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POLYNESIAN ORIGINS AND MIGRATIONS

A Review of Two Centuries of Speculation and Theory

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> Who can give an account of the manner in which they were conveyed hither, what communications they have with other beings, and what becomes of them when they multiply on an isle. . . .
> —*Louis de Bougainville, 1772*

The islands of Polynesia have held an enduring fascination for Western man since the time of their discovery. It was perhaps inevitable that the tall, brown-skinned inhabitants would become romantic figures —they were physically attractive, generous, receptive, and from a European point of view, carefree and sexually uninhibited. Their style of life on the balmy tropical isles rendered them close to Rousseau's *l'homme naturale*. By no means the least romantic part of the Polynesian story is the question of their origins. Where was their homeland? When did they arrive on the scene, and by what routes? How did they negotiate the vast distances between the islands? Even the least imaginative of speculations must include a measure of adventure to answer these questions.

THE EARLY EXPLORERS

Conjectures concerning the origins and migration routes of the Polynesians began with the explorers. In Captain Cook's journals (Cook, 1784), for example, the outlines of a general theory are cast:[2]

[1] This paper was written with the assistance of Richard W. Bodman and Cedric C. I. Kam, both of whom spent considerable time searching and abstracting the literature. Mr. Bodman translated from the French and Mr. Kam from the German sources. Their judgment and skill has contributed enormously to the preparation of this essay. I am deeply indebted to both of them.

[2] Captain Cook's journals represent the observations and records of many of the men who sailed with him. It is therefore not entirely clear whose ideas the following quotes reflect.

From what continent they originally emigrated, and by what steps they have spread through so vast a space, those who are curious in disquisitions of this nature, may perhaps not find it very difficult to conjecture. It has been already observed, that they bear strong marks of affinity to some of the Indian tribes, that inhabit the Ladrones and Caroline Islands; and the same affinity may again be traced amongst the Battas and the Malays. When these events happened, is not so easy to ascertain; it was probably not very lately, as they are extremely populous, and have no tradition of their own origin, but what is perfectly fabulous; whilst, on the other hand, the unadulterated state of their general language, and the simplicity which still prevails in their customs and manners, seem to indicate, that it could not have been at any very distant period (Vol. 3, p. 125).

Also considered in the journals is the possibility of multiple sources for the vast Polynesian culture complex, but the conclusion is offered that a common origin was more likely. The discussion of this point foreshadows later anthropological arguments of diffusion versus independent invention to account for similar culture traits:

Possibly, however, the presumption, arising from this resemblance, that all these islands were peopled by the same nation, or tribe, may be resisted, under the plausible pretence, that customs very similar prevail amongst very distant people, without inferring any other common source, besides the general principles of human nature, the same in all ages, and every part of the globe. Those customs which have their foundation in wants that are common to the whole human species, and which are confined to the contrivance of means to relieve those wants, may well be supposed to bear a strong resemblance, without warranting the conclusion, that they who use them have common source. But this seems not to be the case, with regard to those customs to which no general principle of human nature has given birth, and which have their establishment solely from the endless varieties of local whim, and national fashion. Of this latter kind, those customs obviously are, that belong both to the North, and to the South Pacific Islands, from which, we would infer, that they were originally one nation. But if this observation should not have removed the doubts of the sceptical refiner, probably he will hardly venture to persist in denying the identity of race, contended for in the present instance, when he shall observe, that, to the proof drawn from affinity of customs, we have it in our power to add that most unexceptionable one, drawn from affinity of language (Vol. I, p. 373).

THE MISSIONARIES

In the wake of the explorers followed the missionaries. They were responsible for amassing the first large quantities of data upon which scholarly inquiries could be based. In order to preach the Gospel they had to learn native languages, and many of them produced usable dictionaries. Their interest in religious matters led them to record legends, myths, and cosmology. They also described customs, although often with

an evaluative bias and perhaps with an overemphasis on the bizarre and exotic. Nevertheless, the content of their accounts strongly shaped the discussion of Polynesian culture history for the entire 19th century and the first decades of the 20th. The missionaries themselves led the way in the speculation. Some, such as Samuel Marsden (1932), were so committed to Biblical interpretations that they could not resist linking the Polynesians with groups from the Old Testament. Marsden suggested that the New Zealand Maoris, among whom he was working, "have sprung from some dispersed Jews, at some period or other and have by some means got into the island from Asia" (p. 219). He based his case on the similarity between selected religious customs;

> When they go to war the priest always accompanies them, and when they draw near to the enemy he addresses them in similar language to that which the Jewish High Priest addressed to the Jews of old, as recorded in the 20th Chapter of Deuteronomy, verses 2, 3 and 4 (p. 219).

and on a presumed similarity in character;

> They have like the Jews a great natural turn for traffic; they will buy and sell anything they have got (p. 219).

William Ellis (1830, Vol. 2), a missionary of somewhat sounder scholarly judgment, while not dismissing the possibility of Hebraic origin, considered the bulk of the evidence to favor "their derivation from the Malayan tribes inhabiting the Asiatic Islands" (p. 49). He acknowledged the similarity between some of the widely shared Polynesian myths, such as accounts of creation and a deluge, but offered the alternative explanation that they may have learned about these Mosaic events prior to leaving their Asian homeland. He also pointed out that certain Polynesian myths have "a striking resemblance to several conspicuous features of the more modern Hindoo, or Braminical mythology" (p. 42). Ellis was perceptive enough to doubt the validity of myths, however, and recognized the possibility that some may have been influenced by European storytellers. Basing his case primarily on linguistic data, he adhered to the view of a common origin not only for the Malayan, Madagasse, and Polynesian languages, but American Indian languages as well. This, in conjunction with his knowledge of the prevailing winds (from east to west) led him to conjecture that the migration routes took the ancestors of the Polynesians across the Bering Straits and down the west coast of the American continent before setting off into the Pacific. Heyerdahl's argument over one hundred years later, is markedly similar to that offered by Ellis:

Whether some of the tribes who originally passed from Asia, along the Kurile or Aleutian Islands, across Behring's straits, to America, left part of their number, who were the progenitors of the present race inhabiting those islands; and that they, at some subsequent period, either attempting to follow the tide of emigration to the east, or steering to the south, were by the northeast trade-winds driven to the Sandwich Islands, whence they proceeded to the southern groups; or whether those who had traversed the north-west coast of America, sailed either from California or Mexico across the Pacific under the favoring influence of the regular easterly winds, peopled Easter Island, and continued under the steady easterly or trade-winds advancing westward till they met the tide of emigration flowing from the larger groups or islands, in which the Malays form the majority of the population—it is not now easy to determine. But a variety of facts connected with the past and present circumstances of the inhabitants of these countries, authorize the conclusion, that, either part of the present inhabitants of the South Sea Islands came originally from America, or that tribes of the Polynesians have, at some remote period, found their way to the continent.

The origin of the inhabitants of the Pacific is involved in great mystery, and the evidences are certainly strongest in favour of their derivation from the Malayan tribes inhabiting the Asiatic Islands; but, allowing this to be their source, the means by which they have arrived at the remote and isolated stations they now occupy, are still inexplicable. If they were peopled from the Malayan Islands, they must have possessed better vessels, and more accurate knowledge of navigation, than they now exhibit, to have made their way against the constant trade-winds prevailing within the tropics, and blowing regularly, with but transient and uncertain interruptions, from east to west (Vol. II, pp. 48-49).

On the other hand, it is easy to imagine how they could have proceeded from the east. The winds would favour their passage, and the incipient stages of civilisation in which they were found, would resemble the condition of the aborigines of America, far more than that of the Asiatics. There are many well-authenticated accounts of long voyages performed in native vessels by the inhabitants of both the North and South Pacific (Vol. II, p. 50).

If we suppose the population of the South Sea Islands to have proceeded from east to west, these events illustrate the means by which it may have been accomplished; for it is a fact, that every such voyage related in the accounts of voyagers, or preserved in the traditions of the natives, has invariably been from east to west, directly opposite to that in which it must have been, had the population been altogether derived from the Malayan archipelago.

From whatever source, however, they have originated, the extent of geographical surface over which they have spread themselves, the variety, purity, and copiousness of their language, the ancient character of some of the best traditions, as of the deluge, &c., justify the supposition of their remote antiquity (Vol. II, pp. 51-52).

ORIGIN THEORIES

Alternative theories to either the Asiatic or American origin of the Polynesians also were presented early in the 19th century. Most prominent among them was that the Polynesian race originated in Oceania on an ancient continent that had since disappeared, leaving only the islands.

Although this argument was later demolished by geological evidence, it was not unsophisticated at the time it was first offered. Many questions had not been satisfactorily answered by the previous theories. Thus J. A. Moerenhout (1942; first ed., 1837) in criticizing the theory of Malayan origin, asked such questions as: how could the frail Malayan canoes have bucked the prevailing winds and currents to the eastern extremities of Polynesia, a third of the way around the globe; why are the physical characteristics of modern Malays found only in westernmost Polynesia; why is no such migration from west to east in evidence today? He asserts that the only strong link between Polynesians and Malays is the linguistic one, and that this can be explained by considering the Malays to be descendants of the Polynesians, blown westward by the prevailing winds. Moerenhout also attacked the theory of American origins. How, he asks, if the Polynesians are the descendants of American Indian tribes, can the existence of cotton and pigs among the islands be explained, when the two are foreign to America? And given the crudeness of American Indian navigation how could the islands have been settled from America? The similarity between American Indians and Polynesians had been based primarily on customs, he asserted, but similitude of customs alone does not indicate a common origin; the only true test is that of language, yet in considering cognates only exactly similar words can be accepted and none of the twisted and perverse forms admitted by some etymologists. The little linguistic resemblance between American Indian and Polynesian languages that has been offered is valueless, he cogently pointed out, for there are indeed chance resemblances between Polynesian and French, and who would be prepared to argue that they are related? In the light of this evidence, Moerenhout concluded that the Polynesians must be considered autochthonous to Oceania, and that their uniformity in customs, traits, and language can only be adequately accounted for by the existence of a great continent in Oceania. The Polynesian isles, he asserted, are the birthplace of the great Malay family, for in those isles alone does the race achieve a purity of form and the tongue a purity of idiom found nowhere among the Malayans, where the language, as well as customs and physical characteristics have become varied and corrupted.

Thus, well before the middle of the 19th century the three major possibilities to account for the origin of the Polynesians had been postulated. For the following hundred years arguments were put forth in support of one or the other of these views, in some cases with considerable elaboration or revision. The accumulation of evidence was slow and somewhat indecisive, with the exception of the geological evidence which reduced the plausibility of a lost continent. Many of the arguments got down to

fine points of myth interpretation and spurious *ad hoc* philological comparisons, but there was also some brilliant scholarship. The work of Horatio Hale (1846), philologist with Wilkes' United States Exploring Expedition, is exemplary. Hale relied mainly on linguistic comparisons to build his theory, but he supplemented his philological findings with a critically sophisticated comparison of customs as well. He used genealogies for dating, but not without an awareness of their limitations. Genealogies were not treated as reign-periods, but as lists of generations. In the interest of accuracy, Hale cautioned, a fair number of first ancestors should be dismissed as mythological, as seems appropriate in each case. He took into account details of the winds and currents, and concluded that the islands were probably settled by accidental voyages and by outcasts defeated in war. Hale also anticipated glottochronology by using the degree of difference between languages to assign relative dates. On the basis of his research he concluded that the progress of emigration was from west to east, and that the Polynesians belong to the same race as that which peoples the East Indian Islands. In summarizing his argument for a west to east migration Hale states:

> This conclusion may be deduced from an examination of the comparative grammar and vocabulary of the various dialects. We see in those of the western groups many forms which are entirely wanting in the eastern tongues; others, which are complete in the former, are found in the latter defective, and perverted from what seems evidently their original meaning. Other comparisons serve to confirm this general deduction. We find in the west a comparatively simple mythology and spiritual worship, which in the east is perverted to a debasing and cruel idolatry (pp. 117-118).

He also notes that the easterly trades are not constant throughout the year, and do not prohibit voyaging from west to east. At certain times of the year there is a northwest monsoon, and there are a fair number of accidental voyages from west to east. To support his conclusion that the Polynesians belong to the same race as the East Indians, Hale invokes the Samoan tradition of a homeland in Pulotu or Burutu, and notes that *-tu* is merely a suffix meaning sacred. "Now the easternmost island inhabited by the yellow Malaisian race, in the East Indian Archipelago, is that called on our maps Bouro or Booro if we derive the Polynesians from that one of the Malaisian islands which lies nearest to them, we should refer them to the above-mentioned Bouro" (pp. 194-195).

Hale's arguments concerning the settlement sequence within Polynesia are worthy of recapitulation, for they coincide in so many details with some of the most prominent contemporary views. He hypothesized Fiji as the original staging area:

The original scene is probably on the Feejee Group. A party of Melanesians, or Papuans, arrive first at this group, and settle principally on the extensive alluvial plain which stretches along the eastern coast of Viti-levu. Afterwards a second company of emigrants, of the Polynesian race, perhaps from some island in the East Indies, called Bulotu, make their appearance, and finding the western coast unoccupied, establish themselves upon it. The two thus divide the land between them, and are known to one another as eastern people and western people, or Viti and Tonga. After several generations, the blacks (or Viti), jealous of the increasing wealth and power of their less barbarous neighbors, rise upon, and partly by treachery, partly by superior numbers, succeed in over powering them. Those of the Tonga who are not made prisoners, launch their canoes, and betake themselves to sea, after the usual custom of vanquished tribes. In this way they reach the islands of the Friendly Group, which receive from them the name of Tonga (pp. 178-179).

