction of corresponding with our Antipodes. Jérôme Lalande[2]

Re-discovery of a Letter

On 25 May 2005 Katia Smith, who was researching William Dawes' observatory at Port Jackson,[3] visited the Mitchell Library in Sydney to examine a manuscript letter dated 3 March 1788 written in French at Botany Bay by the French astronomer Joseph Lepaute Dagelet and addressed to his British counterpart Lieutenant William Dawes at Port Jackson.[4]

The manuscript was offered to the Library in November 1914 by William Wesley and Son, booksellers and publishers, Essex Street, Strand, London, apparently in the hope that the then Mitchell Librarian, Hugh Wright, would instruct his staff to place orders for scientific books direct with them, rather than through an agent. The letter must have originally travelled to England with William Dawes in 1792, to end up 120 years later with William Wesley and Son.[5]

There is no indication that anyone considered it to be of great interest or value. During the following ninety years it was neglected, rather than completely forgotten. In his scholarly compilation of 1962, *Sydney Cove 1788*, John Cobley refers to it briefly[6] and in 1989 it was microfilmed for preservation purposes. In 1991 a Sydney-based French expatriate, Mr Georges Mesnage, drew the attention of the Paris Observatory to this manuscript and subsequently provided the Observatory with a partial transcription.

After Katia Smith's re-discovery of the letter the Library approached me and asked me to transcribe the manuscript and translate it into English, which I did in the following few weeks. Both the transcription and the translation, together with a copy of the manuscript, were posted on the Library's website.[7]

Three months later the opening page of the letter was featured in a Lapérouse exhibition at the State Library of New South Wales[8] and subse-

quently the letter was included in the Library's on-line exhibition entitled "Joie de vivre! The French in Australia".[9] Thus, after almost a century of neglect, the letter attracted an unusual amount of attention both in Australia and in France in a very short time. In 2008, the manuscript, on loan from the Mitchell Library, was featured in a major Lapérouse exhibition at the Musée National de la Marine in Paris.[10]

Joseph Lepaute Dagelet before Botany Bay

Who was Joseph Lepaute Dagelet?

Joseph Lepaute was born on 25 November 1751 in Thonne-la-Long, near Montmédy (Meuse, France), close to the present French–Belgian border, son of Pierre Lepaute, a blacksmith, and Martine de Mozon.[11] On his baptismal certificate the surname appears as "Paute" but the forms Le Paute, LePaute and Lepaute were more commonly used. His ancestors were known as "Grosse Pote" or "Grosse Paute". It is a well-established fact that the spelling of proper names was unstable under the *ancien régime* and beyond, so that debates on which spelling is correct or incorrect are generally futile.[12] Joseph's uncles, who were clockmakers in Paris, had made their reputation under the name "Lepaute"[13] and therefore arguably this variant is to be preferred.

The agnomen "Dagelet", by which Joseph Lepaute became known, was taken from the name of a small country lane near his home town.[14] The purpose of the assumed name was to distinguish him from other Lepautes of his generation. Joseph Lepaute always spelt his agnomen as "Dagelet" but others, including his astronomer patron, Jérôme Lalande, tended to prefer the aristocratic variant "d'Agelet".

Joseph's elder brother Dominique had been sent to the capital to stay with his uncles, the clockmakers Jean-André and Jean-Baptiste, to learn their trade. He later returned home and started training his younger brother in clockmaking. On 25 February 1768, at the invitation of Jean-André's wife, née Nicole-Reine-Étable de la Brière, Joseph himself went up to Paris to undertake the study of astronomy under Lalande, the future Director of the Paris Observatory.

Madame Lepaute was an exceptional woman, an astronomer in her own right, an occasional research assistant to Lalande, and an associate member of one of the provincial academies of science,[15] as well as a capable manager of her husband's business and a contributor to his textbooks on clockmaking. Lalande was a part of the Lepaute household, a

friend of the husband but also an admirer of the wife both for her intellectual gifts and her beauty. Lalande, who was a bachelor, and the Lepautes, who had no children, treated young Dagelet as their adopted son.[16]

The young man soon became Lalande's favourite disciple and he made rapid progress as a practising astronomer. His first appointment was to the Observatory of the Collège Mazarin in Paris, where Lalande had practised previously.

In 1773, after five years at Mazarin, his mentor recommended that he be appointed the astronomer on the 1773–1774 Kerguelen expedition in the Indian Ocean, a venture in which the 23-year-old scientist acquitted himself admirably both as an astronomer (observing longitudes, tides and the variations of the needle)[17] and in the management of difficult human relations.

In recognition of his contribution to the Kerguelen expedition he was appointed Professor of Mathematics at the École Militaire in Paris in 1777. In this capacity he taught Napoleon Bonaparte. According to Alexandre des Mazis, one of the classmates of "Buonaparte", Dagelet enjoyed talking to his students about his voyages and was exceptionally interesting to listen to.[18]

His "day job" as a teacher did not prevent him from pursuing his astronomical observations at night, often well into the early hours of the morning. He was privileged to have had a new observatory built for him at the École Militaire, with the most up-to-date astronomical instruments.

Most of Dagelet's work was published in the *Journal des savans* and in the Proceedings of the Academy. He also contributed to Lalande's *Connaissance des temps* (1779) and his *Éphémérides*. He excelled in the observation of planets and stars, especially the identification of previously uncatalogued smaller stars, an area in which, with Lalande's encouragement, he became a specialist: in the words of his mentor "no one in Europe has rendered greater service to astronomy than he has".[19]

Dagelet first stood for nomination to the Academy of Sciences in 1780. He came second in an election in 1782 and was chosen unanimously in 1785, thus becoming its youngest Associate Member.

In the year of his election he was invited to join the Lapérouse expedition as the astronomer on the *Boussole*, whilst his colleague at the École Militaire, Louis Monge, somewhat junior to Dagelet, was to hold the same position on the *Astrolabe*. (Health reasons forced Monge to leave the expedition at Tenerife.) Although the Academy was free to select the most

suitable candidates, some external pressure appears to have been exerted on its members in favour of Dagelet not only because of his gifts as an astronomer but also for his youthful energy, his previous naval experience and the "compatibility" of his character.

