

1995

The significance of Basque genes in Easter Island prehistory

Robert Langdon

Australian National University

Follow this and additional works at: <https://kahualike.manoa.hawaii.edu/rnj>



Part of the [History of the Pacific Islands Commons](#), and the [Pacific Islands Languages and Societies Commons](#)

Recommended Citation

Langdon, Robert (1995) "The significance of Basque genes in Easter Island prehistory," *Rapa Nui Journal: Journal of the Easter Island Foundation*: Vol. 9 : Iss. 1 , Article 3.

Available at: <https://kahualike.manoa.hawaii.edu/rnj/vol9/iss1/3>

This Research Paper is brought to you for free and open access by the University of Hawai'i Press at Kahualike. It has been accepted for inclusion in *Rapa Nui Journal: Journal of the Easter Island Foundation* by an authorized editor of Kahualike. For more information, please contact sheila.yeh@hawaii.edu.

The significance of Basque genes in Easter Island prehistory

Robert Langdon
Australian National University

At the Rapa Nui Rendezvous at Laramie, Wyoming, in August 1993, it was painfully obvious that Easter Island scholars are divided into two main ideological camps: those who believe that Polynesians were the island's only prehistoric inhabitants and those who don't. A book whose release was timed to coincide with the Rendezvous sets out the position of those in the first camp:

...we now know that there had been no previous settlement of Rapanui before the arrival of East Polynesians possibly from the Marquesas Islands and that this one-and-only East Polynesian settlement of the island . . . occurred sometime between the first and fourth centuries A.D. Rapanui's unparalleled neolithic attainments...in their entirety are local amplifications of an East Polynesian inheritance (Fischer 1993:228).

Thor Heyerdahl, doyen of those in the opposing camp, spelled out his position more than 30 years ago. For him, Easter Island's prehistory divides into three periods: Early, Middle and Late, with American Indians the island's only inhabitants until Polynesians arrived towards the end of the Middle Period, which is dated at about 1680 AD (Heyerdahl 1961:494-7).

As a newcomer to international conferences on Easter Island, I gave a paper at the Rendezvous in which I supported arguments for two prehistoric migrations from South America. However, I pointed out that most people in both camps seemed not to have heard of my hypothesis first advanced in 1975 that many Easter Islanders at the time of European contact were of part-Spanish descent from the crew of the Spanish caravel *San Lesmes* that disappeared on a voyage from the Strait of Magellan to the East Indies in 1526. In brief, my case is that the caravel, with about 53 men on board, including Basques, ran aground on Amanu Atoll, 800 km east of Tahiti; that the crew reloaded it by pushing their four heavy cannon overboard; and that they then proceeded westward until reaching the island of Ra'iatea, 200 km NW of Tahiti. There, some of the men settled and married Polynesian women. Several generations later, some of their Hispano-Polynesian descendants reached Easter Island by way of Ra'ivavae in the Austral group.

The principal evidence for my Easter Island hypothesis is of two kinds: (1) numerous descriptions of light-featured,

European-looking Easter Islanders from Roggeveen's time onwards, and (2) the discovery in 1971 that 18 Easter Islanders with no known non-Easter Island ancestors were/are carriers of certain genes that are peculiar to Europeans and especially common among Basques. The genes, called A29, B12, are a closely-linked pair or haplotype in the Human Leucocyte Antigen (HLA) system. They were brought to light by a team of geneticists led by Professor Jean Dausset, of Paris, a co-discoverer of HLA and a 1980 Nobel Prizewinner. The team was participating in a worldwide project to map the distribution of the HLA genes which occur in millions of different combinations and are of crucial importance in transplantation surgery.

Dausset's team took blood samples from 49 Easter Islanders. They went to considerable pains to try to ensure that all were of pure Easter Island descent. They were therefore mystified when 18 proved to be carriers of A29, B12. Dausset thought the explanation might be that, despite everything, these 18 islanders might be descended from the notorious Frenchman J.B.O. Dutrou-Bornier who ran a sheep ranch on the island from 1868 until his death in 1876. Accordingly, the team said in its report (Thorsby *et al* 1973)¹

that as the A29, B12 haplotype was 'characteristic of European Caucasians', the possibility could not be excluded that it was due to 'recent admixture by foreign visitors (prior to about 1870)'. My theory that the puzzling genes could be traced back to the *San Lesmes* was put forward two years later in my book *The Lost Caravel* (Langdon 1975). I have since pointed out in a revised and expanded version of the book (Langdon 1988a) that the earliest documented ancestor of the 18 carriers was a red-haired, blue-eyed, European-looking Easter Islander called Pakomio Maori who, in 1886, was estimated to have been born in about 1816.