From Tonga and Samoa, which Hale also presumed to have been settled at an early period, the Polynesians moved on to the various groups: to the Society Islands:

and we shall probably be thought justified in supposing that the first settlers of the Society Islands came originally from the Samoan Group, and landed or established themselves first at the place now called Opoa, on Raiatea, which they named Havaii, after the principal island of their native country (p. 124).

It seems certain, therefore, that between the time of settlement of Tahiti by Samoan emigrants, and the sending forth of the colonies which peopled the surrounding groups, sufficient time must have elapsed for the language to have undergone considerable alteration, and for their religious belief, tabu-system, and much of their social polity to have taken a new and peculiar form. If the Rarotongans have been established nine centuries in their present abode, and the Hawaiians fourteen, it seems impossible, on any calculation of probabilities, to allow less than three thousand years to the Tahitian people (p. 148).

To the Marquesas:

On the whole, it seems probable that the northern portion of the Marquesan Group was first settled by emigrants from Vavau (Tonga group), and the southern by others from Tahiti, and that their descendants have since gradually intermingled (p. 128).

Allowing, for the present, the ordinary estimate of thirty years to a generation, it will give us two thousand six hundred and forty years since the arrival of Oataia from Vavau. It seems probable, however, that the first part of the royal genealogical list of Nukuhiva will be found, like that of Hawaii, to be merely mythological; in which case, the foregoing computation will require a corresponding correction, and the time elapsed since the settlement of the island will be considerably diminished (p. 129).

To Hawaii:

The probability is that the Sandwich Islands were first peopled by emigrants from the Marquesas, of the mixed race (Both W. Polynesian and Tahitian ele-

ments) which is there found. we have thirteen hundred and fifty years from the commencement of the Hawaiian records (and perhaps from the settlement of the country, though that is uncertain), to the accession of Tamehameha—or, reckoning to the present date, about fourteen centuries.

To Mangareva, or the Gambier Islands:

if we suppose, as all the circumstances indicate, that they came from Rarotonga, they must have left that island about four generations, or one hundred twenty years, after it was settled (p. 140).

To the Australs:

These islands lie south of the Society Group, and west of Rarotonga, and are nearly equidistant from both. The probability is that they were settled from both directions, and at a very late day (p. 141).

On the whole, if we admit that Rarotonga was peopled not quite nine hundred years ago, and Tupuai only about a century before its discovery, we cannot suppose that more than two or three centuries have elapsed since the other Austral islands received their first inhabitants (p. 143).

To the Tuamotu archipelago: These islands seem to have been settled by two groups: by the Tahitians, some time before the peopling of the Australs, and by another unknown group, not terribly long ago.

From what source this foreign element which is here apparent was derived, cannot now be determined. A comparison of the peculiar words in the Paumotuan with the corresponding terms in various other languages of Oceanica has led to no satisfactory result. Perhaps, when the idioms of Melanesia are better known, the attempt may be renewed with more success (p. 144).

To New Zealand: New Zealand seems to have been peopled by Samoans, driven off-course on a voyage to Tonga.

we might be induced to suppose that the emigrations by which New Zealand and Tahiti were peopled, took place at about the same time (p. 148).

Hale also hypothesizes that Rarotonga was settled partly from the Samoan group and partly from Tahiti, and that the Chathams were accidentally settled from the East Cape of New Zealand.

Hale's major conclusions were accepted by de Quatrefages in his book *Les Polynesiens et Leurs Migrations* (1866). De Quatrefages used the example of the Polynesians in an attempt to disprove the then current theory of polygenism—that each race has a separate origin in a definite motherland. The polygenists, he argued, had postulated the existence of a continent in Oceania to account for the uniformity in race, culture, and language of the present islanders; but if another continent, say South America or Europe, were to be submerged at the time he was writing about, the inhabitants of the projecting mountain peaks would be quite

diverse in race, language, and culture. The polygenists had considered it impossible for peoples to sail from west to east into Oceania against the prevailing winds and currents, but they overlooked the equatorial countercurrent and the period of the western monsoon. The polygenists had assumed that the Polynesians are original to Oceania, but they neglected the islanders' own traditions of coming from the west and of former homelands; traditions which are found throughout Oceania in essentially the same form. The polygenists had said that the Polynesians are not the descendants of the Malays, but it is a fact that the two are definitely related by language, physical characteristics, and culture. Moreover, the example of the Caroline Islanders shows that the Polynesians were extensive and able voyagers, and such voyages were recorded in their traditions. Their geographical knowledge is another proof of the former extent of their voyaging; Tupaia's map[3] is our evidence. Nor were accidental voyages rare; they occur and have occurred both to east and west, for quite considerable distances. So argued de Quatrefages in his onslaught against the proponents of an autochthonous beginning for the Polynesian race. He concluded that none of the migrations could be traced back beyond historical times, and that some of the most important migrations took place a little before or after the Christian era. The others are considerably more recent, and there are some that are quite modern. Like Hale he made use of genealogies in arriving at his conclusions regarding the time of settlement, although he had similar reservations:

> these documents must be used with prudence, and require the control of a penetrating critic. Evidently they lend themselves to interpretations which permit one to fix with great certainty the relative dates of occurrences. But when it is a question of absolute dates, they give very different results, according to the value one gives to the phrases of the poem (p. 165).

Unlike Hale, however, de Quatrefages chose to treat genealogies as reign periods, and assigned a value of twenty-one and a fraction years per period, based on the average length of a European ruler's reign. He therefore arrived at settlement dates that are somewhat later than those postulated by Hale, who made his calculations on the basis of thirty years to a generation. De Quatrefages' dates are, incidentally, closer to current estimates.

The theory that the Polynesians were autochthonous to Oceania did not depend entirely upon the concept of a lost continent, however. Thus P. A. Lesson (1880-1884) argued that the Polynesians were descended

[3] Tupaia was a Tahitian chief who sailed with Cook. He apparently had a knowledge of many islands and successfully directed Cook to some of them.

from the Maoris, and that Maori was the mother tongue of all the Polynesian dialects. Their original homeland was the middle island of New Zealand, or Kawai (=Hawahiki); from there they migrated to the North Island, and thence followed the prevailing west and southwest winds into Polynesia. The first islands they came across were in the Tonga region, the next in Samoa; from there they spread through the rest of Polynesia, all of which they found previously uninhabited, except for a few islands on the Melanesian border. It is certain, Lesson argued, that the migrations had already been accomplished for a long while at the time that the first Europeans arrived, but no more than that can be said. Polynesians had mixed with Melanesians, although not as much as one might think, and they were in contact with the inhabitants of Madagascar at a distant time, and with the inhabitants of Africa and Egypt as well. They also reached Siam, Cambodia, Laos, and India and had definite contact with the Philippines and Japan. There were also some accidental and insignificant contacts with American Indian tribes, notably the Caribe Indians.

Lesson not only believed that the human race originated in many different places, but also that each point of origin produced a pure and perfect race, as well as a pure mother tongue. The Polynesians could therefore not be descended from the Malays, he claimed, because there are many Polynesian words in Malay, but very few Malay words in Polynesian; this linguistic evidence suggested to him that the Malays are descendants of the Polynesians. Moreover, the Polynesians are a pure race and possess a pure tongue, while the Malays are of many mixed races and have many different dialects. How then could they be ancestors of the Polynesians?

Lesson also brought in botanical and zoological information to support his view. From the botanical point of view, he maintained, Polynesian vegetable life is distinct from that of Australia or Malaysia, and is perhaps best represented in New Zealand. Polynesia is similarly distinct zoologically; in contrast with Indonesia, which is rich in animal life, Polynesia has very few species. Similarly, the pig was not found in pre-European times in New Zealand, and those that the natives encountered in the other islands are definitely of a species apart from the Malaysian pig.

A variation on previous theories was presented by Jules Garnier in 1870. He held that throughout the Tertiary period and the very early Quaternary period of the earth's geological history a fairly large continent existed in Oceania. This continent was inhabited by peoples whose like are still found in Australasia. At the beginning of the present Quaternary period the continent was destroyed by a series of calamities, and a few volcanic and coral islands have taken its place. These new islands have

been populated by migrations from the surrounding continents. By far the majority of Oceania was populated by chance arrivals from America swept away by the prevailing winds and currents; these same winds and currents effected the population of Polynesia from east to west and brought the Polynesians as far west as China and Madagascar.

Besides relying on the winds and currents to support his argument, Garnier asserted that the Polynesian flora resembles that of the west coast of Panama and that the Polynesian physical type resembles that of the American Indians more than that of the Malayans. He also relies heavily on linguistic evidence, which he used selectively and somewhat indiscriminately to support his case while ignoring contrary evidence, managing to find linkages between Polynesian and the languages of Guiana and the Indians of New Mexico, and between Chilean and the languages of New Caledonia and the Philippines. By selectively gathering examples of customs from American Indian tribes, Garnier also finds a large number of shared culture traits between the American Indians and the Polynesians, including caste systems, property systems, feather ornaments, agriculture, megalithic architecture, writing, cannibalism, council meetings, the attribution of suffering to evil spirits, catching fish by poisoning, human sacrifice, and the existence of both common and ceremonial languages.

SCHOLARLY THEORIES

Despite these attempts to the contrary, however, the large majority of serious scholars from the mid-19th century on accepted the theory of west to east migration although each one generally offered a unique interpretation, or elaborated one or another aspect of previous views. John Lang (1877) for example, not only believed that the Polynesians were of Asiatic origin and of the Malayan race, but concluded that these same people continued eastward after populating insular Oceania and reached the coast of South America, where they landed near Copiapo, in Chile, a few hundred years after the deluge. From here their descendants spread out to both continents. He strongly rejected the theory that an emigration had ever taken place from Asia to America by Bering Straits, as others of his time asserted. For evidence Lang relied heavily on customs and architecture, and he concluded that the Polynesians and most of the Indo-Americans had degenerated from an original high civilization, remains of which could be found throughout Polynesia and in Central and northern South America.

In 1878 Abraham Fornander published the first volume of his classic

work, *An Account of the Polynesian Race,* in which he presented the following complex theory of Polynesian origins and migrations:

> I think the facts collected will warrant the conclusion that the various branches of the family are descended from a people that was agnate to, but far older than, the Vedic family of the Arian race; that it entered India before these Vedic Arians; that there it underwent a mixture with the Dravidian race, which, as in the case of the Vedic Arians themselves, has permanently affected its complexion; that there also, in greater or less degree, it became moulded to the Cushite-Arabian civilization of that time; that, whether driven out of India by force, or voluntarily leaving for colonising purposes, it established itself in the Indian Archipelago at an early period, and spread itself from Sumatra to Timor and Luzon; that here the Cushite influence became paramount to such a degree as to completely engulf its own legends, myths, cults [*sic*], and partially [*sic*] institutions, upon the folklore and customs of the Polynesians; that it was followed into this archipelago by Brahmanised or Buddhist Ario-Dravidians from the eastern coasts of Deccan, with a probably strong Burmah-Tibetan admixture, who in their turn, but after protracted struggles, obtained the ascendancy, and drove the Polynesians to the mountain ranges and the interior of the larger islands, or compelled them to leave altogether; that no particular time can be assigned for leaving the Indian Archipelago and pushing into the Pacific—it may have occurred centuries before the present era, but it was certainly not later than about the first century of it; that the diversity of features and complexion in the Polynesian family—the frequently broad forehead, Roman nose, light olive complexion, wavy and sometimes ruddy hair—attest as much its Arian descent and Cushite connection, as its darker colour, its spreading nostrils, and its black eyes attest its mixture with the Dravidian race; and, finally, that if the present Hindu is a Vedic descendant, the Polynesian is *a fortiori* a Vedic ancestor (pp. 159-160).

He also worked out an approximate chronology of migrations:

> 1st. At the close of the first and during the second century of the present era the Polynesians left the Asiatic Archipelago and entered the Pacific, establishing themselves on the Fiji group, and thence spreading to the Samoan, Tonga, and other groups eastward and northward.
>
> 2d. During the fifth century A.D. Polynesians settled on the Hawaiian Islands, and remained there, comparatively unknown, until—
>
> 3d. The eleventh century A.D., when several parties of fresh emigrants from the Marquesas, Society, and Samoan groups arrived at the Hawaiian islands, and, for the space of five or six generations, revived and maintained an active intercourse with the first-named groups; and—
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> 4th. From the close of the above migratory era, which may be roughly fixed at the time of *Laa-mai-kahiki* and his children, about twenty-one generations ago, Hawaiian history runs isolated from the other Polynesian groups, until their rediscovery by Captain Cook in 1778 (pp. 168-169).

For evidence Fornander relied mainly upon legendary information. Settlers in a new land invariably name places after those of their old

home, he asserted, and Polynesian place names can be traced from Persia to Hawaii. For example:

> *Puna,* name of districts on the islands of Hawaii and Kauai, Hawaiian group; and *Puna-auia,* a district in Tahiti, Society group, and *Puna-he,* district on Hiwaoa, Marquesas group, refer themselves to / *Puna,* the name of a mountain tribe in the interior of Borneo, and to / *Puna,* a district in Deccan, India, south of Bombay, as well as to a river of that name in Northern India, supposed by Remusat to be the Jamuna or Jumna. It recalls, moreover, the old Egyptian name of *Pun* for Yemen, in South Arabia; a name older than the twelfth dynasty (p. 11).