At first Dagelet hesitated to accept the commission, partly because of his mixed memories of the Kerguelen expedition and partly because travel around the world would mean the postponement of his marriage to his cousin, Henriette Lepaute.[20] Nor did he enjoy the rough manners and speech of sailors:

> In our trade as sailors we sing, swear, smoke, drink and speak of girls all in the same half an hour; for me, as you know, my friend, the only love I know is one veiled in modesty, I am pained by conversations in which honour and courtesy are ignored.[21]

However, he eventually yielded to the combined entreaties of the Academy and the Minister (the Maréchal de Castries) and joined the expedition. The one condition he set (and this was not only accepted by the authorities but also met by them after Dagelet's disappearance in the South Pacific) was the provision of an annual pension of £750 to his parents if he failed to return.[22]

His concern for his parents' well-being can also be ascertained from a letter written at sea near Macao on 1 January 1787, in which he asked his cousin Sully Le Paute to send his mother or his father some money every year, in order that they should not have to go without the sweeteners that alleviate the afflictions of old age ("a matter so important to my happiness"): "as you well know, dear cousin, 4 or 5 *louis* every year would add the superfluous to the necessary".[23] From Manila, three months later, he confides to his friend Prévost that he is unable to rid himself of all the painful reflections that arise again and again in his mind and grow every day regarding everything that affects his family and friends.[24]

The *Boussole* and the *Astrolabe* left Brest on 1 August 1785. As noted above, Monge, susceptible to sea sickness, was forced to leave the expedition at Tenerife, and his duties were taken over by the captain of the *Astrolabe*, Fleuriot de Langle, assisted by several officers who were introduced to the handling of scientific instruments and astronomical observations, as had originally been intended in the royal instructions. Fleuriot de Langle himself was to be killed by the natives at Tutuila in Western Samoa in December 1787.

On the *Boussole* Dagelet was assisted by his student from the École Militaire, Roux d'Arbaud (selected in preference, apparently, to Bonaparte).[25] This choice was vindicated at every stage of the voyage. D'Arbaud proved to be an invaluable assistant, constantly praised by both Dagelet and Lapérouse, and highly thought of by Lalande.[26]

In a letter to his mentor, written in September 1786, Dagelet described the expedition as the longest voyage ever recorded in history, and one carried out "without harming a single being, whilst distributing provisions, instruments and assistance everywhere".[27] This was consistent with Louis XVI's dearest wish that not a single life be lost during the voyage.[28]

Once again Dagelet got on well with his fellow travellers and his commander.[29] Lapérouse, who was impatient with ideologies, including those of the *philosophes*, and who was constantly irritated by the very presence, the aristocratic manner and the Rousseauist beliefs of the chevalier de Lamanon,[30] valued Dagelet's scientific and technical competence and appreciated his lack of intellectual pretension. When the ships were in the proximity of Korea, Lapérouse named an island after Dagelet. (There is also a Mount Dagelet in Alaska.)

Lapérouse wrote to the Minister, saying that "among the hundred excellent and lovable qualities [Dagelet] possesses, I know only one fault he has, namely that of being in delicate health".[31] Late in 1786, shortly before the expedition's arrival in Macao, Dagelet became desperately ill. A victim of scurvy, he expected to die within days and advised Lalande that he would entrust his papers to "his friend d'Arbaud", who on his return to France would pass them on to Lalande. To his mentor's delight Dagelet recovered,[32] although he did not ever regain his full strength. This was an important factor in his condition during his six-week stay at Botany Bay.

On their way to Australian waters, at Tutuila, in Western Samoa, on 11 December 1787, the French lost several of their companions, including, as we have seen, the commander of the *Astrolabe*, Fleuriot de Langle. They were killed by the natives. The talented multi-skilled scientist Lamanon was among their victims. This tragic event prompted Lapérouse to harden his attitude to natives:

> I am a hundred times more angry against the philosophers who so praise them as against the savages themselves. Lamanon, whom they murdered, was telling me the day before he died, that these men were worth more than us. A rigid follower of the King's instructions, I have always behaved towards them with the utmost moderation; but I would

> not undertake another campaign of this kind without asking for different orders, and a navigator leaving Europe must consider them as enemies, very weak ones, to be honest, whom it would be dishonourable to eliminate, but whom one has the duty of forestalling if a feeling of suspicion allows it in all fairness.[33]

Dagelet at Botany Bay

The French arrived at Botany Bay on 26 January 1788, just as Captain Phillip was moving his fleet to Port Jackson. Captain Hunter sent a lieutenant and a midshipman to greet the French and offer them the services of the English fleet. As Lapérouse wrote in his diary, "all Europeans are countrymen at such a distance from their respective countries". Over the following six weeks the French and the British entertained excellent relations: "No People could show more Attention, Respect & Civility, than their Officers did to us", wrote Surgeon Worgan, "and we were equally zealous in showing the like Dispositions towards them".[34] However, the scarcity of supplies was such that beyond the customary courtesies neither side was able to provide substantial material assistance to the other.

The distance between the two camps, the French at Botany Bay and the British at Port Jackson, was approximately fifteen kilometres and it could be covered, not without difficulty, either by land or by sea. The route by land went through what is now Centennial Park and followed the crest above the coast down to Botany Bay.[35]

On 2 February Lieutenant Philip Gidley King and Lieutenant William Dawes of the Marines visited the French fleet by sea. Even though Lapérouse did not meet Arthur Phillip in person, by now he had received the visits of two future Governors of New South Wales, John Hunter and Philip Gidley King. King and Dawes left the *Sirius* at 2 o'clock in the morning and arrived on board the *Boussole* at 11 a.m. They stayed with the French until 5 a.m. the following morning, having accepted an invitation to dine with Lapérouse and his officers, and reached the *Sirius* at 7 p.m. on 3 February, "having been obliged to row all the way against the wind and a great swell".[36]

It was during this eighteen-hour stay at Botany Bay that Dagelet and Dawes met, discovered their common interest in astronomy and exchanged information and ideas on their work, future plans and cooperation. Dagelet intended to visit Dawes at Sydney Cove in the following weeks to inspect

his colleague's instruments and view the progress of the observatory, but his state of health prevented him from undertaking what promised to be an arduous journey.