My explanation for Easter Island's 'Basque' genes can only be right or wrong. If it is correct, then Polynesians of the early centuries of the Christian era could not have been the island's only prehistoric settlers, as one camp of Rapanui specialists claims. Hence, these genes are potentially crucial for our understanding of Easter Island's prehistory. So far, however, Dausset and his team and myself are the only ones who have devoted more than cursory attention to them.

In their book *Easter Island, Earth Island* (London 1992),



A Tahitian taxi-driver poses with an iron cannon from the Spanish caravel "San Lesmes" soon after it had been recovered from the reef of Amanu Atoll, Tuamotu Archipelago, in 1969 and taken to Tahiti. Photo: Robert Langdon

Paul Bahn and John Flenley dismissed 'the Basque story' in 17 lines. They claimed that a Basque sailor in one of the 'hundreds of whalers' that operated in the vicinity of Easter Island in the 19th century could have been responsible for the puzzling genes. Basques, they said, were usually 'pre-eminent in this industry'. This, however, was hardly a well-founded claim. As I have since pointed out in this journal (Langdon 1994), Easter Island waters were and are largely devoid of whales; no whaling ship is known to have visited the island before 1821; and Americans, not Basques, were pre-eminent in the Pacific whaling industry. In response, Bahn and Flenley (1994) said that they had merely mentioned the discovery of A29, B12 as 'an entertaining curiosity'. In their opinion, it had 'no direct relevance to the rise and fall of the island's culture' and they did not propose 'to lose any sleep' over who was 'ultimately responsible' for it on Easter Island. They also made the following points:

(1) A29, B12 had been 'improperly named' the Basque haplotype because it was 'also common in the south of France'.

(2) Dausset could not be sure that all the islanders in his tests were of pure Easter Island descent.

(3) A calculation that I made of the odds against the haplotype being introduced to Easter Island by a visiting Basque of post-Roggeveen times was irrelevant 'since it seems that one did [visit it]'.

(4) In discussing the origin of the haplotype on Easter Island, I had ignored the 'likelihood'—clearly set out in *Easter Island, Earth Island*—that an unknown European ship had visited the island before Roggeveen in 1722.

(5) A29, B12 was apparently 'peculiar to Easter Island' in the South Pacific because Dausset's 'most recent campaign' of HLA testing in the region had seemingly found no trace of it elsewhere.

(6) Except that the haplotype reached Easter Island before 1870, the exact date of its arrival would always remain unknown.

(7) Even if everyone accepted my arguments that the haplotype reached Easter Island before 1816, 'not much progress' could be made in determining its ultimate origin.

The Bahn/Flenley claim that the presence of A29, B12 on Easter Island has 'no direct relevance' to 'the rise and fall of the island's culture' is, of course, presumptuous. Unless they know who was 'ultimately responsible' for it, they cannot know whether it is relevant to the island's prehistory or not. Hence, the question of the haplotype's origin must either be resolved or we must all resign ourselves to perpetual uncertainty. In my view, resolving it is not as difficult as

Bahn and Flenley make out.

In the first place, an explosion of knowledge about HLA since the early 'seventies has made it clear that A29, B12 is much more likely to have reached Easter Island with a Basque or a person of part-Basque descent than otherwise. This is because everyone inherits one of a pair of HLA haplotypes from each parent and because the A29, B12 haplotype occurs with the greatest frequency in the Basque country of Spain and France. In the French Basque villages of St-Jean-Pied-de-Port and Hasparren, for example, 125 people in every thousand, or one in eight, are carriers. In the French Basque village of Macaye, 79 in every thousand are.² But beyond the Pyrenees, the haplotype quickly becomes less common. In non-Basque Barcelona and non-Basque Toulouse, the frequencies are only 65 and 52 per thousand respectively. In Madrid, the figure is down to 15. In most of Europe other than France and Spain, there are no carriers at all (Dausset *et al* 1973, Moreno and Kreisler 1977, Mouzon *et al* 1980, Prevost *et al* 1984, Ryder *et al* 1978). Thus, A29, B12 is quite properly described as the Basque haplotype—a term that Dausset himself (1982:215) seems to have been the first to use in print.

My idea that Easter Island's Basque haplotypes can be traced to the *San Lesmes* dates back to mid-1974 when I had almost finished writing *The Lost Caravel*. I had already deduced from other evidence that Hispano-Polynesian descendants of the caravel's crew

had settled on Easter Island when Grant McCall, a colleague at the Australian National University, who was writing a doctoral thesis on Easter Island in anthropology, gave me an offprint of the HLA report of Dausset and his colleagues. After a professor of genetics had helped me to understand its then-esoteric language, it seemed to me that the report had verified my deductions.