He also asserted that the chaos idea of creation among the Polynesian tribes bears a striking resemblance to the old Babylonian and Hebrew accounts of the genesis of the world. The Tahitian *"Tino Taata* who floated on the surface" may be the original or the copy of the Hebrew legend. The Hawaiian legend of the lost homeland, the Hebrew legend of Lot and the Greek legend of Orpheus and Eurydice all seem to show a common origin in times before the departure of Abraham from "Ur of Chaldees," and among a people where superstition had already hardened into maxims and precepts. Fornander further maintained that Polynesian customs, usages, rites of worship, and modes of thought indicate an ethnic and social connection with the early peoples in the Mesopotamian basin; for example, circumcision and the use of tabu. Finally, if this is not sufficiently convincing, the numerical system of the Polynesians furnishes decisive testimony of relation to the Aryan stock. Counting did not go beyond four originally in both languages, and larger numbers were expressed in multiples of four. In Polynesia, a group of four was called *kauna;* in Sweden, a group of four small fish, especially herring, is called a *kast.*

Toward the close of the 19th century "wave" theories of migration began to appear in the literature. The underlying presumption was that Oceania was settled by a series of migrations by distinct racial groups, some of which could be found in their pure forms in certain geographical pockets. Other groups found occupying Oceanic islands are to be explained as mixtures of the "pure" types. The theory advanced by John Fraser (1895) provides an example:

> My explanation of the whole matter under discussion is briefly this: The main *officina gentium* for Oceania, long, long ago was India. The whole extent of that peninsula was at a very early period, probably more than twenty centuries before the Christian era, occupied by a pure black race, which I call Hamite; later on, there came into it a Cushite race, also black, but more mixed than the Hamites. Traces of two black races are to be found in all of these regions, and often of the two races apart, as in Australia and the New Hebrides; for the northern Ebudans are in many respects very different from the southern, and the Tasmanians differed

somewhat from the Australians. In Malacca there are dwarf blacks, as in the heart of Africa, and there are negroid blacks in the Philippines and even in Japan. In Eastern Polynesia, the aboriginal black population must have been very scanty, as these islands are so far removed from the Asian continent, and consequently the traces of their occupation have been swamped by the subsequent flow of Polynesian immigrants; but I ascribe the cyclopean structures on Ponape Island and Easter Island to these earliest settlers (for the black races everywhere—in India, Babylonia, Egypt—have shown a liking for hugeness of architecture); and in some of the islands of the eastern Pacific, as Mangaia, the inhabitants are at this hour decidedly blacker and coarser than other Polynesians, as if from a larger infusion of black blood mingling with the brown men. Fiji also has two black races, those of the interior and those of the coast, and these show important differences in customs; so also in New Guinea. In many of the Indonesian islands there are aboriginal black races in the mountains of the interior, and so also in various places in Further India. In fine, I think it could be established with the utmost probability that two black races, proceeding from India in succession, peopled the whole of the islands of Oceania.

Then, long after the Aryans had taken possession of the Indian plain, a Prakrit speaking fair race from the two Indias came to occupy the chief islands in Indonesia, driving the black aborigines into the mountains there, or further east towards New Guinea and Fiji; these are the ancestors of the present brown Polynesians. The in-comers may have intermingled to some extent with the blacks, but probably not much, for the brown Polynesians are mainly Caucasian in physique and character.

Then, in the more recent centuries of the Christian era, a race of Mongolian origin came into Indonesia from the Further Peninsula and drove the Polynesian ancestors from their possessions. Some of the expelled fled to the coasts of New Guinea; of these, the present Motuans are examples; others, and the greater quantity, seem to have passed northwards, then eastwards, past the north coast of New Guinea and onwards to Samoa, avoiding the Papuak and Fijian islands, which were occupied by the original blacks in force, and in such numbers and so fiercely as to prevent any settlement of invaders. From Samoa, as an original seat, the Polynesians have spread into all the other islands, absorbing or, in some cases, amalgamating with the native blacks. On my theory, the Mongolians who came to Indonesia adopted mostly the language of the conquered Caucasians (just as the Japanese are now adopting English), and when fresh bands of Mongolians arrived and enabled them to master all the islands, they all continued to speak that dialect which is now called the Malay, and is the lingua franca of the East.

On this theory, there must be a close connexion between the Polynesian and the Malayan languages, but not because the Polynesian is taken from the Malay. The process in my opinion was quite the reverse; they both came from the same stock, and the Malayan is Polynesian as to its origin. And, just as the Maldivean is evidently a mixture both of the Aryan Pali language of India and of the speech of the Dravida blacks of the Dekkan, so the languages of the Melanesian region and of Samoa and New Zealand show a resemblance in their vocabularies, being all, more or less, the product of a similar union, and sprung in the distant past from the same original sources in India (pp. 252-254).

Using primarily legends and genealogies, another prominent scholar of the late 19th and early 20th centuries, S. Percy Smith (1910), arrived at a comprehensive timetable from the time the Polynesians occupied their original homeland in India to the arrival of the "great fleet" in New Zealand. Smith was most familiar with Rarotongan legends and genealogies and used them as a basis for his theory, although he took pains to check with those of other Polynesian groups. The routes of migration were traced primarily by names of traditional homelands or by traditional (primarily Rarotongan) stories of migrations.

In 450 B.C., Smith maintained, the Polynesians inhabited their traditional homeland of Atia-te-varinga-nui, or India.

> Great disturbances within the India of this time drove the Polynesians down the Ganges to the sea over the period of about a century. About B.C. 300, a large migration was led down the Javan archipelago, pushed onward by a following invasion of Hindus. By B.C. 65, the Polynesians were well established in the Ceram-Celebes-Java area. By that time, they had also come into contact with a white race from whom they obtained the fishing net and certain physical characteristics as well. During their stay in Indonesia, they acquired their highly-developed nautical skill, and mixed with and enslaved the already established Negrito population, who were to be called Menehune and Manahune. The first exploration of the Polynesian islands was undertaken at this time by Maui. In the next 400 years, up to A.D. 450, under the increasing pressure of Malays in Java, they traveled via Celebes, Ceram and Gilolo to New Guinea, whence they branched off past New Britain and the Solomons on their way to Fiji, leaving colonies all along their route. Tonga and Samoa were reached about this time, and the wars of that period caused much colonisation in that area; westward voyages were also undertaken, to the New Hebrides, Santa Cruz group, Tikopia, etc. From A.D. 650 to A.D. 1250 was the era of great voyages throughout Polynesia—from the Hawaiian Islands to New Zealand and antarctic waters and from the New Hebrides to Easter Island, as well as to Avaiki in Indonesia. During the big burst of voyaging ca. 650, the Hawaiian Islands were settled as well as the Tahitian group. New Zealand was first settled ca. 850, and Rarotonga in 875. A new wave of voyaging broke out in 950, but contact was not reestablished with the Hawaiian Islands until 1150 and then lasted only until 1325. In 1250, a new group of Maori-Rarotongans settled Rarotonga, and at this same time, contact between western and eastern Polynesia was broken off. The fleet settled New Zealand from Tahiti (for the second time) ca. 1350.

Underlying Smith's analysis were three basic assumptions that he explicitly defended. First, he considered it axiomatic "that all tradition is based on fact—whilst the details may be wrong, the main stem is generally right" (p. 19). He criticized European ethnologists for being too ready to discredit tradition. Second, he assumed that "the Polynesian genealogies are reliable within certain limits and go very far back" (p. 26). Smith treated the genealogies as representing generations rather than

reign periods and made his calculations on the basis of 25 years per generation. His third assumption was that the Polynesians were excellent navigators, and that in the main their migrations were planned rather than accidental. All three of these assumptions were to be seriously challenged by subsequent scholars, and even his contemporaries, although they made use of similar information, voiced their doubts of the validity of native traditions. Thus Gudgeon (1902), while relying heavily on traditional sources to trace "The Whence of the Maori" back to Egypt, expressed the following concern for fabrication on the part of storytellers:

> Unfortunately, we can never know the real history of the Maori people. We can never do more than advance theories founded on traditions, which are but imperfectly known even to the most learned Maoris of the present day, and which, not unfrequently, appear to have been made up for the occasion. But his (the Maori's) education has reached this point, that he is now capable of noting the extreme value we place on minute information, and is inclined to be ashamed that he does not know more of his history. The result of this dual feeling is, that when he really comprehends what you want to know he draws upon his imagination for your benefit (pp. 188-189).

And Edward Tregear (1904) prefaced his detailed philological analysis in support of the hypothesis that the original homeland of the Polynesians was "that locality wherein those branches of the Indo-European family now occupying North-Western Europe had their birth," with the admission that:

> After studying the question for years, I by no means approach any discussion of it with the light-hearted confidence of absolute ignorance. I know some of the immense difficulties, the absence of written records or of monumental inscriptions, the maze of baffling and imperfect traditions, the delusions of linquistics, the fallacies of customs-comparisons, the phantoms of genealogy (p. 105).

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Such comments signaled a concern for fresh evidence, or at least hitherto unsystematically explored evidence, that would shed new light on the problem of the Polynesian migrations. Two kinds of data that had not yet been fully exploited were physical anthropology and archaeology, which at the beginning of the century were gaining the attention of the academic world. J. Macmillan Brown (1907) was the first scholar to propose a comprehensive theory of Polynesian origins and migrations on the basis of such data. The three primary problems of Polynesia were, according to Brown: (1) Whence came the fair, European-like people; (2) what is the origin of the many megalithic monuments; and (3) what is the origin of the extraordinary resemblance between British Columbian

culture and Polynesian? The three problems taken together are, he believed, mutually solvent.

> Caucasians had reached the Pacific coast of Asia and British Columbia long before the Mongoloids were driven out of the central plateau and drawn across Behring Straits. Megalithic monuments mark their path right from the Mediterranean to the Pacific, and across that ocean by Micronesia and Polynesia into Central and South America. Only in New Zealand and British Columbia did the huge timbers of the forests substitute wood for stone. They also left waymarks all the way in the long head and wavy hair and often fair complexion. No Mongoloid immigration obscured the Caucasian in Polynesia, the only non-Caucasian features being negroid, brought in by the last immigrants and conquerors (p. xxx).

However, the problem of problems was, according to Brown, "the origin of the strangely varied web of culture in the region, a singularly advanced barbaric [that is, neolithic] woof crossing a palaeolithic warp" (Brown, 1907, p. xxx). To explain this he postulated a distinction between the household culture of women and that of men:

> The solution lies in the distinction between the household culture and that of the men; it is the former that is palaeolithic—which means that the only women that came in with immigrant expeditions came in palaeolithic times. This implies that with the elementary navigation of palaeolithic peoples there must have been some island-bridge not nearly so incontinuous as at present from the coast of Asia into Polynesia; this must have been the subsiding belt that runs from Japan south-east to Easter Island. It could not have been continuous enough to allow of animals or plants migrating as well as man; and the whip that goaded man on to the sea was doubtless the glacial. After that immigration all communication with the continent must have been cut off for tens of thousands of years. Once man began to venture into this isolated region again, he had entered the neolithic period, and learned the art of digging out huge single canoes; with his neolithic weapons, and unhampered by the necessity of protecting his household and women, he always came as conqueror, and settling down as aristocrat left the palaeolithic women of his new household to follow their own ways. The process went on for thousands of years, till he had to seek realms to conquer farther afield away to the south. New Zealand and Easter Island would be the last to be populated. In all the spheres of Polynesian life there are evidences of this long infiltration of men from Asia in the variant and often contradictory phases of the culture. Much of this it would be difficult to disentangle and assign to the north and the south of Asia, especially in the language and mythology, though the legends of the spirit-world and the culture-heroes point to the north, whilst the cosmogony points to the south. In the arts it is easier; for what belongs to the household and to women is ancient, and came from the north; what belongs exclusively to men is neolithic; but part of the latter is from the north, part from the south, of Asia; the huge single dugout canoe, the arts of carving and designing, the art of fortification, much of the house-building and the agriculture, and the aute or paper-mulberry tree came

from the north; edible bulb-culture, the edible domestic animals, and the final healing art came from the south. So did negroid features and cannibalism come in with the South Asiatic conquerors, but the former only sporadically and the latter as an intermittent habit. The pig and the domestic fowl missed some of the groups. All the immigrants from the north came in by the sixth century before our era; all those from the south came in by the beginning of our era. Nor did any of them come from a Semitic race, or any race that had a script several thousand years ago (Brown, 1907, pp. xxx-xxxi).

Brown's theory bears the unmistakable stamp of social evolutionism, particularly as it was espoused by Lewis Henry Morgan in his classic book, *Ancient Society* (1878).

In a later publication, Brown (1919) raised the issue of the absence of pottery from Polynesia. There is no sign of pottery in any of the groups of Polynesia, he pointed out, but right up to its portals the art flourished —in the New Hebrides, the Solomon Islands, along the north and southwest coasts of New Guinea, and had developed into elaborate nests of well-glazed water vessels in Fiji. He interpreted the situation in the light of his general theory:

The only explanation I have been able to find is that the households of the Polynesians left their continental homes before man had invented the art. In and around the Pacific Ocean at least the art is a household one; it is a woman's art. The beginning of the Polished Stone Age may go back as far as fifteen to twenty thousand years ago. In other words, women with their families came into Polynesia as long ago as that. And after that the expeditions were purely masculine (pp. 135-136).

In the same publication he referred to the development of social stratification in Polynesian society. Polynesian social organization revealed, in his view, an imperialistic capacity and trend that must have come from the continent after the empires had begun to form. Every group in Polynesia developed toward kingship, but these imperial tendencies are only remnants of far past history. It is clear, he maintained, that Hawaiki, the original homeland of the Polynesians, was imperially organized. His explantation, which was also consistent with his overall position, reflected a strong belief in environmental determinism:

We may conclude then that a masculine migration accustomed to the art of great stone building came into Polynesia by way of Japan and Micronesia. By the same route came the empire builders that gave the imperial tendency to the Polynesians. And it must never be forgotten that no masterful people, no imperial race has ever come from the tropics. It is the hard breeding of the north temperate zone winters that has alone produced the will-power and practical organizing ability implied in empire building; for these make foresight and self-control on the individual and organization in the community imperative (p. 138).