Dagelet's letter to Dawes emphasizes Lapérouse's insistence that his astronomer spare his forces for the voyage ahead of them, and should anyone have thought that this might have been a mere excuse, Lalande's account of the last of Dagelet's ten letters to him, all lost to posterity, confirms the factual accuracy of the apology:

> In his tenth and last letter, written on 1 March 1788 from Botany Bay in New Holland, he wrote to me that he had received the visit of Mr Doves [Dawes], an English astronomer, who was preparing to set up an observatory and to whom d'Agelet's experience and advice were not unuseful. He wanted to visit him in his turn at Port Jackson, but as one had to follow a track where each traveller needed to cut his way through mountains, cliffs, woods and marshes, La Pérouse thought his weakened constitution would not withstand it. He himself thought that before taking to the sea again, he should temper his astronomer's zeal. We do not know whether his health was restored and whether it held up as we have not received any subsequent news from this ill-fated expedition.[37]

The expedition's six-week stay in Botany Bay was not the most pleasant of its long journey. Writing to Condorcet in the latter's capacity as Secretary of the Academy of Sciences on 6 February 1788, Dagelet complained bitterly of the innumerable insect bites that made him almost blind and, more importantly, of the expedition's difficult relations with the natives of the Botany Bay area. Lapérouse, in his letter of 7 February 1788 to Fleurieu, spells out the reasons for the problem:

> I have a very good retrenchment set up here in order to store our new longboats in safety, which are well advanced and will be usable by the end of the month. These precautions were needed against the Indians of New Holland who, although very weak and not numerous, are, like all savages, very ill-natured and would set fire to our boats if they had means of doing so. They threw spears at us one minute after receiving our presents and signs of friendship.[38]

In stark contrast to the experience of other French explorers in Australian waters, that of Lapérouse and his companions with Aborigines

was not a happy one. There were skirmishes between the two groups but there is absolutely no evidence of any Aboriginal or French casualties. It is difficult to determine whether the hostility of the indigenous population was in reaction to the distrust of the French (possibly motivated by the tragic incidents of Tutuila less than two months earlier) or some other specific cause, but Dagelet's letter to Condorcet is brutally explicit in expressing his opinion of indigenous Australians. This is all the more striking as the same letter contains a lyrical description of the physical beauty and the skills of the natives of Samoa and their womenfolk, the very murderers of Langle, Lamanon and several of their men.[39]

The expedition's camp was set up somewhere between the present location of the guard tower (built in the early 1820s) and the southern end of the sandy beach, near the location of the present Lapérouse monument. The decision to build the monument was made in 1825 on the initiative of Captain Hyacinthe de Bougainville, during his stay in Sydney, with the approval and support of the then Governor, Sir Thomas Brisbane, but at Bougainville's expense:

> The monument Mr Ducamper and myself have had erected on behalf of France, as simple in its design as the inscriptions engraved on it, is located on the seashore, in the middle of the site occupied by Mr La Peyrouse's camp. Sir Thomas granted me this spot and this is how we happen to own a few *toises* of a land where the French have explored 200 leagues of the coast.[40]

The French camp consisted of three main components: the boat construction stockade, a garden ("the French garden" as the British called it) and Dagelet's temporary observatory.[41] The site was also described by two French visitors from the Duperrey expedition in 1824 (on *La Coquille*), René Primevère Lesson[42] and Victor Lottin,[43] as well as by Bougainville himself, both in his published account of the voyage and in his unpublished diary.[44] The traces of Lapérouse's camp were still visible in 1824 and 1825. It is worth noting that both Lottin in 1824 and Bougainville in 1825 estimated the distance between Lapérouse's 1788 camp and the recently erected gothic guard tower to be approximately 300 paces. The 1824–1825 descriptions indicate that the French camp was surrounded by a primitive wooden hedge, to protect the boat builders from attacks by the local Aborigines, and that the hedge itself was surrounded by trenches.

Contacts between the French and the British continued throughout February and the early days of March. We know that Lieutenant Boutin visited William Dawes' observatory site at Port Jackson and reported back to Dagelet. The encounters between the French and the British are carefully documented in Alec Protos' short but invaluable study *The Road to Botany Bay*.[45] The French regularly returned escaped convicts to the British at Port Jackson although an unconfirmed and dubious tradition has it that two convicts, Peter Paris (of French background) and a female convict, Ann Smith, left with the French and eventually met the same fate as the rest of the expedition.

The French sailed from Botany Bay on 10 March 1788. Before their departure both Lapérouse and Dagelet entrusted correspondence to the British (in the case of Dagelet, to Dawes personally) and we know that eventually these letters reached their addressees in Europe. Dagelet's letter to Dawes, written a week before the French left Botany Bay and two days after his final letter to Lalande, was almost certainly his last.

After Botany Bay

It is highly likely that on their way home the expedition visited New Caledonia, probably in the second half of May,[46] before being caught in a tropical storm at Vanikoro in the Solomon Islands. We have no reliable dating for this tragedy but it is likely to have occurred in June 1788.

It would appear that the men on the first of the two French ships died instantly in the shipwreck, whilst those on the second ship, who followed in a vain attempt to rescue their comrades, survived for some time. It is likely that some of the survivors died as victims of the then cannibalistic local natives.

The existence of these two distinct shipwreck sites, the first at a great depth and the second much closer to the surface, is not in doubt, but evidence as to the identity of the two ships has been questioned. The most likely hypothesis remains that the *Boussole*, with both Lapérouse and Lepaute Dagelet on board, was wrecked first and is lying on the deep water site, whilst the *Astrolabe*'s crew survived longer.