However, the notion that Hispano-Polynesians of 16th century descent are among Easter Island's prehistoric settlers did not fit in with McCall's own ideas, and he sought to cast doubt on my conclusion. He claimed that a genealogy that Dausset & Co. had published showing the family relationships of the 49 Easter Islanders they had tested was not correct. All the islanders with Basque genes, he said, were descended from one man, Pakomio Maori, through his two wives, whereas the published genealogy showed that one carrier was unrelated to him. I could not see that this made any difference to my conclusion. Even so, a few weeks before my book was published, I wrote to one of Dausset's collaborators, Dr Erik Thorsby, of Oslo, to ask if he could supply me with copies of the material on which the published



Professor Jean Dausset, a co-discoverer of the HLA system, checks genealogical details with an Easter Islander during the HLA testing project on Easter Island in 1971. Photo: Mme Rose Dausset.

genealogy was based. After Thorsby had obliged and McCall had given me copies of other such material, I became an Easter Island genealogist in my own right. I soon found myself in agreement with McCall: all the islanders with Basque genes *were* descended from Pakomio Maori. However, for the time being, that was virtually all I could establish about him. My only clue to his life span was that, in 1918, a daughter of his by his first marriage had been estimated to be 50 years old, i.e. born in about 1868 (Bienvenido 1921:74). This meant that Pakomio, himself, could not have been born any later than about 1848-50.

Some 15 months after *The Lost Caravel* appeared, I



Pakomio Maori, with hands clasped, was estimated to be about 70 years old when this photograph of Easter Islanders was taken during the visit of the USS "Mohican" to Easter Island in 1886.

received the first of many letters from Dausset.³ Thorsby, he said, had sent him copies of our correspondence and had told him of my book. He was 'very interested' in my hypothesis. However, because the A29, B12 haplotype was 'mainly present in the south of France and in the Basque country', and because the name Dutrou-Bornier was 'very common' in those parts, he thought it 'quite probable' that the genes of Easter Island's Dutrou-Bornier had been widely spread by the time the island's population had fallen to 110 in 1877. To my surprise, Dausset also said that the islanders in whom Basque genes had been found were known by other islanders to be 'impure' and that this probably implied that the impurity was 'more recent than the sixteenth century'.

In reply, I sent Dausset details of my genealogical research into Pakomio Maori's family, pointing out that the Basque genes could not derive from Dutrou-Bornier because Pakomio, born at least as far back as 1850, was clearly the common ancestor of all the carriers. I also expressed my surprise at Dausset's statement about the 'impurity' of the islanders tested, saying that this contradicted what his own

team had stated, namely that it had 'aimed at selection of individuals where no known foreign admixture had taken place, even from other Polynesian islands'.

I then went on to calculate the odds against the Basque haplotype having been introduced to Easter Island by a visiting Basque sailor of post-Roggeveen times rather than by a Hispano-Polynesian descendant of one from the San Lesmes. My calculation was based on six assumptions: (1) an Easter Island population of 2,000, of whom 200 were women between 14 and 25 years of age; (2) that a woman is fertile for only about 25 days a year; (3) an average crew of 40 men in all ships visiting Easter Island after 1722; (4) that half of every crew had sexual relations with the women between 14 and 25; (5) that 10 per cent of all such sailors were Basques; and (6) that 8 per cent of all Basques (the rounded Macaye figure) were carriers of A29, B12. On this basis, the odds against the Basque genes being introduced by a visiting sailor of post-Roggeveen times worked out at one in 3,550.

Dausset thought my calculation most relevant to the question of how Basque genes had reached Easter Island and published a French translation of it several years later (Dausset 1982:228-30). Meanwhile, he said in a letter:

I must apologize for my statement that impure individuals have been analyzed in the work published in [Thorsby *et al* 1973]. In fact two impure individuals were tested...but they were eliminated in the

published analysis.

I was glad to see that the genealogy we made was not perfectly exact and with your information it is now clear that the A29, B12 haplotype comes from the same source [i.e. Pakomio Maori] that you defined so perfectly and the ways in which these haplotypes have been spread in the population studied is now of use. I agree with your reasoning that this haplotype arrived in the island before the 'reign' of Dutrou-Bornier and in this case should have been given by a European sailor.

Some months later, in July 1977, Dausset came to Australia to attend an international immunological conference. He took the opportunity to discuss with me the possibility of carrying out further HLA tests in Polynesia to try to verify my Easter Island hypothesis. Nothing, however, came of this idea for several years. Meanwhile, I had been

awarded a two-year fellowship at the Australian National University to carry out further research into 16th century Spanish castaway influence in the Pacific, and this enabled me to visit Tahiti, Easter Island, Santiago, Washington, Rome and Honolulu in search of further information about Pakomio Maori and his family.