The contention that Polynesian languages were not derivative from Malayan was supported by William Churchill (1911). Basing his case mainly on published vocabularies for the Polynesian and Melanesian areas, Churchill concluded that the most ancient Polynesians, the Proto-Samoans, swept into the Pacific some two thousand years ago. Two swarms left from Indonesia; one came around the north of New Guinea and entered the Pacific by way of Saint George's Channel and settled in Samoa; the other was driven by advancing Malays into the Arafura Sea and south of New Guinea through Torres Straits and thence onward to a new home in Fiji. There in "Nuclear Polynesia" they reunited and sent out further expeditions to Hawaii, New Zealand, and eastward. He assumed that the Polynesians were competent navigators and that this skill was already developed in their place of origin (Indonesia) and that they island-hopped through Melanesia without knowing where they were going, on the fastest course that the wind would take them.

The designation of Malayo-Polynesian as a basic speech family has no basis, Churchill contended. His researches revealed that there is neither ethnic nor linguistic unity between Indonesians and Polynesians—even that Polynesian outdates Indonesian. He rejected the Semitic, Aryan, and Indian theories of Polynesian origins, maintaining that the linguistic evidence takes them back no farther than Java. Churchill also opposed the contention of the German ethnologist, Thilenius, that the Polynesian Outliers (that is, those islands geographically within Melanesia occupied by a Polynesian people, such as Tikopia and Ontong Java) received their Polynesian elements from castaways washed westward from central Polynesia. Although the currents would favor Thilenius' argument, the linguistic evidence shows that Polynesian traces in Melanesia outdate any elsewhere in Polynesia.

Physical anthropology, linguistics, and a consideration of sailing capabilities figured heavily in the theory of Georg Friederici (1914). He suggested that there were three basic elements concerned with the peopling of the region stretching from Sumatra in the west to Easter Island in the east, and from Formosa and Hawaii in the north to New Zealand in the south, with Madagascar as a far-western outpost. First, a dark-skinned, coarse or wooly-haired, short race with a broad, flat nose spread through the Malay Peninsula, the Melanesian islands, and south to the Australian area—the Negrito. The second element was the Papuan, a dark, coarse-haired, tall to medium race with a projecting, slightly aquiline nose. This group remained mostly around New Guinea. A new element was added with the coming of the Malayo-

Polynesians, or Austronesians. Their original home lay in Indo-China near the sea, and they quite early developed into a sea-faring people. Their reason for leaving Indo-China was possibly geographic—a food shortage from overpopulation or a change of climate, or possibly political pressure from the Mongolian peoples to the north. They were a light-skinned people, but two varieties can be noticed—a tall "Indonesian" and a short "Proto-Malayan." Possibly the latter had some Negrito blood picked up in the Sunda Islands.

The Malayo-Polynesians left the Indonesian area before the time of its Hinduization. Their language has no Sanskrit elements in it, but Javan has 110 Sanskrit words per 1,000, and the Sunda language has 40 per 1,000. Some of them traveled southwest, through the islands west of New Guinea, where they were influenced by the Papuan element. Another group went from Borneo to the Philippines, and from there to Formosa. It has often been reported, Friederici pointed out, that the Polynesians found a dark people already living on the islands they discovered in the South Seas. Legend tells of them, and every so often an individual will show Melanesian features. It has been suggested that these are the survivors of a now sunken continent; however, it is very probable that in their wanderings the Polynesians mixed with dark peoples, or possibly the dark element is from a slave group that came with them. Or a group of Melanesians could have been blown off course and landed in Polynesia. For example, there are foreign words in the Tuamotu dialect that could be Melanesian.

The peak period of Polynesian wanderings was from A.D. 700 to 1200, according to Friederici, when there was a knowledge among the larger Polynesian island groups of one another. In contrast to the Melanesians, the Polynesians settled, sailed, and colonized with planning and knowledge. Their history involves the development of sailing from small beginnings to complete high-sea voyaging, followed by a decline of the sailing art. The most primitive water craft of the Malayo-Polynesians was a raft of three beams laid side by side. In the course of development, the central beam became larger, and the side beams took on the functions of outriggers, resulting in the double outrigger canoe. From the double outrigger came the single outrigger canoe, and then the double canoe. The latter were true ships, 30 to 40 meters long with room for 200 to 300 people. A further development was the mast and sail. They made their long voyages on these great high-sea canoes under the leadership of trained captains. After the peak of Malayo-

Polynesian sailing, characterized by the double canoe, a decline set in. When Cook visited the Maori they had only a few double canoes and fewer outriggers. The Chatham Island Moriori had sunk even lower; they were building simple rafts from the tough flowering stalks of the *Phormium tenax*.

This whole developmental sequence is of great interest when we note that the Mangarevan type of wooden raft with twin masts and the Tuamotu type of sail spread between them was found on the coasts of the Incan empire. This particular type of sail is the only one found in pre-Columbian America, and pre-Columbian double canoes were known on the Pacific coast of Central America. Large numbers of cultural parallels between South America and the South Sea lands, and especially the words *kumara* (sweet potato) and *ubi* (yam?) which are used both in Polynesia and parts of South America show that the Polynesians reached the American coast.

An increased measure of sophistication in the use of physical anthropology was introduced into Polynesian ethnology by two American anthropologists during the 1920's, Louis R. Sullivan and Roland B. Dixon. In reviewing "The Status of Physical Anthropology in Polynesia" at the First Pan-Pacific Scientific Conference in 1920, Sullivan remarked that "the data is [*sic*] entirely inadequate for conclusions as to the racial or inter-insular affinities of the Polynesians" (1921, p. 63). Although physical anthropology cannot offer a solution to the problems of origin and migration routes, he cautioned, "It can accurately define and describe the Polynesian groups. It can prove beyond reasonable doubt the racial origin and affinities of the Polynesians. It can designate fairly accurately to what branch of a given race they belong" (p. 64).

In a later paper (1924), using craniometric and osteometric literature and field data obtained from living Polynesians by members of the Bayard Dominick expeditions sent out by Bishop Museum, Sullivan asserted that:

> the "Polynesians" are in no sense to be considered a uniform racial type. The "Polynesian type" is an abstract concept into the composition of which have entered the characteristics of several physical types. It is roughly comparable to an "American type," defined by the average characteristics of the Anglo-Saxon, Slavic, Mediterranean, Indian, Negroid and Mongol elements which inhabit America.
>
> Anthropologists have disagreed on the racial affinities of the Polynesians. Some have classified them as Mongols, others have classified them as Caucasians, while still others have maintained that they are a separate race. This in itself is strong evidence that the Polynesians are a badly mixed people for whenever there

has been a general disagreement as to the racial affinities of any group it has been found almost invariably that the group was a non-homogeneous group (p. 22).

Sullivan concluded that the population of Polynesia was composed of at least four distinct elements. Two he considered to be Caucasoid, one Negroid or Melanesian, and the fourth, which was of doubtful affiliation, showed several Negroid as well as some Mongoloid characters. These types combined in various proportions to make up the populations of the different island groups, and even different islands in the same groups contain elements in different proportions. He terminated his paper with the question of whether or not the four local types had differentiated by isolation on the different islands, and answered it in the negative:

> This seemed at first plausible to me for it was something of a strain on my credulity to believe that some of these remote island groups had been reached by man not only once but in a few instances as many as four separate times. But when I found each and every one of these types outside of Polynesia I was forced to abandon the idea of local differentiation. No one of these four types is confined wholly to Polynesia. The distribution of these types both within and without Polynesia argues strongly against a local origin of these types in Polynesia (p. 26).

Roland Dixon analyzed all the available information on crania measurements for the peoples of Oceania and Southeast Asia and in 1920 wrote a short article which he entitled, "A New Theory of Polynesian Origins." Using three basic indices—cephalic, length-height, and nasal—and making the assumption that those groups whose indices were all extremes either at one end or the other of their several series constituted fundamental types, while those having one or more of their indices medial in value were blends or crosses, he concluded that four racial types were represented in Polynesia. These were: (1) a Brachycephalic, Hypsicephalic, Platyrrhine type which was practically identical with the Negrito. Geographically this fundamental type survives in any strength only in the Hawaiian Islands, especially Kauai. The influence of the type in its derivative forms may be traced in most of the marginal groups in the east and south of Polynesia, but on the basis of very scanty data from Tonga and Samoa seems to be absent in the west. (2) A Dolichocephalic, Hypsicephalic, Platyrrhine type, whose proximate affiliations lie with the Negroid populations of Melanesia and Australia. It is marginal in occurrence, and appears most strongly in Easter Island. It makes its influence felt in the northern islands of the Hawaiian group, in the Marquesas and Central Polynesia, and plays a notable part in New Zealand. Here, there is interesting evidence to show that one of its most common derivatives, very numerous throughout Melanesia, has

played a double role, entering into the composition of the Maori people not only at an early date, but reappearing again much later as a relatively recent factor in the make-up of that people.

[3] The third and historically clearly the latest type which has contributed to the making of the Polynesian people, and the one whose influence has for long been preponderant over a large part of the area, is one which is Brachycephalic, Hypsicephalic and Leptorrhine. This type is one which forms a very important factor in the rather complex Malayan and Eastern Asiatic populations. In Polynesia, this type seems strongest in Samoa and Tonga in the west, and of great importance in the southern islands of the Hawaiian group, while it plays a considerable part in Central Polynesia and New Zealand. Curiously, little trace of it occurs in Easter Island to the east (p. 265).

(4) There are indications of a small minority of a fourth fundamental type—a Dolichocephalic, Hypsicephalic, Leptorrhine type, whose affiliations may be said to be distinctly Caucasic. It survives only in small proportions, but especially in Hawaii and New Zealand. From its marginal distribution, it seems to be early in historical sequence, and in company with the Austro-Melanesian stratum.

After having arrived at this typology Dixon suggested that the racial history of Polynesia is even more complex than had previously been supposed:

The underlying stratum here, as well as further westward, appears to be indistinguishable from the Negrito, although the problem of how it reached this remote region is not yet wholly clear. This stratum was followed by a wave of negroid peoples whose most numerous modern representatives in this portion of the world form the bulk of the population of Melanesia and Australia. As a result of this influx, the earlier Negrito type was largely absorbed, and survives today as such, only in remote marginal areas into which it was driven by the negroid immigrants. Following the negroid came the Malayoid or Mongoloid wave, which, spreading over the area, absorbed and apparently quite submerged the preceding types and blends in western Polynesia, and flooded in force into the central, southern and northern portions, so that the Austro-Melanesians or negroid type and its predecessor were left in any degree intact, only in the marginal areas. These successive waves must not, however, be thought of as rapid conquests, but rather, for the most part, as slow drifts requiring generations or centuries for their completion, with periods of halting, and as following moreover somewhat different paths (pp. 266-267).

In a later paper (1929) Dixon modified his earlier position. The Pacific was peopled, he suggested in this later view, in a series of five waves. Probably the earliest racial type to reach the Pacific region somewhere about the end of glacial times, was that commonly known as the Negrito. Coming from southeastern Asia, probably at a time when many

of the larger islands of Indonesia still formed part of the Asiatic continent, and when much of Melanesia was similarly joined to Australia, the Negrito spread northward to the Philippines and eastward, crossing one or more narrow strips of sea, to New Guinea and some of the adjacent island groups of Melanesia. There he was free to expand southward along the eastern edge of Australia to Tasmania, which then may still have been connected with continental Australia (p. 196).

A second racial type is that characteristic of the Australian aborigines. They represent a very early wave of immigration, which spread from southeast Asia eastward through Indonesia and Melanesia to Australia, displacing, destroying, and to some extent absorbing the older Negrito stratum in the latter area, but were themselves largely destroyed or assimilated by later comers throughout most of the area over which they had spread (p. 196).

Probably next in sequence came the Oceanic Negroids. They seem to have spread out eastward from southeastern Asia and to have reached many, if not all, of the islands of Indonesia, and then streamed into Melanesia where they replaced the older Australoids, driving the Negritos into the mountainous interiors of the larger islands and penetrating ultimately some distance into northern Australia, where they blended with the older population. Whether or not the Oceanic Negroids penetrated farther eastward into Polynesia is still a moot question. They had some knowledge of the sea and of navigation, and might have perhaps reached the nearer islands of Western Polynesia, although as yet there is no clear evidence for it. The strong infusion of their blood which we find in Central and particularly Eastern Polynesia is to be attributed to later immigrations of the so-called Melanesian peoples who represent in large measure a fusion of the Papuan with the later Indonesian and Mongoloid types (p. 196).

Seemingly next in order of sequence was the type which may be called the Indonesian. Undoubtedly mixed in origin, the type includes an unmistakable Caucasic element—one known to have reached the east Asiatic coast region as early as neolithic times. It is uncertain whether they entered Indonesia mainly from Indo-China, or from the central and southern Chinese coast region. At any rate, they were able to spread easily by sea, not only throughout the Indonesian and Melanesian areas where by then, as a result of slow subsidence of the land, the islands had become more widely separated, but also into the remoter islands of Micronesia and parts, at least, of Polynesia (p. 197).

The last of the great racial waves to enter the Pacific was the Mongoloid. Spreading peripherally toward the eastern and southeastern coasts of Asia, they doubtless mixed in varying degree with the older Indonesian-like peoples of the coast and then, following their lead, poured into Indonesia. From Indonesia the Malays, as they have also been called, began spreading eastward. Like the Indonesians they came into Micronesia and dominated at least the western portion. They swept along the New Guinea coasts, and both left large strains of their blood there as well as took with them some admixture of darker peoples as they passed on farther into Polynesia, into whose remotest groups they were able to penetrate owing to their skill as navigators. In Western Polynesia, which bore the brunt of their movement, they almost entirely swamped and destroyed the older, mixed Indonesian and Papuan population. From various evidences we may place the movement from Indonesia to the eastward as taking place in the very early centuries of the Christian era.