The traces of the expedition were first discovered by Peter Dillon (on the *Research*) in 1827 when he visited the Solomon Islands and noticed objects of French origin in the possession of the natives. His enquiries led him to one of the Vanikoro shipwreck sites (the one nearer the water's surface) where he recovered four small cannons. In 1828 Dumont d'Urville

(on the new *Astrolabe*) purchased further objects from the local natives and collected some from the same shipwreck site. He was followed in the same year by Legoarant de Tromelin (on the *Bayonne*), and fifty-five years later, in 1883, by Benier (on the *Bruat*).

There was no further activity on the sites until the second half of the twentieth century when, in 1958, on the initiative of the New Hebrides French High Commissioner, Pierre Anthonioz, underwater diver Reece Discombe, a New Zealander, began to explore the area. In the same year another diving expedition was led by Haroun Tazieff. The deeper site was formally identified by Reece Discombe in 1962, although workers from the Kaori Timber Co. diving in the area had recovered objects from this site as early as 1958. In 1964 several expeditions surveyed the Vanikoro sites, assisted by the French Navy, but the latter pulled out of the project at the end of that year. In 1976 Banyul (on the *Bayonnaise*) conducted another expedition.

A new period in the underwater exploration of the Vanikoro sites began in 1981 with the involvement of the Noumea-based Solomon Association led by Alain Conan, who has been a key figure in all the subsequent expeditions. In 1986 the Solomon Association combined with the archeologists of the Queensland Museum (Ron Coleman and Scott Sledge) to carry out a highly significant expedition, followed in 1990 by another joint French–Australian venture, this time in cooperation with the Australian Institute for Maritime Archeology (Nicholas Clark).[47]

Later explorations were held in 1999, 2003 and 2005, and another one is due to take place in September–October 2008. These expeditions are the result of cooperation between the Solomon Association in Noumea and the Underwater Archeological Research Section of the French Ministry of Culture (DRASSM, "Département des Recherches archéologiques sous-marines"), as well as, at least since 2003, the French Navy.[48]

For an assessment of the scientific work carried out by Dagelet and others during the Lapérouse expedition, the recovery of instruments or fragments of instruments at Vanikoro over the years has been highly significant. Possibly the most important of these is the quadrant by Langlois which was on loan to Dagelet from the Paris Observatory (fragments of this instrument were found in 1964, 1986 and 1999). Other important instruments brought up from the Vanikoro sites include two telescopes, one by Nairn & Blunt (1964 expedition) and the other by Dollon (1976 expedition), and a graphometer recovered in 1999. (Another graphometer found on land in Noumea in the nineteenth century has been used as evidence that Lapérouse called in

at New Caledonia after his stay at Botany Bay on his way to the Solomon Islands.)

In 2003 a skeleton in an excellent state of preservation was found at the deep water site, with a further fragment (a foot) recovered in 2005. Given the good condition of the teeth, the quality of some buttons and other objects including fragments of scientific instruments found near the skeleton, as well as the location of the find, it was thought that the skeleton must be that of an officer or a scientist in his thirties, such as Lepaute Dagelet. With the cooperation of descendants of the Lepaute family, plans have been made for a DNA analysis to establish the identity of the skeleton, although the latest studies suggest that it might well be that of a man a few years younger than the then 37-year-old Lepaute Dagelet.

Dagelet's Contribution to Science[49]

Dagelet's letter of 3 March 1788 to William Dawes included a set of geographic coordinates for the temporary observatory that he had set up on the northern shore of Botany Bay. These coordinates, calculated by Dagelet and his assistant d'Arbaud, were made using not only Lalande's lunar and astronomical tables (to which Dagelet had been a contributor) but also a number of previously travelled and historically significant instruments such as the quadrant by Langlois (recovered from Vanikoro), a meridian telescope by Rochon, La Condamine's invariable pendulum, three astronomical pendulum clocks by Lepaute and a number of other state-of-the-art instruments such as reflecting circles designed by Borda and English-made sextants.

The survival of the geographic measurement at Botany Bay has opened a small but important window onto the quality and importance of the scientific work of the Lapérouse expedition, an aspect of its achievements on which little has been written. The great tragedy of the expedition, apart from the terrible fatalities, was the almost total loss of the scientific records, most of which were kept in the onboard journals of the scientists or in their stored collections. Following his instructions from King Louis XVI, Lapérouse insisted that the scientists on his two ships refrain from forwarding records of their experiments and reports on their work as they became gradually available. He intended to publish them collectively on the expedition's return to France. As a result these records and reports perished in the shipwrecks at Vanikoro.

Using the evidence from Dagelet's letter and researching other surviving documents such as the inventories drawn up on the eve of the expedition's departure from Brest in 1785, the lists of instruments and fragments of instruments recovered from the Vanikoro shipwreck sites in the last half a century (i.e. since 1958), private and official correspondence by members of the expedition and others, and last but not least the short professional biography of Lepaute Dagelet written by his mentor Jérôme Lalande (last published in 1803), it is now possible to reconstitute some of the scientific achievements of the Lapérouse expedition, including Dagelet's geodetic observations at Botany Bay, specifically the measurement of timed oscillations of a pendulum. Although the results of this experiment have not come down to us, this measurement appears to have been the first formal scientific experiment carried out on Australian soil.

There is little doubt that the Vanikoro shipwreck prevented Dagelet from fulfilling his scholarly promise: there is every indication that had he lived, he would have been a major figure in the history of French astronomy.

Conclusion

More than anyone else, Lalande was aware of both Dagelet's potential as an astronomer and the significance of his work during the expedition, the results of which perished with him:

> [La Pérouse's voyage] around the world was meant to provide astronomy with new knowledge through d'Agelet's observations. For example, the observations of the pendulum in the Southern hemisphere, which I specially recommended to him and which he informed me he had carried out in New Holland, would have been able to tell us whether there was a difference in density between the two hemispheres of the globe: but these observations are lost. He wrote to me that at Botany Bay he had come across an English astronomer furnished with instruments who was preparing to carry out numerous observations and we may have the satisfaction of corresponding with our Antipodes.[50]

Lalande's comment on the encounter with Dawes highlights Dagelet's plans and ambitions and the importance he attached to his future collaboration with his counterpart in the Southern hemisphere.