My research established the following significant points: (a) Pakomio was born in about 1816; (b) he had red hair, blue eyes, a light skin and strikingly European features; (c) his daughter Eritapeta (also called Isobel) by his first wife, Te Rive Meitota, was born before the Peruvian slave raids of 1862-63; (d) Pakomio was one of about 1,400 Easter Islanders who were kidnapped and taken to Peru; (e) he was one of only 15 to survive smallpox and other diseases and be repatriated; (f) he seems to have been a favorite of Easter Island's first Catholic missionaries of the mid-1860s as his baptismal name was that of Pacôme Olivier, their father superior in Valparaiso; (g) in 1871, Pakomio and about 100 of his countrymen accompanied the missionaries to Mangareva when Dutrou-Bornier forced them to leave Easter Island; (h) Pakomio and his second wife Angata, whom he married in Mangareva, returned to Easter Island in 1879; (i) between 1879 and 1898, the couple had five daughters and one son; (j) Pakomio died in about 1909 or 1910; (k) his Basque genes were passed down to, and through, five of his children by his two wives; and (l) his daughter Hilaria, born about 1885, inherited his red hair and other light features.

My discovery that Pakomio had been born in about 1816 and had had blue eyes and red hair appeared to eliminate the already remote possibility that he could have been the offspring of some visiting Basque sailor of post-Roggeveen times. On the one hand, no European ships likely to have had Basques on board had called at Easter Island in or around 1816. On the other, as blue eyes and red hair are recessive, those features could only have been manifested in Pakomio if his mother had already been a carrier of 50 per cent or more blue-eye and red-hair genes. And if she was, then she must have already been of part-European descent.

Only four European ships likely to have had Basques on board visited Easter Island before 1816. They were the Spanish ships *San Lorenzo* and *Santa Rosalia* from Peru in 1770 and the French exploring ships *Astrolabe* and *Boussole*, under La Perouse, that called in 1786. But even if A29, B12 had been introduced to the island with any of them it would still be necessary to explain why their officers found the Easter Islanders remarkably European-looking, some even having fair, chestnut, red and cinnamon-colored hair. 'If [the islanders] wore clothing like ourselves, they might very well pass for Europeans,' one of the Spaniards wrote.

There are also other reasons why Pakomio Maori is most unlikely to have acquired his Basque genes from anyone in the ships of 1770 or 1786—or any other ship of post-Roggeveen times. One is that although members of his family frequently figured as 'pure-bloods' in censuses and biological tests from the 1930s onwards (e.g. Drapkin 1935; Sandoval and Wilhelm 1945; Englert and Cruz-Coke 1975), their credentials were never disputed until A29, B12 was discovered. However, the most compelling reason concerns Pakomio's journey to Peru as one of 1,400 kidnaped laborers.

If he had been the son of a visiting Basque sailor of 1816 or thereabouts, he, almost certainly, would have been the only Rapanui carrier of the A29, B12 haplotype when the slave raids took place. If he had been a grandson or a great-grandson of a Basque sailor of 1770 or 1786, only a small handful of other adult islanders could also have had those genes. Hence, the odds, in the first case, of Basque genes surviving transportation to Peru and back would have been only one in 1,400. In the second, the odds could not have been better than about five in 1,400. On the other hand, if the haplotype had been of *San Lesmes* origin and had been introduced to Easter Island two or three generations before Roggeveen, then there could have been scores of carriers by the 1860s, thus making their survival in one kidnaped islander a realistic possibility.

The Bahn/Flenley claim that I ignored the possibility that the Dutch in 1722 were not Easter Island's first European visitors is not correct. In researching *The Lost Caravel*, I compiled a dossier on all ships known to have been lost in the Pacific in pre-Cook times (Langdon 1969) and I kept a sharp look out for evidence of any ship that might have made an undocumented visit to eastern Polynesia in that period. I bore in mind that such ships had to come from somewhere, had to go somewhere afterwards if not wrecked or otherwise detained, and had to be owned by someone. The only ship that I could discover that complied with these criteria was the *San Lesmes*.

The Bahn/Flenley case for an unknown ship having visited Easter Island before Roggeveen is that the first islander to go out to Roggeveen's ships displayed 'a friendly nonchalance and curiosity' rather than the 'panic and terror' that should have been expected of someone who had had 'no contact with the outside world'. This scarcely complies with my criteria for an unknown ship. In any case, if Easter Island's first Polynesians had only arrived a few decades before Roggeveen, as Heyerdahl has long claimed, then the islanders of 1722 would have been well aware that other voyagers might turn up at any time.

The fact that the A29, B12 haplotype has not been found in Polynesia other than on Easter Island is hardly surprising.



Nicolas Pakomio, the youngest child of Pakomio Maori, was about 67 when photographed during the visit of the Canadian Medical Expedition to Easter Island in 1964-65.