In three other works Dixon dealt with nonracial matters that were at issue in the problem of Polynesian migrations. His classic book, *The Building of Cultures* (1928), included a section discussing the possibility of extensive cultural diffusion across the Pacific, a possibility which he rejected. The book was largely an attack against the British Egyptianist diffusion school of G. Elliot Smith and William J. Perry, who proposed that high civilization had originated only once on earth —in the Nile Valley—from where the "Children of the Sun" spread Egyptian culture, first in the Old World, then into the Pacific Islands, and on to the Americas, where their influence was manifest in pyramids, mummification, and many religious and art motifs. Given the distances and the hardships involved, Dixon reasoned, the number of persons reaching the New World on any one voyage could hardly have been great, and upon reaching South America their fate would be doubtful at best. Most damaging for the diffusionist theory, however, was the necessity to presume that most of the "civilized" traits found in the New World had either been lost in Polynesia or had come from Melanesia, adding several thousand more miles to an already almost impossibly long voyage. The question of Polynesian contact with South America was the subject of two other papers. One dealt with "The Problem of the Sweet Potato in Polynesia" (1932) and the other with "The Long Voyages of the Polynesians" (1934). In the article on the sweet potato Dixon reviews Friederici's argument that the tuber was

introduced by the Spaniards, and concludes that the evidence contradicts such a possibility. Therefore, he asserts:

> we are brought face to face with the problem of pre-Columbian contacts between South America and Polynesia, and must explain the presence of the sweet potato in the Pacific as due either to Polynesian voyagers who, reaching American shores, brought back the plant with them on their return to their homeland, or to Peruvian or other American Indians who sailed westward and carried the sweet potato with them to Polynesia (p. 59).

In the article on Polynesian voyaging Dixon postulates that although historical evidence indicates that journeys were rarely more than moderate in length (five or six hundred miles), previous voyages had been made between Tahiti and Hawaii, and therefore the Polynesians were capable of reaching the New World. Having established this point he then argued: If, then, voyages to the New World were made, we are led to relegate them in time to the considerably earlier period when the hitherto empty lands received their first human settlers. The sweet potato seems to make this a certainty. Originating in America, it could only have reached Polynesia with human aid. Since we have no evidence that at any time the Indians of the Pacific coast of South America where the sweet potato was grown had either craft or skill for making long sea journeys, we are forced to conclude that the transference was made by Polynesians (pp. 173-174).

The position that significant diffusion had taken place from Polynesia to the American continent was not limited to the Egyptianists. P. Minnaert (1931), for one, speculated that it was probable that isolated expeditions of Polynesians arrived on the coasts of Peru or Ecuador. It seems legitimate to suppose, he continued, that under favorable conditions certain of these expeditions took root and formed prosperous colonies, or at least brought new traditions, customs, and techniques to the original population. The fact that throughout the Polynesian islands there exist traces of megalithic architecture, far beyond the capacity and know-how of the Polynesians to create, proves that the islands were formerly inhabited by a race superior in construction, art, and social organization. The fact that these constructions have certain narrow affinities with those which exist on the western coast of South America, makes one suppose that migratory elements belonging to this race, established themselves on this coast and left the imprint of their civilization with the Polynesians as well. The pre-Inca civilizations of Peru and the Polynesians then adapted these cultural elements to their own environment and way of life. It is difficult to say whether the Incas were also a branch from the

Polynesian source, but it is probable that the Polynesian or pre-Polynesian civilization was at least one of the formative elements of Inca civilization.

For supporting evidence Minnaert relied upon: (1) *Tradition*—there are South American legends of invasions of giants on rafts, with loose sexual morals. They could be equated with Polynesians. (2) *Religion*—both areas had sun worship, human sacrifice, seclusion of virgins. One of the Peruvian gods was *Con-Ticci-Viracocha*—Kon-Tiki; some Polynesian gods are called tikis. A certain area near the island of Puna, Peru, is called Tangorara, perhaps after the Polynesian god Tangaroa. Both areas had a similar concept of mana; the Peruvian term was *huaca*. (3) *Social Organization*—both areas were very hierarchical. The basic unit was the family or clan, usually localized in one valley. Among the royalty of both areas, brother-sister marriages were the custom. (4) *Customs*—genealogies were kept on knotted cords in both Peru and Polynesia; cannibalism was practiced in both areas; there was pottery in Fiji and Peru. (5) *Architecture*—both were high stone cultures; both had megalithic architecture of the same nature.

Using Tahiti as a model from which to reconstruct Polynesian culture history, E. S. Craighill Handy (1930) evolved a theory which attributed variations within Polynesia to two separate migrations, the first of which was associated with the more "primitive" elements while the second brought the more "civilized" traits. The first wave was represented in Tahiti by the commoner classes, particularly the *manahune* whom Handy categorizes as tenants or serfs, while the second wave is represented by the *arii*, or chiefly caste. The more primitive cultural elements in Polynesia are found by Handy to correlate with the vestiges of a neolithic phase of culture that was spread in Indonesia at a time prior to the entry of the Malay peoples and of Indian (Hindu) culture into Malaysia. The race of the area seems to have a substratum of Caucasoid with an intermixture of secondary and sometimes dominant Mongoloid, with Negroid in Melanesia—the same mixture that is found in the "old Polynesian" substratum. The language is Austric (that is, Malayo-Polynesian), to which Polynesian belongs. The phase of culture in Indo-China and Malaysia that succeeded this prehistoric period was one of Brahmanical civilization carried by conquest, trade, and missionaries from India—mainly from South or Dravidian India—into Malaysia or Indo-China. Many of the old Polynesian culture traits, such as rites for the firstborn, phallic symbolism, and priestly traditions were probably derived from this phase.

With the *arii* the problem is more complicated, for their culture appears to include traits of Brahmanical, Buddhist, Indian, and Chinese origin.

> The interesting thing is, however, that just this complication of matters is what would be expected if the *arii* originated in the region under discussion during the period following the spread of Buddhism out of India into Malaysia, Indo-China, and China, for during this period and since that time there has been perpetuated an amalgamated cult and culture that combines Brahmanical and Buddhistic traits, while there have been at the same time continuous commercial and political contacts, with consequent cultural influence, with India on the one hand and South China on the other (p. 15).
>
> the *arii* trace their descent from Tan-ga-loa. [They] were related to the river population of Kwantung, in South China, who are known as the Tan-ka-lo. The Tan-ka-lo, although they have thoroughly assimilated Chinese culture, were not originally Chinese. Their maritime life, physical type and their relationship to the Cantonese would indicate that they are an intrusive river folk from Indo-China or maritime people from Indonesia. If this is true it is quite within reason that as refugees from some disrupted civilization, those reaching Polynesia may have succeeded in establishing themselves as rulers, while others, taking refuge in the rivers of Southwest China may have fallen into the outcaste position in which we find the Tan-ka-lo (pp. 18-19).

During this period there was great maritime commerce in the region between Arabia and China, Handy asserted, and the ships that might have been swept into the Pacific were large commercial vessels, not primitive craft. He rejected the notion of discrete migrations in "fleets of canoes:"

> I submit that henceforth the habit of talking of Polynesian migrations in canoes should be abandoned. Almost certainly the later Asiatics or Malaysians who came into Oceania started their voyages, which were probably accidental, in ships. Furthermore, the word "canoe" is not a correct designation for the large seagoing vessels which Polynesians were building in historic times, such as the Tahitian *pahi* with two pontoon hulls 110 feet long, which Captain Cook measured on his second visit to Tahiti. As to the word "migration," I find myself more and more incapable of thinking in terms of movements of fleets at stated periods, such as this implies. I believe we shall conceive the picture of the peopling of Polynesia more truly if we think in terms of a process of repeated, occasional, and generally accidental drifting and sailing of boats and their crews eastward, northward, and southward, and also westward, through a period extending over several millenia (pp. 22-23).

During the 1930's anthropologists began to pay more attention to internal distinctions within Polynesia, and to relationships between the island groups. How much of the diversity within the area could be accounted for on the basis of diffusion and how much on the basis of local evolution? The development of systematic archaeology by professional

anthropologists, along with a careful recording of material culture, facilitated the discussion. One of the foremost pioneers in this work, along with Peter Buck (Te Rangi Hiroa) and Kenneth Emory, was H. D. Skinner. In a summary of "Archaeology in Polynesia" given at the Fifth Pacific Science Congress, Skinner (1934) divided Polynesia into two areas, a western one which included the Samoan and Tongan groups, and an eastern and southern area, including the Society Islands, the Marquesas, the Hawaiian Islands, the Tuamotus, Easter Island, the Australs, the Cook Islands, and the New Zealand-Chatham area. To the first area he gave the designation "Western Polynesia," to the second, "Marginal Polynesia."

Skinner reviewed, as of that time (1933), the status of archaeological work in terms of three kinds: stratigraphical work, surveys of sites and structures, and typological studies. He considered the first of these to be most important, but up to that time the only stratified sites investigated were in the South Island of New Zealand. From the surveys of sites and structures by Emory, Buck, and others, he concluded that the structures of Western Polynesia appear, on the whole, to be simpler than those of Marginal Polynesia. The Western Polynesian structures include features absent from Marginal Polynesia, but whether this was because of a process of simplification from a common Polynesian ancestor is not clear. Regarding typological studies, Skinner reported that studies in this field had just begun. Relying heavily on evidence provided by Emory and Buck, he found fairly conspicuous differences between the adzes of Western Polynesia and those of Marginal Polynesia, with the former being simpler and less diverse in type. However according to Skinner, the whole field of Polynesian material culture was awaiting typological investigation.

A systematic attempt to document the differences between "Western" and "Marginal," or "Central," Polynesia using all available evidence was attempted by Edwin Burrows. In an article entitled "Western Polynesia: A Study in Cultural Differentiation" (1938), Burrows demonstrated the distinctiveness of Western Polynesia by plotting the distribution of a number of traits and culture complexes. The traits which distinguish Western from Central-Marginal Polynesian cultures he traces to eastern Melanesia and Micronesia, and he attributes the differentiation within Polynesia to a combination of several historical processes, including diffusion, local development, and abandonment or rejection. Previous writers had failed, in Burrows' opinion, to give proper consideration to these processes. Some, like Churchill, Handy, and Smith, had taken as a point of departure traditions from one region within Polynesia. They then

allotted cultural differences among hypothetical immigrant peoples, fitting available data from all Polynesia into a scheme based on traditions from one region. They were so preoccupied with early voyages that they failed to reckon with at least two alternative possibilities: (1) that earlier and later elements in the population of one part of Polynesia may not correspond to those of another part, and (2) that cultural differences within Polynesia may result from the processes of diffusion, local development, and abandonment or rejection. Another line of procedure, followed by Dixon and others, began not with local traditions but with regional similarities and differences in culture. Their conclusions still take the form of simple subdivisions of Polynesian culture into two or three hypothetical strata of immigration. These writers, Burrows claimed, like those who followed the other course, had stressed early voyages to the neglect of processes less spectacular and nearer at hand.

His study, in Burrows' opinion, although based on fuller data than were available to earlier writers, shed little light on original immigration into the Pacific. One hint, however, was that certain traits shared by Central-Marginal Polynesia, Micronesia, and some intermediate islands were absent or rare in Western Polynesia. These include simple fishhooks, *Ruvettus* fishhooks, stone or wooden food pounders, tanged adzes, drums, carved human images, nights of the moon, and lack of kinship terms for some of the relationships emphasized in Western Polynesia. This situation suggested to Burrows that one immigration had taken place into Central-Marginal Polynesia by way of Micronesia, while another had gone into Western Polynesia by a different route, probably through Fiji. In summary, however, insofar as his inquiry bore upon the remote period of first settlement, it suggested to him a fundamental unity of Polynesian culture corresponding to the unity of language.

Burrows' belief in the unity of Polynesian culture was lent support by Harry Shapiro (1943), a physical anthropologist who collected and analyzed anthropomorphic data from twenty-six living Polynesian populations. On the basis of his research Shapiro concluded:

> The Polynesian population possesses a fundamental unity in physical type which necessarily implies that the successive immigrants were derived from a common people. It is extremely doubtful that the various waves of invaders were profoundly different racially. This homogeneity does not, however, mean that the Polynesians are a pure-line stock. The present thesis that the Polynesians adhere basically to a uniform physical type differentiable by cephalic dimension and proportion need not be taken to run counter to the hitherto prevailing picture of a composite stock. The present data throw no light on the components of the Polynesian people and consequently are not in conflict with the idea that they are ultimately of mixed origin. Like most other populations, they undoubtedly

are. But I believe that the essential composition of these diverse elements occurred before the invasion of Polynesia began. Somewhere outside this area the Polynesians had become welded into a recognizable and distinct population which served as a source from which migrants streamed into the limits of Polynesia. This hypothesis does conflict with the widely held opinion that Polynesia was settled by a number of distinct migrations each characterized by distinct physical type. Such a conception rests heavily on the discernible differences between the island groups but neglects the broad and concistent [*sic*] similarities which could never have arisen by admixture within Polynesia.

The differences, however, which do occur within Polynesia should not be minimized some of them may be explained as local variants likely to arise among small inbred groups. Others, more significant in this context, are distributed according to a geographic pattern that conforms admirably with the direction of migration. These are the variations in head length, head width, cephalic index, and, to a lesser extent, minimum [*sic*] frontal diameter. Indeed, the only reasonable explanation of this arrangement is on the basis that the successive migrants were differentiated primarily in these particular cephalic dimensions.