Incidentally, there are striking similarities between the patronage of Dawes by Maskelyne, the Royal Astronomer, and Lalande's patronage of Dagelet. Dagelet was conscious of his privileged background—not in terms of money or rank but because of his education and the support he had received from his family, his colleagues, the authorities and mainly from his mentor. That mentor was deeply aware of his share of responsibility in Dagelet's demise:

> All the sciences have always had their martyrs whose zeal and courage prompted them to face danger and death and who became their victims. Astronomy provides several examples of this but Dagelet is the most recent one and the most deserving of our regrets, especially mine, as I had been responsible for calling him to the discipline of astronomy and allowing him to run risks which I could have averted for him.[51]

In fact, in his letters to his friend Prévost Dagelet revealed how much he would have preferred the scholarly peace of his Paris observatory and the company of those dear to him in the warmth of a home to all the excitement of the greatest of voyages: "Do you realize that the end of our voyages approaches and that it is possible that towards the end of the year we will be together? Then, and then only, will we talk about voyages, a most agreeable topic to discuss by the fireside."[52] Vanikoro put an end to his dreams, as well as to his ambitions as a scientist.

While for 220 years Lepaute Dagelet remained a half-forgotten figure, the re-discovery of his letter to Dawes seems to have created a new interest in the man and his career,[53] and an impetus for researchers both in France and Australia to explore his life and his contribution to science.

University of Sydney

Notes

1. This paper is one of several arising from research conducted over a substantial period of time in cooperation with Doug Morrison of Sydney (on Lepaute Dagelet's scientific achievements) and Claude Parent of L'Aiguillon-sur-Mer, France (on Lepaute Dagelet's biography). My thanks and appreciation go to both for their enthusiasm, their scholarship and their ready willingness to share knowledge. I also wish to thank Katia Smith for providing the original impetus for this project. Finally, I acknowledge my debt to those scholars and professionals who assisted with the transcription and the interpretation of Lepaute

Dagelet's letter to William Dawes. They include, in France, Mme Laurence Bobis, Chief Librarian of the Paris Observatory, and Mme Hélène Richard, Director of the Department of Maps and Plans at the National Library of France, and, in Australia, Barbara Barko, Case Bosloper, Joe Doyle, Edward Duyker, Mark Morrison and Wayne Johnson. Translations of quotations are mine, unless otherwise indicated. The original French is quoted, sometimes more fully than the English language version, in the corresponding endnotes.

2. Joseph Jérôme Le Français de Lalande, *Bibliographie astronomique, avec l'histoire de l'astronomie depuis 1781 jusqu'à 1802*, Paris, Imprimerie de la République, 1803, p. 686. ("Il m'écrivit qu'il avait trouvé à la baie Botanique un astronome anglais, muni d'instrumens et se préparant à faire beaucoup d'observations, et nous aurons peut-être la satisfaction de correspondre avec nos antipodes.")
3. Katia Smith, " '... Not always visible to mortal eyes ...': An Account of the Astronomy of William Dawes, 1787–1791", Major Project for HET-612, Centre for Astrophysics and Supercomputing, Swinburne University of Technology, Supervisor: Chris Fluke, 2004.
4. It is located under the shelf number "CY1414 zAd49, Dawes, William".
5. We owe this information to Paul Brunton, Senior Curator at the Mitchell Library, who kindly investigated the history of the manuscript for the purposes of this study.
6. John Cobley, *Sydney Cove 1788*, Sydney, Angus & Robertson, 1962, p. 95.
7. See: http://image.sl.nsw.gov.au/cgi-bin/ebindshow.pl?doc=ad49/a1297;thumbs=1. The spelling "Donis" for "Dawes" in the transcript and the translation on the Library's website should be corrected to "Doves", Lepaute Dagelet's spelling of Dawes' name.
8. Exhibit 91, "Any News of La Pérouse?", an exhibition curated by Avryl Whitnall, State Library of New South Wales, August to October 2005.
9. See: http://www.sl.nsw.gov.au/discover_collections/society_art/french/. In fact "Joie de vivre! The French in Australia" itself was an on-line re-working of an earlier (2004) physical exhibition at the State Library of NSW entitled "*Vive la différence!* The French in New South Wales".
10. "Le Mystère Lapérouse, enquête dans le Pacifique Sud", Musée National de la Marine, Palais de Chaillot, 19 March 2008 – 20 October 2008.
11. The main sources for this biographical sketch are Lepaute Dagelet's surviving letters; Lalande, op. cit., especially pp. 707–713 and p. 686; Gabriel-Joseph Lepaute, *Notice sur la famille Lepaute qui s'est distinguée dans l'horlogerie et les sciences*, Paris, Paul Dupont, 1869; "Notice [...] sur Le Paute Dagelet, membre de l'Académie des Sciences, astronome de l'expédition Lapérouse", *Bulletin de la Société de Géographie*, Paris, 7th series, IX, 1888, pp. 293–302; and last but not least Claude Parent's invaluable on-line booklets *Pour l'amour du ciel — La Vie aventureuse de Joseph Lepaute Dagelet, astronome et compagnon de Lapérouse*, L'Aiguillon-sur-Mer (France), 2006 and *Lepaute Dagelet vu par l'Australie — Un homme de raison et d'esprit, martyr de la*

science, L'Aiguillon-sur-Mer (France), 2008, both of which can be accessed at: http://lepaute.forumculture.net/portal.htm. The second of these booklets reproduces the full transcripts of documents of difficult access such as Lalande's account of Lepaute Dagelet's life and career and the latter's surviving correspondence.