HLA tests have so far been held on only a few islands, and those few do not include the one island where the discovery of the Basque haplotype could probably be assumed, with reasonable certainty, to be traceable to the *San Lesmes*. This is Ra'ivavae. In 1977, when Dausset raised with me the possibility of seeking to verify my *San Lesmes* hypothesis by further HLA tests, I suggested that Ra'ivavae was the place to go. I pressed this in later correspondence, saying that unlike Ra'iatea, another key island in my hypothesis, Ra'ivavae still had no air service; it had never had much contact with Europeans; and reliable genealogies for its people could probably still be compiled. In the event, Dausset's proposed project did not take place until 1983. When it did, Ra'ivavae was still so far off the beaten track that the researchers had to be content with taking blood samples on Rurutu, more than 200 miles away; on Mangareva; and from six islanders from Amanu where the *San Lesmes* ran aground. No carriers of A29, B12 were found. Dausset sent me reprints of the team's report (Dehay *et al* 1987) with a letter of 27 June 1988. He said: 'We tried in this new survey to determine how Easter Island came to be populated. Unfortunately, as you will have seen from the reprints, we did not really achieve our goal'.

If future HLA research should establish the presence of A29, B12 on Ra'ivavae, the 'exact date' of the haplotype's arrival on Easter Island will, of course, remain unknown. However, it will already be evident from this article that the haplotype could not have reached Easter Island before Europeans entered the Pacific in 1521 and that the historical evidence and the nature of the haplotype itself are against its arrival with or after Roggeveen in 1722. So both by default and in the light of positive evidence for it, we are left with only the *San Lesmes* hypothesis.

The *San Lesmes* hypothesis calls for the establishment of a Hispano-Polynesian community on Ra'iatea, a voyage of Hispano-Polynesians to Ra'ivavae, the establishment of a second Hispano-Polynesian community on that island, and finally a voyage to Easter Island. Because of all this, the A29, B12 haplotype must obviously have reached Easter Island much nearer to 1722 than to 1521. In other words, somewhere around Heyerdahl's estimated date of 1680 for the end of the island's Middle Period would seem to be just about right.

For the purpose of discussion, then, let's assume that a boatload of, say, 30 Hispano-Polynesian men and women, including at least one with Basque genes, did reach Easter Island in 1680; that American Indians were then the island's only inhabitants; and that they had lived in complete isolation since the start of the Middle Period, some 600 years earlier. What would the consequences have been?

One almost certain consequence is that virtually from the moment the Hispano-Polynesians stepped ashore, the American Indians would have begun to die like flies. Through being of quite different genetic stock, they would have had no inbuilt resistance to even the most trifling infectious diseases that the newcomers brought with them (Weatherall *et al* 1988). Nor could they have had any acquired resistance. So the situation would have been much

as it was in the New World from 1492 onwards following the arrival of the Spaniards and Portuguese. More appositely, it would have been much like that on many isolated islands of Polynesia in the early years of European contact. An especially pertinent example is Tupuai in the Austral group, about five miles long by three wide, and about 100 miles from its nearest neighbors.

When the 25 *Bounty* mutineers put into Tupuai in May 1789 with the idea of establishing a settlement, James Morrison, the bosun's mate, noted that it was 'full of Inhabitants for its size', with possibly 3,000 people. After three days, the mutineers left to obtain livestock in Tahiti. When they returned, many of the islanders were suffering 'Colds, Agues, & Sore Eyes, Running at the Nose &c' through their contact with them. The mutineers did not stay long enough on the second occasion to observe the long-term effects of these ailments and no other Europeans visited the island until 1813-14. However, by 1817, a visiting missionary found its population 'but small'; and in 1823, a 'fatal disease' was 'raging dreadfully'. In 1828, the population stood at only 230, and, three years later, it was down to 182—a drop of 94 per cent in the 50 years since the *Bounty's* visit (McArthur 1967:300-1).

If a party of 30 Hispano-Polynesians had precipitated a comparable population decline on Easter Island from 1680, then a community of 10,000 American Indians would have been reduced to barely 700 by the time of Roggeveen's visit in 1722. Meanwhile, with women among the Hispano-Polynesian immigrants, their minority Polynesian language would have easily survived, and, within a few years, could well have been looked on as the language of prestige. Inter-marriage between the newcomers and those of the original inhabitants who survived their ailments would have resulted in numerous borrowings from each others' languages. It would also have produced a new ethnic type, with many of the mixed-race people resembling their European forebears. This, as Dausset (1982:230) has explained, is because:

.....a 'stranger' gene spreads easily in an isolated population since it undoubtedly brings with it some of the famous [hybrid] vigor of the heterozygotes [i.e. carriers of diverse genes] which, unquestionably, has a selective advantage over the homozygotes [carriers of similar genes] who are inevitably frequent in a population with a high rate of consanguinity.