If it be borne in mind that a considerable gap in time occurred between the first and the latest comers, it is possible to conceive of a gradual and progressive modification of the fundamental type in those particulars by which the successive waves are now distinguishable.

It may be significant that in southeastern Asia and Indonesia an important area of brachycephaly now exists. In Indonesia there is some reason to believe that the earlier populations were more dolichocephalic and were supplanted by rounder headed groups. This expansion of brachycephaly into Indonesia may very probably have been associated with a vast population movement which not only forced out the ancestors of the Polynesians but eventually stamped the last wave with brachycephaly. Whatever this brachycephalic stock may have been like, it was not vastly different from the proto-Polynesian, since the later immigrants to Polynesia were essentially similar to the earlier ones (pp. 7-8).

An argument in favor of a Micronesian migration route was presented by Peter Buck (1938), the first scholar of Polynesian background to develop a comprehensive theory of his ancestral origins. Using racial, linguistic, archaeological, genealogical, and mythological data to buttress his thesis, Buck proposed that the Polynesians' original homeland was in India. Although he was in agreement on this point with some previous theorists, such as Percy Smith, he was critical of their use of isolated word comparisons and loosely interpreted legends, basing his own argument on racial data. From India the ancestors of the Polynesians moved into Indonesia and were forced from there by the pressure of the Mongoloids. They then took a northern route through the atolls of Micronesia. From the end of the Micronesian chain, possibly from the Gilberts, a first wave of settlers set out. This migration was probably a forced one because of the inferior social status of those expelled; these early settlers were poorly equipped with food plants and domestic animals. The Ha-

waiian Islands, the Society Islands, and Samoa all have traditions of early settlers. In Hawaii, they were called the Menehune; Hawaii-Loa, the mythical first settler of the islands, is said to have arrived ca. A.D. 450. In the Society Islands, these first inhabitants were called Manahune, and in Samoa were called "sons of worms." From Samoa, this early group settled Tonga.

This first group was followed by another composed of people of the same stock but of higher social grade. They sailed southeast from Micronesia to the Society Islands, where they first settled at Havai'i (modern Raiatea). Dissensions then caused a rebellious group to settle Tahiti. Increasing population and domestic political struggles were the cause of the large number of colonizing expeditions that left Central Polynesia after the first theology had been established by the priests at Opoa; these migrations took place from the 12th to 14th centuries. Junior members of chiefly families, with little prospect of advancement at home, organized these expeditions into the unknown. Settlement was by individual canoes, not by large migrations.

The Marquesas were settled early and were used as jumping-off places for the colonizing of Mangareva and Easter Island. They may also have been used as way-stations for voyagers to Hawaii. The Cook Islands were settled by followers of Tane who left Tahiti after the imposition of the god 'Oro from Havai'i (Raiatea). The people that settled Hawaii passed through the Equatorial Islands and left coral monuments and coconut palms as indications of their presence. When they reached Hawaii in the early 12th century, the Menehune were pushed from their center on Kauai northward to Nihoa, Necker, and beyond. New Zealand was discovered by Polynesians in the 10th century, but it was only sparsely settled by off-course voyagers until the 14th century, when the Maoris, forced from Hawaiki (Raiatea) by internal conflicts, made it their home.

In refuting the hypothesis that Polynesia was settled primarily through Melanesia, Buck emphasized several distinctions between the two areas, including the following: (1) Polynesians are physically very different from Melanesians; (2) the bow, though used in Polynesia, is not employed for warfare as it is in Melanesia while on the other hand warrior helmets of the same type are found both in the Gilberts and Central Polynesia; (3) social customs such as brother-sister avoidance and certain burial practices that are found throughout Melanesia occur in Polynesia only on its Melanesian borders; (4) Western Polynesian mythology, such as that reported by Gifford for Tonga, has many more Micronesian elements than Melanesian. He accounted for the linguistic similarities between Polynesia and eastern Melanesia by postulating, along with

Thilenius, Ray, and others, a colonization by Polynesians of the Melanesian islands showing Polynesian affinities. Besides, Buck argued, despite the overlay of Mongoloid elements, Polynesian words are found in Micronesia.

A position consistent with this view was taken by Alexander Spoehr (1952), one of Buck's successors as Director of Bishop Museum. Spoehr stated that, although the racial, linguistic, and cultural differences between Micronesia and Polynesia are evident, in technology, social organization, mythology, and art there are basic similarities as well as differences. He also suggests that Micronesia and Polynesia taken as wholes are much more closely similar to each other in the physical type of their inhabitants, in language, and in culture than either is to Melanesia. Therefore our perspective would be clearer, Spoehr maintained, if we avoided a rigid separation of the two regions and for the purposes of historical analysis combined Micronesia and Polynesia into a single major area. He suggested the term *Micro-Polynesia* for the combined region, and stated: "Grouping Micronesia and Polynesia together in a larger area assumes that the main migration route of the Polynesians was through Micronesia. This I believe to have been the case" (p. 460).

Using the first four carbon 14 dates available from archaeological excavations in the region, Spoehr formulated a "working hypothesis." These dates were:

1. A.D. 1005 ± 180 from Oahu, Hawaii (collected by Kenneth Emory).

2. A.D. 1002 ± 300 from Viti Levu, Fiji (collected by E. Gifford).[4]

3. 1527 B.C. ± 200 from Saipan, Marianas (collected by A. Spoehr).

4. A.D. 845 ± 145 from Tinian, Marianas (collected by A. Spoehr).

Spoehr's working hypothesis was that by 2000-1500 B.C. a form of sea-going transport had been developed in the Malaysian-Southeast Asian region sufficient to carry men into western Micronesia. Quite possibly it was the single outrigger canoe. The eastward migrations into and through Micro-Polynesia took place over at least a two and a half thousand year period. The terminal points of this are set by the Saipan and Oahu dates, and to this lengthy period must be added the increment of

[4] This sample did not come from the lower levels of excavated cultural material, which are considerably earlier, indicating an occupation date by at least the beginning of the Christian era.

time between A.D. 1000 and the point of first European contact. Spoehr speculated that the cultural differences within the area would eventually be accounted for on the basis of local evolution rather than of distinct migrations. It seems most likely, he held, that the first voyagers brought with them the principal adaptations that were at the core of the historic cultures. Because of the island environment, diffusion could not have taken place except locally, and even major island groups must have experienced considerable periods of isolation.

While concurring with the probability of a Micronesian migration route on the basis of linguistic evidence, H. D. Skinner (1951) took issue with Buck's belief that Raiatea was settled prior to the islands in Western Polynesia.

> Consultation of the map will show that geographical considerations are so much against this view as to outweigh decisively Buck's single argument in support of it. It seems much more probable that the Samoan islands were the first group in Polynesia to be settled by the Proto-Polynesians and that the Tahitian group was settled after, though probably at no long interval (pp. 43-44).

Skinner also argued against Buck's contention that the Proto-Polynesians had lost virtually all aspects of Indonesian culture by the time they reached Tahiti. In his opinion many elements in Polynesian material culture "go back beyond Tahiti to Indonesia and Eastern Asia, and, in some cases, further still" (p. 44). His thesis, based largely upon material culture and art forms, was that the Polynesians' ancestors had moved out of Indonesia and the Philippines about the 7th or 8th centuries A.D. They were part of a seafaring community, and their culture was allied to elements from all parts of Indonesia, including areas strongly influenced by India. In the central Carolines sultanates were probably set up, and movements were made southward to the New Guinea coast and the northern islands of Melanesia. Many went southeast to Samoa and Tahiti at the same time, as well equipped colonists, taking with them all the domesticated animals and plants their vessels could carry. The culture that developed in the Tahitian group differed from that left behind. Metal and pottery were lost because there were neither metal ores nor clay, and distance forbade trade. The first culture established was characterized by elaborate arts and crafts. When groups of Tahitians left between A.D. 1000 and 1300 for the marginal areas, they took with them a well-developed decorative art as well as purely utilitarian arts. In the new settlements, representational and decorative art either declined, as in Hawaii, the Tuamotus, and Mangareva, or continued to flourish, as in the Marquesas and New Zealand. In

Tahiti itself, representational and decorative art dwindled to almost nothing, perhaps because the energy formerly expressed in them was deflected into the immense elaboration of socio-religious ritual seen by European discoverers and explorers—ritual directly linked with the development of the *marae* in the Tahitian Islands. The Maori developed a characteristic local art style. So also the Polynesians of the Cook and Austral area, and the Marquesans. But the more closely the art of these areas is studied, the more numerous are found to be the motives they have in common (pp. 45-46).

In 1947 Thor Heyerdahl and five companions dramatically drew world attention to the problem of Polynesian origins by drifting in a balsa-wood raft from the shores of Peru to Raroia in French Polynesia. Heyerdahl organized the *Kon-Tiki* expedition in order to prove that Peruvian Indians in pre-Inca times could have drifted in balsa-wood rafts and settled Polynesia. His adventure book (1950) describing the journey was a best seller. Heyerdahl's theory, elaborated in a later book (1952), was that a band of Kwakiutl Indians from the American northwest coast was forced to vacate their homeland by an invading group of Salish Bella Coola Indians. Fleeing for their lives, they loaded their wives and children into canoes and let the wind and current carry them south into the unexplored ocean. Ultimately they reached the Hawaiian Islands (pp. 177-178).

About the same time, a Caucasian-like people with light skins and red hair left the Peruvian coast on rafts and sailed west into the Pacific Ocean, landing first at Easter Island. These people had been the culture bringers of Central and South America—the intelligent, bearded wanderers who brought learning, civilization, and leaders to the dark, short, beardless, and less intelligent Indians. The Incas were their descendants who remained in the Americas (pp. 219-345).

The Peruvians and the Northwest Indians found a short, dark race with Negroid features already living on many of the Pacific islands. These were known as the *Menehune,* and were possibly a Melanesian group (pp. 182-187).

The spreading and mixture of the three groups—the Northwest Indians south from Hawaii, the Peruvians west from Easter Island, and the "aboriginal" *Menehune*—resulted in the Polynesian race as it is known today. The culture became homogenous, but the race remained a bit heterogenous. Even today there can be found fair and red-haired Polynesians (*uru-kehu*) and short, dark, and flat-nosed Polynesians in addition to the "standard" Polynesian type (pp. 187-188).

Heyerdahl backed up his theory with a wide array of evidence gleaned from archaeology, mythology, linguistics, physical anthropology, and ethnobotany, but the mainstay of his argument has been the winds and currents. Those theorists who have committed themselves to Malayan or Indonesian origins had in his opinion been overly impressed with absolute distances. The only realistic measure is the time required to make a voyage, and this would bring the Polynesian islands much closer to the Americas than they appear on a world map.

As a test of his theory Heyerdahl led an archaeological expedition to Easter Island, the results of which he initially reported in a popular book entitled *Aku-Aku* (1958). Easter Island was settled, he speculated, by two successive populations, the "long-ears" and the "short-ears." The long-ears were inhabitants of pre-Inca Peru; they were a fair, white race with abundant skill in stone architecture and an ability to navigate in reed boats. Before the Incas came to Peru, the majority of this population sailed west into the Pacific, following the current. Some of them landed on Easter Island, and were responsible for the paved roads, the stone quarries, and the giant images now found there. The date of their settlement was ca. A.D. 400. From Easter Island or perhaps from Peru itself, other settlers sailed into Oceania, reaching Rapa-Iti, Pitcairn, and the Marquesas.

The short-ears were originally from Indonesia; from there, they followed the current to the Pacific Northwest and mingled with the populations there. These Indians of the Pacific Northwest then set out in their large canoes and followed the current down to Hawaii, and spread out thence into the rest of Polynesia; these were the majority of the Polynesians. The short-ear population reached Easter Island very late, perhaps only 100 years before the arrival of the Europeans. Having arrived on Easter Island, the descendants of the long-ears, attempted to enslave them; a civil war ensued, and all but one long-ear was massacred.

Heyerdahl's position has been met with a storm of criticism by the majority of Oceanic specialists. Heine-Geldern, for example, in two review articles (1950, 1952) takes the Norwegian adventurer to task for apparently being ignorant of the archaeology and ethnology of eastern Asia, Indonesia, and Melanesia. "He does not know that in material culture, in art styles, in myths, and in social customs, these regions have infinitely more in common with Northwest America than have the Polynesians" (1952, p. 356). There is every reason to assume, claims Heine-Geldern, that the majority of cultural parallels between

Polynesia and Northwest America are due to derivation from a common Asiatic source rather than to direct contact. Most damaging to Heyerdahl is his failure to account for the strong affinity between the Polynesian and Southeast Asian languages and the shared floral and faunal syndrome between the two areas. His view that Northwest American and Oceanic languages exhibit a basic unity is rejected by almost all serious comparative linguists, thereby rendering highly improbable his contention that some language elements may have spread with migrants from Southeast Asia to Northwest America, and so into the Pacific (Heyerdahl, 1951). Concerning Heyerdahl's problem with accounting for the flora and fauna Heine-Geldern observed:

> In making the bold assertion that "there is nothing in Polynesian race or culture that is not also shared by the American Indian," Heyerdahl cautiously adds, "or else available through intimate neighbourly trade with the nearest marginal islands to the west, in Melanesia." He obviously wanted to keep a door open in order to explain just such embarrassing facts as the possession of those Old World plants and animals by the Polynesians. I am afraid that it will not prove of much help to him. It might be different if the plants and animals in question were restricted to the westernmost islands, but they were found also in eastern Polynesia. Even the Easter Islanders had fowls, bananas, yams, and the sugar-cane. Thus we are faced here with the same inescapable conclusion as in the case of the outrigger canoe. After having crossed the Pacific from America to the margin of Melanesia and there obtained from their new neighbors the fowl, the pig, and the various Old World crop plants, some of those Peruvian and North-West American Polynesians would have had to recross most of the Pacific from west to east, "against all prevailing winds," a feat which, according to Heyerdahl, they ought to have been incapable of accomplishing. Thus Heyerdahl's argument, as far as it is based on conditions of winds and currents, completely collapses (p. 323).