12. This applies to the passionate discussions regarding which of the spellings Lapérouse or La Pérouse is correct. Rightly or wrongly I have opted for the spelling Lapérouse himself used in his signature.
13. See Lalande, p. 707.
14. See Claude Parent, *Pour l'amour du ciel*, p. 8.
15. Béziers, elected in 1761 (see Gabriel-Joseph Lepaute, op. cit., p. 8). On Nicole-Reine Lepaute, see Elisabeth Badinter, "Un couple d'astronomes: Jérôme Lalande et Reine Lepaute", *Bulletin de la Société archéologique, scientifique et littéraire de Béziers*, 10th series, I, 2004–2005, pp. 71–76, and Guy Boistel, "Nicole-Reine Lepaute et l'hortensia", http://www.ac-nice.fr/clea/lunap/html/Transits/TransitsRecre2.html and also in *Cahiers Clairaut*, n° 108, 2004.
16. The theory of Lalande's ambivalent feelings for Mme Lepaute and the complex triangular relationship between husband, wife and the platonic lover are explored by Elisabeth Badinter, op. cit.
17. See Lalande, p. 708. ("D'Agelet y observa assidument les longitudes, les marées, les variations de l'aiguille, &c. comme on peut le voir dans le Journal des savans de juin 1775, et dans les Mémoires de l'Académie pour 1788; il rapporta même des plantes rares de ce voyage. Il était désespéré de ne pouvoir en rapporter des observations astronomiques et géographiques; et il en aurait fait beaucoup, si Kerguelin ne lui en eût pas ôté le temps et les moyens: aussi Kerguelin fut-il jugé et condamné à son retour.")
18. "MM. Dagelet et Monge, deux hommes distingués étaient nos professeurs, M. Dagelet [. . .] avait de l'esprit, de l'instruction et aimoit beaucoup à raconter ses voyages, il nous intéressait infiniment lorsqu'il nous parloit." Quoted by Paul Bartel, *La Jeunesse inédite de Napoléon d'après de nombreux documents*, Paris, Amiot Dumont, 1954, p. 257 (Appendice II).
19. Lalande, p. 709. After his participation in the 1773–1774 Kerguelen expedition in the Indian Ocean, Dagelet authored a paper on the inclinations of the magnetic needle entitled "Observations faites dans un voyage aux terres australes en 1773 et 1774 [sur les inclinaisons de l'aiguille aimantée]" (listed in *Histoire de l'Académie des sciences avec les mémoires de mathématiques et de physique*, 1788, pp. 487–503, according to the catalogue of the Conservatoire des Arts et Métiers (Paris), Bibliothèque et Centre d'histoire des techniques, n° 861.) In 1780 he presented his observations on the planets and stars to the Academy of Sciences and in 1783 he published a paper on Venus's aphelion (a point in its orbit when a planet is at its greatest distance from the sun). The last two papers are listed in *Nouvelle biographie générale*, Paris, Firmin Didot frères, 1852.

20. As Dagelet perished in the Vanikoro shipwreck in 1788, the marriage did not take place.

21. "Dans [le] métier de marin on chante, on jure, on fume, on boit et l'on parle de filles dans la même demi heure; pour moi vous le savés, mon cher ami, je ne connais l'amour que lorsqu'il se cache sous le voile de la pudeur, je souffre sans cesse de ces sortes de conversations où l'on respecte bien peu l'honneur et la délicatesse." Letter of 5 April 1787 from Manila to his friend and Military School colleague Prévost, reproduced as an appendix to Gabriel-Joseph Lepaute, op. cit., pp. 41–43.

22. Lalande, p. 711. ("Il demanda seulement, pour son père et sa mère, une pension de 750 livres, dans le cas où il ne reviendrait point; la Convention nationale la leur assura, sur le rapport du C.^{en} Jard-Panvilliers, qui prit à cette affaire l'intérêt qu'inspire à un citoyen éclairé tout ce qui a rapport aux sciences, quoique l'esprit de justice dont il est animé n'eût pas besoin de ce nouveau motif.")

23. Letter to Sully Lepaute, at sea, 1 January 1787. ("C'est de vouloir bien avoir soin de faire passer à ma mère ou à mon père une somme annuelle comme vous le jugerés à propos, pour qu'ils puissent n'avoir besoin d'aucunes des douceurs qui peuvent soullager et alléger les maux de la vieillesse. J'avais prié M. Monge de vous en parler avec détail, mais hélas je suis toujours dans le doute sur une chose bien importante à mon bonheur; vous savez bien, mon cher cousin, que 4 ou 5 louis par an ajoute l'aisance au nécessaire.")

24. Letter to Prévost from Manila, 5 April 1787. ("Je partirais pourtant très bien portant de Manille, si l'on pouvait me guérir de l'ennui que me cause une campagne dont on ne voit le terme que dans un éloignement infini, et surtout si l'on pouvait ôter de ma tête toutes les réflexions pénibles qui renaissent et qui s'accroissent chaque jour sur tout ce qui touche ma famille et mes amis.")

25. There has been considerable speculation on how world history would have been affected if Napoleon Bonaparte, instead of Roux d'Arbaud, had been selected to participate in the tragic Lapérouse expedition.

26. "M. Darbaud a [...] parfaitement secondé M. Dagelet, et je suis persuadé qu'il n'est peut-être en France aucun jeune homme de son âge aussi instruit que lui." (Lapérouse to the Maréchal de Castries, 25 September 1787, in M. L. A. Milet-Mureau, *Voyage de La Pérouse autour du monde*, Paris, Plassan, 1798, IV, p. 222.) Dagelet and d'Arbaud worked very well together. Dagelet always spoke of his assistant with great warmth and had complete confidence in his ability.

27. From his letter of 22 September 1786 to Lalande, quoted by Lalande, op. cit., p. 711. ("Jamais vaisseau [...] n'a passé autant de temps en mer. La France pourra se glorifier d'avoir fait le plus grand voyage dont l'histoire fasse mention, sans faire de mal à un seul être, et en répandant par-tout des subsistances, des instrumens, et des secours.")

28. Royal instructions, as recorded in Milet-Mureau, I, p. 49. ("Sa Majesté regarderait comme un des succès les plus heureux de l'expédition, qu'elle pût être terminée sans qu'il en eût coûté la vie à un seul homme.")