But Roggeveen's arrival would no doubt have brought a new outbreak of 'Colds, Agues, & Sore Eyes, Running at the Nose, &c'. And these ailments would have most afflicted the islanders with the least resistance to European diseases, namely those with no European genes. So the American Indian population would have gone into another sharp decline and the percentage of people of part-European descent would have increased correspondingly. And, bearing in mind that a similar process must already have occurred after the *San Lesmes* reached Ra'iatea and after its crew's Hispano-Polynesian descendants reached Ra'ivavae, there is

little doubt that the Easter Island population must have become decidedly European-looking by the time of the Gonzalez expedition of 1770. Moreover, the newly-introduced Polynesian language, although well laced with local borrowings, is likely to have become the principal language by then.

In fact, most of the words in the 94-word vocabulary that the Gonzalez expedition collected are common to the Polynesian languages generally (Corney 1908:109-10). But five are unknown in all other Polynesian languages and five have cognates only in other Eastern Polynesian languages.⁴ On the other hand, the expedition's chief pilot, Francisco Antonio de Aguera, found the islanders in the vicinity of its anchorage in La Perouse Bay strikingly European-looking. He wrote:

Their physiognomy does not resemble that of the Continent of Chile, Peru or New Spain [Mexico] in anything, these islanders being in colour between white, swarthy, and reddish, not thick lipped nor flat nosed, the hair chestnut- coloured and limp, some having it black, and others tending to red or a cinnamon tint. They are tall, well built and proportioned in all their limbs... , their appearance being thoroughly pleasing and tallying with Europeans more than with Indians (Corney 1908:96).

However, some islanders of predominantly American Indian descent seem still to have been living in the interior of the island at that time. A report written by Senior Lieutenant Alberto Olaondo, who was sent there on a reconnoitring mission, suggests this in two ways: the people were more uniform in their coloration than those on the coast and the crops they cultivated were mainly of American origin or provenance. Olaondo described the interior people as 'all of a brown color, none black', adding that their crops comprised sugar cane, bananas, manioc, gourds, maize and (white) potatoes (Mellen 1986:228-9).

Of the plants mentioned, maize, manioc and potatoes are all of American origin. As they were not reported on any other Polynesian islands at the time of European contact, they could only have reached Easter Island from America. The gourds and bananas are likely to have come from America, too. Although both are non-American in origin, both had been introduced to South America in prehistoric times and so were available to be carried to Easter Island from there. In fact, the gourd could hardly have come from anywhere else as it was unknown in Western Polynesia in pre-European times (Whistler 1990). The banana seems likely to have arrived from South America for a variety of reasons, one being that its name in Eastern Polynesia differs from those used in Western Polynesia (Langdon 1993:31-5). The sweet potato, another American plant, was reported on Easter Island by other members of the Gonzalez expedition (Corney 1908:101, 123), while several other such plants, including the capsicum, pineapple, tobacco and 26-chromosome cotton, seem likely to have been there then, although they were not reported until long afterwards (Langdon 1988b:329).

The Spaniards of the Gonzalez expedition were the only

early visitors to Easter Island to mention seeing manioc and Olaondo was the only one to speak of maize and white potatoes. Because of this, Bahn and Flenley (1994) have suggested that their reports are untrustworthy. If the three plants really had been present in 1770, they said, then Captain Cook's companion J. R. Forster, 'a trained botanist', would surely have seen them only four years later. This, though, is hardly a watertight argument. For one thing, Forster did not visit the region that Olaondo described. Secondly, if Olaondo's people of the interior had, indeed, been the last of Easter Island's American Indians, then they, too, are likely to have fallen victims to the 'Colds, Agues, & Sore Eyes . . . &c.' that he and his men undoubtedly carried with them. Thereafter, maize, manioc and white potatoes might well have fallen out of cultivation through never having gained the favor of the Hispano-Polynesian immigrants.

Forster, himself, it seems, would have been quite amenable to these ideas. During his visit to Easter Island, he wrote in his journal that certain stone-lined wells he saw were 'by no means the work of the present race of Inhabitants, no more than the large Stone-Images erected to the Memory of their Chiefs & Heroes, & which are the only remains of their former Grandeur, & more happy State of the Isle'. He also speculated that 'a civil or external war, a great mortality, too great luxury, or some other disaster' had reduced the islanders to the small number that he and his companions saw. 'The highest hills', he added, 'have vestiges of their being formerly cultivated all over, which confirms my suspicion of their former great felicity, & opulence' (Hoare 1982:476).

In a nutshell, if the question of Easter Island's Basque genes is confronted squarely and if one tries to explain (rather than explain away) many other kinds of evidence, a neat solution seems to emerge to a threefold mystery: why many Easter Islanders in early European times were remarkably European-looking; why they spoke a Polynesian language; and why they lived in an environment that apparently owed more to South America than anywhere else.