Another severe critic of Heyerdahl's thesis has been Robert Suggs. In a volume presenting his own theory of Polynesian migrations (1960a), Suggs devotes an entire chapter to a critique of the Kon-Tiki theory. He points out temporal inconsistencies in Heyerdahl's attempt to account for culture traits on Easter Island by presuming a migration from Peru:

> Heyerdahl's Peruvians must have availed themselves of that classical device of science fiction, the time machine, for they showed up off Easter Island in A. D. 380, led by a post-A.D. 750 Incan god-hero, with an A.D. 750 Tiahuanaco material culture featuring A.D. 1500 Incan walls, and not one thing characteristic of the Tiahuanaco period in Peru and Bolivia. This is equivalent to saying that America was discovered in the last days of the Roman Empire by King Henry the Eighth, who brought the Ford Falcon to the benighted aborigines (p. 224).

And concludes by dismissing the scientific merit of Heyerdahl's position:

In conclusion, the *Kon-Tiki* theory is seen as a *revenant* from the past, clothed in a more attractive shroud. Its basis is mainly the success of a modern raft voyage that could not even hope to prove anything concerning ancient Peruvian navigation. The meager scientific evidence for the theory is weak, even in the few instances where it is completely acceptable. Otherwise, the similarities which are purported to show Polynesian-Peruvian relationships are completely equivocal. The *Kon-Tiki* theory is about as plausible as the tales of Atlantis, Mu, and "Children of the Sun." Like most such theories it makes exciting light reading, but as an example of scientific method it fares quite poorly (p. 224).

Nevertheless Heyerdahl has not been without equally passionate supporters. They include a small minority of scholars (for instance, H. Lavachery, 1965) and at least one religious group that has a stake in the *Kon-Tiki* theory, the Mormons. According to the *Book of Mormon,* which is based on the revelations of Joseph Smith, the American Indians are descendants of a colony of Hebrews who came from Jerusalem ca. 600 B.C. These Semites settled in Central America and northern South America where they built a civilization, the ruins of which are still extant. During the year 58 B.C., two shiploads of people, led by Hagoth (that is, the legendary Polynesian character *Hawaii-Loa*) left the northwest coast of South America and did not return. These ships settled in Hawaii, from which they settled all the other islands of Polynesia.

Other commentators have been more balanced in their response to Heyerdahl, allowing the possibility if not probability of American influences without going to the extreme of trying to explain virtually all Polynesian culture on the basis of such contact. Thus Paul Adam (1955) suggested that the nature of contacts between Polynesia and Peru was sufficient to account for the presence of the sweet potato, syphilis, and blond hair without being as extensive as envisioned by Heyerdahl. The first contact was probably made by Polynesians, who took a southerly route from the vicinity of Easter Island to Peru. Having thus heard of lands to the west, the Peruvians may have sent out a flotilla of rafts which, following the path of the *Kon-Tiki,* would have ended up in the Tuamotus or perhaps Easter Island. The small fleet of Peruvians, however, would find themselves unable to conquer the already established Polynesians, and unable to traverse the seas back to Peru in their clumsy rafts. Thus, they would inevitably have been absorbed into the Polynesian population. The statues of Easter Island are given two possible explanations: either they were monuments set up by Polynesians to ensure the safe return of their travelers farther east, or they were the product of Peruvians cut off from their homeland.

And Edwin Burrows (1956) after criticizing Heyerdahl for presenting his data in the manner of an advocate rather than a dispassionate scientist, and for ignoring the possibility of local development and convergence, remarks that "Despite many dubious details, the cumulative evidence of early contact between Polynesia and South America is convincing; and it may well have been more important than most Oceanists have been willing to admit" (p. 18).

Heine-Geldern and Suggs have both offered theories of their own to account for Polynesian origins. A summary of Heine-Geldern's position, which is based largely upon adz types (1932), was translated from the German by Skinner (1957) and presented in the *Journal of the Polynesian Society*. He postulates eight successive cultural developments, and makes use of three technical terms to describe adz types: *Walzenbeil*, an adz with rounded surface and oval cross section; *Schulterbeil*, an adz with marked shoulders; and *Vierkanterbeil*, an adz with flat surfaces and rectangular cross section. Here is Skinner's translation:

1. Penetration of a branch of the Walzenbeil Culture, either from Japan via Formosa, Philippines, Celebes, Moluccas, etc. to New Guinea and Melanesia, where the Walzenbeil culture influenced deeply the culture of Papuans and Melanesians; they may even have taken it over completely. This culture is, in part, the same as the "two-class culture" of Graebner; probably the partial Neolithisation of Australia is the result of it. The form of the boat was a plank-built boat without outrigger (Botel Tobago, "orembai" of East Indonesia, "mon" of Melanesia); the technique of the potters was based on building up pots from rings of clay. The people who brought the Walzenbeil culture from East Asia to East Indonesia and Melanesia were also the bearers of at least a part of the so-called Papuan languages (which fundamentally have nothing to do with the Papuans) especially the North Halmahera languages.

2. Diffusion of groups speaking an Austroasiatic language and probably having Mongoloid bodily characteristics, with Neolithic Schulterbeil Culture, from a region not yet known via South-east Asia to the south Chinese coast, Formosa, Philippines, North Celebes, Japan, N. E. Korea, perhaps also to a part of India.

3. In the first half or middle of the second millenium B.C., the penetration of people with Neolithic Vierkanterbeil culture (the Uraustronesians) from China to S.E. Asia. Their culture is most nearly related to the late Neolithic Yang-shao culture of China, and therefore shows like the Yang-shao culture elements, definite relations with the "ostbandkeramic" culture. Among their culture elements may be listed the following: rectangular sectioned adzes of different forms (long adzes, chisels (?)), stone-sawing technique, kronbohrer, net-and-band ceramic, manufacture of vessels in Treibtechnique; spear-points from schist (?), implements and arrow points of bone and stone, and clam-shell armlets as ornaments and perhaps also as money, decoration by Steinperlschmuck, especially Roehrenperl, pile houses, rice, horse, pig, cattle, megalithic monuments, head-hunting, the most primitive form of river outrigger canoe, possibly (but not certainly) the making of the tapa cloth.

4. Mixture between Austronesians and Austroasiatics, Vierkantbeil and Schulterbeil culture. Penetration of the bearers of this mixed culture into Further India.

5. Even before the beginning of important mixture of cultures, penetration of a part of the Uraustronesians into the southern part of the Malay Peninsula which, until then, was populated only by Palaeolithic or a little neolithicised primitive tribes. Development of the primitive river outrigger boat to the real outrigger (canoe).

6. Further wanderings of a branch of the Uraustronesians able now through the developed outrigger canoe to pass by sea from the Malay Peninsula (to the common Urheimat of these, part of the Uraustronesians from which the present Austronesian tribes are descended) (a) via Sumatra, Java, and the chain of the little Sunda Islands, southwest and southeast into the extreme east of the archipelago, where they mixed with the Walzenbeil population (the bearers of the so-called Papuan languages) and with the still present remnants of the real Papuans. (b) A second branch via Borneo, the Philippines, and Formosa to Japan.

7. Formation of the Polynesian culture, or at least of one of its most important components in the Formosan-Philippine-North Celebes area out of a mixture of Austronesian Vierkanterbeil and Austroasiatic Schulterbeil cultures.

8. Formation of the Melanesian languages and Melanesian cultures (Melanesian bow-culture) out of a mixture of Austronesian language and culture with pre-Austronesian languages (Papua languages) and with the Walzenbeil culture. (pp. 206-207).

Robert Suggs, an archaeologist, did extensive excavations on Nuku Hiva in the Marquesas during 1957, and his theory of Polynesian migrations has been heavily influenced by the data he collected there. He traces the ancestors of the Polynesians back to a group of tribes living in South China along the coast and in the river valleys about 2200 B.C. (1960a, 1962). These tribes depended upon livestock (pigs), fishing, shell fishing, and garden agriculture for a livelihood. They were well adapted to their environment as sailors and spoke dialects of a common language, Malayo-Polynesian. Physically these people were a stabilized admixture of an old Asian Caucasoid stock with elements of Mongoloid and Oceanic Negro. The development of the Chinese state (Hsia and Shang dynasties) put pressure on them, causing them to take to the sea to find a home on the offshore islands or to move down the coast a few miles at a time. Gradually, in this fashion, the Malayo-Polynesians passed from the mainland of Asia into the Pacific. The archaeological records of the islands of the western Pacific indicate that the main route followed by the Malayo-Polynesians was through the Philippine Islands and then south into Melanesia and Papua. Distinctive Polynesian types of artifacts, such as tanged and stepped adzes, tapa-cloth beaters, and fighting clubs permit us to trace this route in general terms, although in the current state of archaeological knowledge precision is impossible.

By A.D. 1000 at a minimum, the Melanesian islands of Fiji and New Caledonia, on the fringe of the Polynesian triangle, were occupied by Malayo-Polynesians. Possibly by 750 B.C., the inhabitants of Fiji had explored the sea to the east and discovered the islands known today as the Tongan and Samoan groups. These islands were subsequently occupied, and it is at this point that the ancestors of the modern Polynesians branched from their parent stock, which was of course already considerably ramified as a result of the continual movements through the islands of the western Pacific.

The settlers of Western Polynesia did not remain long in their new-found homes, however, as restless splinter groups soon began to search in the sunrise for lands farther to the east, discovering some of the islands of Eastern Polynesia. The Marquesas were settled by the second century B.C. and Tahiti was undoubtedly settled by approximately the same date, if not somewhat earlier. From these two major "seedings" within the eastern half of the Polynesian triangle, the occupation of the other islands in that area was accomplished. The population of the Marquesas grew rapidly, and soon the canoes were heading off again into the unknown, carrying Marquesan explorers to settle Easter Island, Mangareva, and the eastern islands of the Tuamotu Archipelago.

Colonization parties crossed the 2,200-mile stretch of open sea between Tahiti and Hawaii by A.D. 100. Others reached New Zealand, far to the southwest, at the end of the first millennium after Christ, while still others discovered the Austral Islands and settled the western Tuamotu Archipelago. This process of island jumping along the major archipelagoes of Eastern Polynesia was probably still going on when the Europeans sailed into the Pacific from the west coast of South America in the sixteenth century.

In this fashion, the Polynesians managed to occupy all the habitable islands of the Polynesian triangle and visit those that could not support human life. Perhaps the most remarkable thing about the entire migration is the relative speed with which it took place, despite the fact that the Polynesians were obviously not particularly interested in making a quick crossing. Between approximately 1800 and 200 B.C. the greatest part of the Pacific had been spanned by the swift-sailing double canoes, while the contemporary cultures of the Mediterranean and Near East were still regarding as major undertakings their relatively short voyages along the coasts of the Mediterranean and the Indian Ocean (Suggs, 1960a, pp. 226-227).

Thor Heyerdahl is not the only contemporary scholar who has raised an issue from the past for re-examination. Almost all the premises that have underlain previous theories have recently been discussed anew, often with equally inconclusive results. Andrew Sharp, for example, resurrected the question of Polynesian navigational abilities in a book expounding his belief that the islands were settled almost entirely by accidental voyages (1957). He accepted the probability that short, deliberate voyages were eventually made within local island groups, but only after courses had been discovered by accidental voyages. Polynesian navigators would have been helpless to counteract the unknown set and drift caused by ocean currents, Sharp maintained,

and would have been unable to reorient themselves after a storm. At best the stars would have been of assistance in gauging latitude, but they would have been of no help in determining longitude. If the Polynesians had made deliberate voyages, he insisted, there would not be such uneven distributions of food plants, pigs or rats, nor would the difference between Western and Eastern (that is, marginal central) Polynesian languages and culture be so clear. Sharp's views have been debated pro and con, in some quarters as zealously as the *Kon-Tiki* theory.

Captain Brett Hilder, an experienced European navigator who had spent many years in the Pacific, placed himself in 99 percent agreement with Sharp. "In considering the question of what forms of navigation were possibly used by the Polynesians," he wrote, "it is quite unrealistic to assume that their small and scattered communities could, without mathematics and written records, without sundials, clocks, charts, magnetic needles, astrolabes or sextants of any kind, achieve a better system of navigation than the combined civilisations of Christiandom and Islam in the year 1500" (1962).

A. P. Vayda (1959) attempted to test some of the implications of Sharp's thesis by re-examining cultural distributions in Western and Eastern Polynesia. Why, he asks, was the distinctiveness between the two areas not obliterated by accidental voyaging between the two areas? Sharp's answer had been that "no one lot of new arrivals would have sufficient impact to dominate the existing culture or language, but would be absorbed" (p. 71). This is probably quite true on the large volcanic islands, Vayda admitted, but what about the small atolls? The population on them is not very large to begin with, and hurricanes, drought, or other natural disasters can decimate it. One would therefore expect that on the central atolls the distribution of east-west traits would be about equal, while on the high islands the traits would be predominantly east or west. He tested this hypothesis using the traits listed by Burrows in his trait distribution study (1938), and found that with the single exception of Niue, the expectations were realized. In the coral atolls of the Tokelaus, the Ellice Islands, and the Northern Cook group, there is a more nearly equal representation of western and eastern traits than in the high islands of Tonga, Samoa, the Lower Cooks, and the Society group. This finding could be interpreted as consistent with Sharp's viewpoint.