29. "No one could be better educated or more friendly", said Lapérouse, who found him "charming" but he added, somewhat surprisingly: "I only fear that he might be a little lazy". ("[. . .] je crains seulement qu'il ne soit un peu paresseus [. . .]; d'ailleurs, on ne peut être ni plus instruit ni plus aimable.") Archives nationales, Mar. 3JJ 386, fol. 174 v°, quoted by Catherine Gaziello, *L'Expédition de Lapérouse 1785–1788: Réplique française aux voyages de Cook*, Paris, C.T.H.S. (Comité des Travaux historiques et scientifiques), 1984, p. 196. No other evidence for this view has so far been produced, unless this is a variant of Lapérouse's assessment that Dagelet did not enjoy good health. There are also several references in Lapérouse's journals to the assistance Dagelet received not only from Roux d'Arbaud but also from other members of the expedition.

30. Lapérouse failed to appreciate the broad intellectual interests of this multi-skilled scientist who died in 1787 in the Tutuila massacre at the hands of the "noble savages" he so much admired.

31. Letter to the Maréchal de Castries, from the Bay of Avatcha at Kamchatka, 25 September 1787: see Milet-Mureau, IV, p. 252. ("Parmi cent bonnes et aimables qualités, je ne lui connais que le défaut d'avoir une santé très-délicate.")

32. Letter to Lalande dated 29 December 1786, quoted in Lalande, p. 712. ("Je suis abimé [. . .] par le scorbut; je me sens près de ma fin: j'étais trop faible pour une campagne aussi terrible que celle-ci. Souvenez-vous de moi; mon ami d'Arbaud vous remettra mes papiers, &c".

33. Letter to Fleurieu from Botany Bay, 7 February 1788, translated by John Dunmore. See *The Journal of Jean-François de Galaup de la Pérouse 1785–1788*, edited and translated by John Dunmore, London, The Hakluyt Society, 1995, II, p. 540. ("Je suis cependant mille fois plus en colère contre les philosophes qui exaltent tant les sauvages, que contre les sauvages eux-mêmes. Ce malheureux Lamanon, qu'ils ont massacré, me disait, la veille de sa mort, que ces hommes valaient mieux que nous. Rigide observateur des ordres consignés dans mes instructions, j'ai toujours usé avec eux de la plus grande modération; mais je vous avoue que si je devais faire une nouvelle campagne, je demanderais d'autres ordres. Un navigateur, en quittant l'Europe, doit considérer les sauvages comme des ennemis, très-faibles à la vérité, qu'il serait peu généreux d'attaquer sans motif, qu'il serait barbare de détruire, mais qu'on a le droit de prévenir lorsqu'on y est autorisé par de justes soupçons.") See Milet-Mureau, IV, p. 267.

34. George B. Worgan, *Journal of a First Fleet Surgeon*, Sydney, The Library Council of New South Wales in association with the Library of Australian History, 1978, quoted in Alec Protos, *The Road to Botany Bay: The Story of Frenchmans Road Randwick through the Journals of Lapérouse and the First*

Fleet Writers, Randwick, Randwick and District Historical Society, 1988, p. 13.

35. See Alec Protos, op. cit.

36. *The Journal of Lieutenant [afterward Governor] King*, in F. M. Bladen, ed., *Historical Records of New South Wales*, vol. 2, quoted in Protos, p. 17.

37. Lalande, p. 713. ("Dans sa dixième et dernière lettre, écrite le 1.er mars 1788, de la baie Botanique, dans la nouvelle Hollande, il m'écrivait qu'il avait eu la visite de M. Doves, astronome anglais, qui préparait un observatoire, et à qui l'expérience et les conseils de d'Agelet ne furent pas inutiles. Il voulait aller le voir à son tour au port Jackson: mais comme il fallait suivre des chemins où chaque voyageur est obligé de se frayer un passage au travers des montagnes, des précipices, des bois et des marais, La Pérouse crut que sa faible constitution n'y résisterait pas; et au moment de se remettre en mer, il crut devoir réprimer ce zèle d'astronome. Nous ignorons si sa santé se rétablit et se soutint, puisque nous n'avons pas reçu de nouvelles ultérieures de cette malheureuse expédition.")

38. Lapérouse to Fleuriot, letter of 7 February 1788, translated by John Dunmore in *The Journal of Jean-François de Galaup de la Pérouse*, II, pp. 539–540. ("J'ai fait à terre une espèce de retranchement palissadé, pour y construire en sûreté de nouvelles chaloupes: ces constructions seront achevées à la fin du mois. Cette précaution était nécessaire contre les Indiens de la nouvelle Hollande, qui, quoique très-faibles et peu nombreux, sont, comme tous les sauvages, très-méchans, et brûleraient nos embarcations s'ils avaient les moyens de le faire et en trouvaient une occasion favorable: ils nous ont lancé des zagaies après avoir reçu nos présens et nos caresses.") See Milet-Mureau, IV, pp. 266–267.

39. Letter reprinted in *La Géographie*, LXIX, 2, 1938, pp. 112–114.

40. Hyacinthe de Bougainville in his 1826 report to the Minister for Navy, Jean-André de Chabrol de Crouzol, quoted by François Bellec, *Les Esprits de Vanikoro: Le Mystère Lapérouse*, Paris, Gallimard, 2006, p. 38. ("Le monument que M. Ducamper et moi avons fait élever au nom de la France, aussi simple dans son plan que les inscriptions qui y sont gravées, est posé sur le bord de la mer, au milieu de l'emplacement qu'occupait le camp de M. de La Peyrouse. Sir Thomas m'a fait la concession de ce lieu et c'est ainsi que nous nous trouvons posséder quelques toises d'une terre dont les Français ont exploré plus de deux cents lieues de côte.")

41. The suggestion in François Bellec's *Les Esprits de Vanikoro: Le Mystère Lapérouse*, p. 37, that Dagelet's observatory is likely to have been set up on the present site of the tower on the top of the hill is an interesting hypothesis. An alternative view is that Dagelet wanted his observatory tent to be closer to the rest of the French camp and less exposed to the winds. We know that at Monterey, in California, he set up his tent on the beach.