But this solution is completely at odds with the recent findings of a team of scientists who analyzed mitochondrial DNA (mtDNA) from the bones of 12 ancient Easter Island adults. So a few words are also called for about those findings, especially as Bahn (1994) sets great store by them.

The scientists involved in the mtDNA inquiry (Hagelberg *et al* 1994) were headed by Dr Erika Hagelberg of the Department of Biological Anthropology at the University of Cambridge. They claimed that their analyses of mtDNA (a) confirmed (sic) the 'Polynesian affinities' of Easter Island's original settlers; (b) pointed to 'a lack of significant contact between Polynesia and the Americas' in prehistoric times; and (c) showed that the prehistoric Easter Islanders derived from the 'identical lineage' of other Polynesians. Unfortunately, the scientists appear to have read far more into the mtDNA evidence than the evidence itself permits.

The 12 sets of bones from which the scientists extracted their mtDNA were excavated by the Heyerdahl expedition to

Easter Island of 1955-56. They came from two archaeological sites, Ahu Vinapu and Ahu Tepeu. According to Heyerdahl (1965:325-7) and his colleague Carlyle Smith (1965:393-6), all bones from Ahu Vinapu plus those from one of two graves at Ahu Tepeu were from the Late Period of the island's culture, namely c.1680-1868 AD. The bones from the second grave at Ahu Tepeu were attributed to the 'very end of the Middle Period', c.1100-c.1680 AD, on the basis of a radiocarbon date of 1629 AD obtained from some *totora* reeds, *Scirpus riparius*, found with them. However, radiocarbon specialists now believe that aquatic plants are unsatisfactory for dating purposes (Spriggs and Anderson 1993:206). So the 1629 date is suspect and must be discarded. This means that no bones in the mtDNA inquiry are likely to be older than 300 years and, given Easter Island's damp climate, all are probably much less.

As the island is thought to have been settled in the first millennium of the Christian era, it is obvious that mtDNA from post-1680 bones could only 'confirm' the Polynesian affinities of the original settlers if someone had already shown that those settlers were Polynesians, which is certainly not the case. It is likewise obvious that only mtDNA from a huge sample of pre-1680 bones covering the whole period back to the time of settlement and showing no non-Polynesian affinities could justify the claim of no prehistoric contact between America and Easter Island. Yet again, as mtDNA is passed down only in the female line, that kind of evidence simply cannot distinguish between Polynesians of unmixed descent and Polynesians of *San Lesmes* descent on their male side.

In summary, the mtDNA evidence of Hagelberg *et al* does not put the slightest dent in the case advanced here: that Easter Island's last prehistoric settlers were Hispano-Polynesians; that at least one carried the HLA haplotype A29, B12 common among Basques; and that their predecessors were American Indians.

NOTES

1. Among human biologists, the first-named author of a paper is not necessarily the senior or principal author.
2. In *RNJ* 8(1):6, I stated incorrectly that the Basques of Macaye had the highest known frequency of A29, B12.
3. Microfilm copies of my correspondence on *The Lost Caravel* from 1967 to 1982 have been deposited in the National Library of Australia, Canberra; Mitchell Library, Sydney; State Library of Victoria, Melbourne; Australian National University Library, Canberra; National Library of New Zealand, Wellington; and University of Hawaii Library, Honolulu. The reels are numbered PMB 551 and PMB 999.
4. Rapanui words recorded by the Gonzalez expedition that are unknown, or unknown with similar meanings, in other Polynesian languages are: *vere* 'beard', *ngao* 'neck', *maripau* 'testicles', *moai* 'stone statue' and *pare* 'tattooing on the arms'. Words with cognates only in other Eastern Polynesian languages are: *rauoho* 'hair', *hiji* 'eyebrows', *vekeveke* 'eyelashes'; *maro'a* 'to rise' and *mou* 'to be silent'.

REFERENCES

- Bahn, Paul, 1994. Celibate settlers and forgetful fishermen: a reply to George Gill. *Rapa Nui Journal*, 8(2):40.
- Bahn, Paul and John Flenley, 1994. Reply to Robert Langdon. *Rapa Nui Journal*, 8(1):11-12.
- Bienvenido de Estella, Father, 1921. *Mis Viajes a Pascua*. Editorial Cervantes, Santiago de Chile.
- Corney, Bolton Glanvill (ed), 1908. *The Voyage of Captain Don Felipe Gonzalez...to Easter Island in 1770-J*. Hakluyt Society, Cambridge.
- Dausset, Jean. 1982. L'hypothèse du Pr. Langdon: 'La caravelle perdue'. Appendix to E. Thorsby, J. Colombani, J. Dausset et al, Groupe HLA et polymorphisme des indigènes de l'île de Pâques. In Jean Dausset et al, *Nouveau Regard sur l'île de Pâques*, 213-30. Moana Editeur, Paris.
- et al, 1973. Genetic structure and distribution of HLA antigens in a Basque village. In Jean Dausset and Jacques Colombani, 1973. *Histocompatibility Testing 1972*. Munksgaard, Copenhagen, pp.99-106.
- Dehay, C., et al (inc. J. Dausset), 1987. HLA and non-HLA phenotyping and genotyping in Austral and Gambier Polynesian Archipelagos. *Tissue Antigens*. 30:49-62.
- Drapkin, Israel. 1935. Contribución al estudio antropológico y demográfico de los Pascuenses. *Journal de la Société, des Américanistes*. N.S. 27:265-302.
- Fischer, Steven Roger, 1993. Postscript. In Steven Roger Fischer (ed.), *Easter Island Studies: Contributions to the History of Rapanui in Memory of William T. Mulloy*. Monograph 32:228-29. Oxbow Books, Oxford.
- Hagelberg, Erika, Silvia Quevedo, Daniel Turbon and J. B. Clegg, 1994. DNA from ancient Easter Islanders. *Nature* 369:25-26.
- Heyerdahl, Thor, 1961. General discussion. In Thor Heyerdahl and Edwin N. Ferdon (eds), 1961. *Reports of the Norwegian Archaeological Expedition to Easter Island and the East Pacific*: Archaeology of Easter Island. Monograph 24, pt.1:493-526. School of American Research and the Museum of New Mexico, Santa Fe.
- , 1965. Addendum. In Heyerdahl and Ferdon 1965:325-26.
- and Edwin N. Ferdon Jr (eds) 1965. *Reports of the Norwegian Archaeological Expedition to Easter Island and the East Pacific*: Miscellaneous Papers. Monograph 24, pt 2. School of American Research and the Museum on New Mexico, Santa Fe.
- Hoare, Michael E. (ed), 1982. *The 'Resolution' Journal of Johann Reinhold Forster, 1772-1775*. Hakluyt Society, London.
- Langdon, Robert, 1969. European castaways in the Pacific before Captain Cook. Seminar paper, Department of Pacific History, RSPacS, Australian National University, 26 November 1969.
- , 1975. *The Lost Caravel*. Pacific Publications, Sydney.
- , 1988a. *The Lost Caravel Re-explored*. Brolga Press, Canberra.
- , 1988b. Manioc, a Long Concealed Key to the Enigma of Easter Island. *Geographical Journal*. 154:324-36.
- , 1993. The Banana as a key to early American and Polynesian history. *Journal of Pacific History*, 28:15-35.
- , 1994. A reply to Bahn and Flenley on Easter Island prehistory. *Rapa Nui Journal*, 8(1):5-10.
- McArthur, Norma, 1967. *Island Populations of the Pacific*. Australian National University Press, Canberra.
- Mellén Blanco, Francisco. 1986. *Manuscritos y Documentos Españoles para la Historia de la Isla de Pascua*. Biblioteca CEHOPU, Madrid.
- Moreno, M. E. and J. M. Kreisler, 1977. HLA phenotype and haplotype frequencies in a sample of the Spanish population. *Tissue Antigens*. 9:105-10.
- Mouzon, A. de, et al, 1980. HLA-A, B typing in Basque and other Pyrenean populations. *Tissue Antigens*. 15:11-18.
- Prevost, P. et al. 1984. Distribution of HLA-A,B alleles in 13 panels of blood donors in France. *Tissue Antigens*. 23:301-07.
- Ryder, L. P. et al. 1978. An HLA map of Europe. *Human Heredity*.28:171-200.
- Sandoval, Luis, and Ottmar Wilhelm, 1945. Comunicación preliminar sobre antropología serológica de los pascuenses. *Boletín de la Sociedad de Biología de Concepción (Chile)*. 20:11-15.
- Smith, Carlyle S., 1961. Radio carbon dates from Easter Island. In Heyerdahl and Ferdon 1961:393-96.
- Spriggs, M. and A. Anderson 1993. Late Colonization of East Polynesia. *Antiquity* 67:200-17
- Thorsby, E. et al 1973. HL-A blood group and serum type polymorphism of natives of Easter Island. In Dausset and Colombani 287-302.
- Weatherell, D. J. et al, 1988. Genetic factors as determinants of infectious disease transmission in human communities. In R. M. Anderson and J. M. Thresh (eds), *The Epidemiology and Ecology of Infectious Disease Agents*. Royal Society, London.
- Whistler, W. Arthur. 1990. The other Polynesian gourd. *Pacific Science*. 44:115-22.