42. "Comme Français, comme voyageurs, nous désirions payer notre tribut de regret en visitant le point où le célèbre et malheureux Lapérouse écrivit les dernières dépêches qui sont parvenues en Europe, dans le campement qu'il établit à la pointe nord de Botany-bay. C'est là qu'il avait établi un jardin où il sema des plantes rafraîchissantes pour son équipage affaibli par les maladies. Les Anglais ont respecté ce coin de terre, qui porte parmi eux le nom de *Jardin français*, et ce jardin aujourd'hui en partie en friche, formé de sables de bruyère, donne quelques légumes aux soldats qui résident dans une petite tour bâtie à peu de distance sur une des pointes de la baie. Les arbres fruitiers y sont morts et ne peuvent y prendre racine, battus qu'ils sont par les vents de mer. Les éphémères se sont emparés de la majeure partie de sa surface, comme un emblème du vain travail des hommes. Une mauvaise haie de bois enclôt ce terrain que le gouverneur Macquarie avait le projet de faire enceindre de murailles." R. P. Lesson, *Voyage autour du monde: entrepris par ordre du gouvernement sur la corvette La Coquille*, Paris, P. Pourrat frères, 2 vols, 1839, II, pp. 267–268.

43. "C'est une belle tour en grès, bâtie sur la pointe Nord de la baie. Elle n'a aucun canon ni retranchement, et est uniquement destinée à servir de logement à la garnison consistant alors en un caporal et deux soldats. Ils nous reçurent fort honnêtement et nous offrirent un beau morceau de viande salée et de l'eau fraîche. Nous leur demandâmes à tout hasard s'ils avaient connaissance du tombeau français aux environ de leur fort. Le caporal, dont un prédécesseur était resté plusieurs années à cet endroit, nous conduisit à une portée de fusil de la tour, et nous montrant un lieu où la terre plus exhaussée était également couverte d'herbe, il nous dit: 'C'est là. Voilà l'unique reste du monument.' L'inscription mise par Lapérouse a disparu. Un enclos où Lapérouse fit semer des légumes existe toujours, il a conservé le nom de Jardin français. Il est entouré d'une haie, mais le dedans est presque inculte; quelques légumes sauvés par le détachement y périrent faute d'eau. Nous cherchâmes en vain une fleur dans ce terrain d'environ 300 pas de [sic] tour; tout était sec et brûlé. On nous dit que le gouverneur Macquarie avait eu l'intention de faire dans ce lieu un beau jardin en lui conservant son nom. Nous prîmes congé du caporal, et l'idée nous vint de retourner au tombeau du Père Receveur. Il y avait à côté un énorme eucalyptus qui l'ombrageait de ses rameaux. Nous gravâmes dessus profondément: *'Près de cet arbre reposent les cendres du père Receveur, visité en mars 1824'*." See Bellec, pp. 37–38.

44. This excerpt is part of Hyacinthe de Bougainville's "Notes personnelles. Notes détachées sur Port Jackson", held in the Bougainville Private Archives deposited at the Archives Nationales, Paris, 155AP12, in the fifth of five notebooks. A photocopy of this excerpt from the unpublished original French manuscript was kindly provided by Professor M. S. Rivière, the editor and translator of Bougainville's several accounts of his stay in New South Wales. See his *The Governor's Noble Guest: Hyacinthe de Bougainville's Account of Port Jackson, 1825*, Melbourne, Miegunyah Press, 1999. ("L'emplacement choisi par M. de

Laperouse pour établir son camp et y construire de nouvelles embarcations, est un plateau découvert, légèrement incliné vers le rivage; on distingue encore les traces du fossé dont furent entourées les palissades destinées à protéger les travailleurs contre les attaques des naturels. Au pied de ce plateau, la côte dessine une petite anse dont la plage sablonneuse offre un débarquement facile; au Nord, à trois cent pas de distance, on entrevoit au travers des arbres une tourelle gothique qui sert de corps de garde au petit détachement chargé de la surveillance de la baie.") Another shorter and less explicit description of the Botany Bay site was published by Hyacinthe de Bougainville in his *Journal de la navigation autour du globe de la frégate la Thétis et de la corvette l'Espérance pendant les années 1824, 1825 et 1826: publié par ordre du roi, sous les auspices du Département de la Marine*, Paris, Arthus Bertrand, 1837, I, p. 527.

45. Op. cit.

46. See Bellec, pp. 40–42.

47. Myra Stanbury and Jeremy Green, eds, *Lapérouse and the Loss of the Astrolabe and the Boussole (1788): Reports of the 1986 and 1990 Investigations of the Shipwrecks at Vanikoro, Solomon Islands*, Fremantle, Australian Institute for Maritime Archeology, 2004.

48. Association Salomon, *Lapérouse à Vanikoro. Résutats des dernières recherches Franco–Salomonaises aux îles Santa Cruz*, Rapport de la campagne Vanikoro 1999, [Noumea], Institut de recherches pour le développement, n.d.

49. A separate study on this subject is currently in preparation. Its principal author is Doug Morrison. This section merely foreshadows its purpose and scope.

50. Lalande, p. 686. ("Nous espérions, pour l'année 1790, le retour de La Pérouse, dont le voyage autour du monde devait procurer à l'astronomie de nouvelles connaissances par les observations de d'Agelet: par exemple, les observations du pendule dans l'hémisphère austral, que je lui avais spécialement recommandées, et qu'il me mandait avoir faites dans la nouvelle Hollande, pouvaient nous apprendre s'il y a une différence de densité entre les deux hémisphères du globe terrestre; mais ces observations sont perdues. Il m'écrivit qu'il avait trouvé à la baie Botanique un astronome anglais, muni d'instrumens et se préparant à faire beaucoup d'observations, et nous aurons peut-être la satisfaction de correspondre avec nos antipodes.")

51. Lalande, p. 707.

52. Letter to Prévost from Botany Bay, 5 February 1788. ("Songés-vous que le terme où doit [sic] finir nos voyages s'approche et qu'il est possible que nous soyons ensemble vers la fin de cette année? c'est alors seulement que nous parlerons de voyages, c'est une matière très agréable à discuter au coin du feu".)

53. On 22 March 2008, for the first time since Dagelet's death in 1788, descendants of the Lepaute family gathered in Paris to remember and celebrate his memory. The reunion was organized by Claude Parent, a most enthusiastic biographer and champion of Lepaute Dagelet.