Among Sharp's major critics have been G. M. Dening, Captain G. H. Heyen, G. S. Parsonon and Robert Suggs. Dening (1962), in dis-

cussing the geographical knowledge of the Polynesians, concludes that there were a number of "contact areas" in Polynesia within which return voyages of over 1,000 miles were made, although the longest open stretches were less than 350 miles, and averaged between 150 and 230 miles. "The possibility that they were occasionally undertaken when the proper incentive was offered seems just as strong" (p. 125). Captain Heyen (1962) also believes that the possibility of deliberate voyages cannot be ruled out:

> the ancient Polynesians were expert seamen and competent coastal and inter-island navigators. For long-distance voyaging they would have been dependent upon wind and swell direction and bearings of sun and stars for directional purposes. They undoubtedly had some method of keeping a reasonably accurate dead-reckoning, and possibly some crude method of calculating or observing relative latitude and differences of latitude. Since determination of longitude depends upon time observation, it is extremely doubtful whether they had any means of computing longitude or observing differences of longitude except by visual contact with known islands (p. 71).

North-south voyaging would have been natural, and it is significant that all long-distance trips attributed to the Polynesians, either legendary or true, have been made in this fashion. The old canoes had a sea-keeping endurance of about three weeks, which would have allowed perhaps a 2,000 mile round trip. Some voyages were undoubtedly made by outcasts who would not have returned; accidental voyages were indubitably made as well; but it is possible that some canoe captains did discover new lands and returned to tell of their wanderings. Why else would tales of such voyages have been recorded?

Parsonon (1962) is more direct in his support of the opposite hypothesis, that deliberate voyaging played a considerable role in the migrations. After criticizing Sharp on his method of argument, use of evidence, inconsistencies, and unreliabilities, he offers his own theory:

> The legends suggest, more reasonably, that the Pacific was occupied at a comparatively late date and within a quite short period following a far-reaching agricultural revolution which stimulated not merely a sudden growth of population and a fierce rivalry for cultivable land but the emergence of new and more complicated social and political institutions. In this case, the movement cannot but have been very considerable, involving the migration of whole clans (p. 61).
>
> The early inhabitants of Oceania were essentially nomadic discovering islands not by chance but where birds and fish led them. The scattered archipelagoes of the Pacific were settled initially by small groups of oceanic rovers, and then, much later, by numerous deliberate colonists who, so far as a very different environment and the inescapable tendency towards cultural divergence in

virtual isolation would allow, succeeded in establishing in remote lands societies similar in most respects to those they had left behind.

The original pressure in Hawaiki having been relieved, the great migrations of the 10-13th centuries naturally soon dried up. The expansion of the Polynesians westwards, whether from eastern or western Polynesia, was in the final analysis checked at Buston's line (border of the malaria area of Melanesia).

A new burst of maritime activity in the 18th century was cut short by wasting civil wars and more especially by the appalling ravages of newly introduced diseases. The abrupt and irreversible eclipse of the canoe-maker's art and the rapid growth of foreign shipping brought to a close even the lesser voyaging of later times. The wide expanses of the Pacific were thus left at last to those whose misfortunes in tiny boats and outriggers have led theorists in Cook's day and this to underestimate the achievements of the Polynesians and the Micronesians in mastering the world's greatest sea (p. 63).

Suggs (1960a) takes Sharp to task for ignoring contradictory evidence and maintains along with Luomala (1958) that Sharp's "entire presentation of the thesis has more of the aspect of a pet notion than that of a scientifically developed theory" (Suggs, 1960a, p. 83). Suggs reviews the present state of knowledge of Polynesian navigation in the following manner:

1. The Polynesians had a well-developed technology, producing extremely seaworthy vessels of a wide size range.
2. Empirical navigation techniques were numerous, and their value, even today, cannot be arbitrarily dismissed. A dearth of scientifically recorded information, however, does not allow us to state their value objectively.
3. Definite archaeological evidence exists proving that well-provisioned expeditions occupied both Hawaii and the Marquesas. This accords with legendary evidence from all over Polynesia that not all settlements were made by chance, although some may have been.
4. Although there is evidence of a curtailment of voyaging in historic times, this has no bearing whatsoever on the state of navigation 2,000 years previous.
5. The "accidental voyage" thesis explains nothing, being applicable to any situation in the world owing to its lack of specificity. Although such voyages undoubtedly often occurred, they seldom would have resulted in permanent settlement (pp. 84-85).

A somewhat less virulent but nonetheless significant debate can also be found in the recent literature concerning the validity and usefulness of Polynesian legends and genealogies in reconstructing the region's

culture history. Ralph Piddington, a student of Malinowski's and an avowed functionalist, expressed the same doubts concerning the validity of Polynesian legends that his pioneering professor had expressed for all orally transmitted historical legends. Historical traditions should be compared not with historical documents, Piddington maintained, but with Arthurian legends (1956). That genealogies are subject to gross distortion was clearly illustrated by Dorothy Barrère (1961). She shows that during the latter part of the 19th century several writers rearranged ancient genealogies and interpolated names to bolster Biblicized traditions of the Hawaiian people. Robertson (1956, 1962) has argued that although distortions may creep into legendary material they can be compensated for by proper analytical techniques, and that such data cannot be dismissed as unworthy of serious consideration as history. He distinguishes between what he calls "factual" and "conceptual" traditions:

> Factual tradition would consist of such traditions as genealogies and detailed narrative, which purport to be true records of fact, whether valid or not, and which are capable of being analysed and compared with a view to assessment for *prima facie* validity. How satisfactory the assessment can be will depend on the quantity and the quality of the material available for analysis. Validity does not necessarily follow from consistency, but experience shows that there is a very high degree of consistency to be found over a wide range of tribal tradition, and especially as between the traditions of different groups, which cannot be fortuitous. If the consistency is not fortuitous it must be the result either of accurate recording or else of the most painstaking invention. The existence of very important and widely accepted versions which can be shown by analysis to be utterly impossible in terms of the main body of consistent tradition would rule out the latter. This consistency is most easily demonstrated in genealogies, but the close limitations of a chronology dictated by detailed analysis of the genealogies provide a stringent check on the narrative. Survey of a wide field of tradition sometimes brings to light clear historical sequences which are not always recognised in traditional concept, and this constitutes a further pointer to a general validity. Absolute validity cannot be claimed for traditional evidence any more than for other evidences of prehistory, which all depend on consistency of a pattern of some kind. In the case of very early traditions it must inevitably happen that frequently there is little material for analysis and comparison. In such a case continuity with subsequent tradition which can be shown to have *prima facie* validity must be a strong point in favour of its acceptance, and on the other hand, isolation in context calls for extreme caution. Authentic tradition has by long custom been defined as that which has been transmitted by the trained experts. As a general rule experience teaches that such tradition will stand the test of severe analysis, but it is not safe to assume validity without detailed analysis in every case.
>
> Traditional concept is more difficult to define. It tends to be expressed in gen-

eral terms which are not amenable to direct analysis. To a large extent it would be in the nature of interpretation of factual tradition. It could be expected to tend towards enhancement of prestige. It could easily be the cause of transfer of factual tradition into a wrong context, and it could as easily be the origin of false factual tradition. There is little doubt that some Pakeha [European or Caucasion] theories have come to be accepted as traditional concepts by both Pakeha and Maori. All these strictures notwithstanding, traditional concepts are not necessarily erroneous (pp. 293-294).

Robertson concludes his evaluation on the following note:

> There is no doubt that factual tradition has been so overlaid with concepts and theories that it is possible only by careful study and comparative analysis to ascertain what is authentic factual tradition and what is theory. It would be well if the theories evolved by the pioneers in the study of tribal tradition, based generally on a much narrower field of recorded material than is now available, could be forgotten while a fresh approach is made. In the past the approach has been made from the remote past to the present. Much more profit is to be expected from an approach in the reverse direction, namely from what is known of the recent past back towards the more nebulous remote past (p. 308).

Robert Suggs (1960b), in a critical review of the use of historical traditions, asserts that "More often than not traditional evidence has been seized upon quite uncritically to support shaky hypotheses" (p. 771). For appropriate usage consideration must be given to the manner in which the material was collected. Sound comparative studies of form and content, including legends not only from Polynesia, but Micronesia, Melanesia, and Papua, are also called for. "Traditions are apparently most valuable when they are thought of as providing a body of general data which can be used in a positive fashion," Suggs suggests, "as a kind of palaeo-ethnology for the culture in question, to aid in the interpretation of the cold facts and sequences of archaeology and to facilitate the ultimate reconstruction of the subject culture's prehistory. There is good reason to believe that Polynesian historical traditions concerning the origin of island settling parties may often be reliable" (pp. 771-772). Concerning genealogies Suggs points out that, when compared with radiocarbon dates, genealogical dating has generally been found to be unreliable, with errors of as much as one thousand to two thousand years. He concludes his discussion with the statement that "Polynesian historical traditions can no longer form the sole basis for prehistoric reconstructions as they did in the past, but they still constitute a valid source of evidence which, when properly used, will contribute substantially to prehistoric studies" (p. 772).

NEW TECHNIQUES

In recent years new techniques in linguistics, physical anthropology, ethnobotany, and archaeology have kindled the flame of interest in Polynesian culture history to a peak intensity. In linguistics, two main approaches have been developed that promise to yield results of a more compelling nature than were obtained by earlier *ad hoc* philological comparisons. The first is based upon the analysis of phonological, lexical, and grammatical innovations shared exclusively by a few languages; the second is based upon calculations of sameness and differentness, particularly of vocabularies, between pairs of languages within the same family. The goal, as it has been put by Bruce Biggs, "is to postulate a sequence of linguistic splits that will account for the similarities and differences found among the contemporary daughter languages of now extinct proto-languages, themselves descendants of proto-Austronesian. The solution to such a problem may be displayed in the form of a family tree" (1965, p. 8). The main proponent of the first approach to this goal has been George Grace. In a monograph aimed at determining the position of the Polynesian languages within the Austronesian language family (1959), Grace concludes that Polynesian is most closely associated with Rotuman and Fijian, and "that Rotuman, Fijian, and the Polynesian languages have passed through a period of common history apart from all the remaining languages of the Austronesian family" (p. 65). These languages are part of a grouping he terms "Eastern Austronesian," which represents a unity "as opposed to all other Austronesian languages for which sufficiently extensive comparative studies exist" (p. 65). Included in this grouping are nineteen subgroups encompassing most of the languages in Micronesia, Polynesia, Melanesia, and New Guinea (1955). Isidore Dyen (1965) has taken the second approach to the problem of subgroupings within the Austronesian language group. He compared basic vocabulary lists of 371 languages and dialects (requiring some 7,000,000 decisions as to cognacy or otherwise of word pairs), and with computer assistance over 68,000 cognate percentages between pairs of languages were calculated. The resulting groupings overlapped only partly with those postulated by Grace. On the basis of his findings Dyen rejects Grace's category of Eastern Austronesian, stating that this grouping "contains many languages and groups of languages that are independent and cannot be united by lexico-statistical argument" (p. 80). Based on the

discovery that Melanesia represents the area of greatest linguistic diversity, Dyen suggests that the Malayo-Polynesians may not have spread out from western Indonesia, but rather from the Melanesian-New Guinea area. The New Hebrides, in Dyen's opinion, are the most likely origin point of the subgroup that contains Polynesian (along with Rotuman, Fijian, and several languages of the southeast Solomons and the central New Hebrides). A Melanesian point of origin for Polynesian languages is also proposed by Biggs (1965). After reviewing the literature he concludes with this statement:

> One thing is clear. Polynesia's close relatives are all to be found in eastern Melanesia. There is no linguistic evidence for a direct migration from anywhere further west. As far as language goes Polynesia is a branch of Melanesia (p. 11).

Within Polynesia itself there have been several recent attempts to define subgroupings and to plot genetic relations between languages. Samuel Elbert (1953), using glottochronology, a lexicostatistical technique which presumes a relatively constant rate of change between languages which have separated from a parent language, concluded that pre-Tongan was the first language to branch off from a parent proto-Polynesian language. Pre-Samoan split off next, followed by Kapingamarangi and the languages of Eastern Polynesia (including New Zealand). From an older form of Tongan came the languages of Futuna, Uvea, Niue, and modern Tonga. Early Samoan produced the languages of Tikopia, Ellice, and modern Samoa. Elbert's analysis confirmed the existence of a schism between Western and Eastern (that is, Central-Marginal) Polynesian. Other contributions have been made by Pawley, Emory, and Green. Pawley (1966), using comparative morphology, makes the claim that all the well-described Polynesian languages spoken within the Polynesian triangle apart from Tongan, Niuean, and possibly Uvean, belong to a single subgroup which he terms "Nuclear Polynesian." Tongan and Niue are regarded as comprising a second major subgroup, co-ordinate with Nuclear Polynesian, and called "Tongic" by Pawley. Nuclear Polynesian can be subdivided into "Eastern Polynesian" and "Samoic." There is therefore considerable agreement between the results achieved by Pawley on morphological grounds and those obtained by Elbert using lexicostatistics. Emory (1963), using total vocabularies and modified lexicostatistical procedures, suggested that Easter Island was colonized from the Marquesas, that Hawaiian derives both from Tahiti and the Marquesas, and that New Zealand Maori stems from the Eastern Polynesian homeland either in Tahiti or the

Marquesas with a stopover in the Cook Islands. Green (1966) uses a combination of linguistic techniques, including an analysis of shared innovations and lexicostatistics. An archaeologist, he also is concerned with the relationship between the linguistic data and those obtained by archaeology. He concludes that the major cultural differences between Eastern and Western Polynesia are not fundamental to an understanding of the sequence of settlement so much as they are "a reflection of the extensive nature of contact that obtained both with Melanesia and within the West Polynesia area versus the more restricted nature of such contact in East Polynesia" (p. 33).

The position of the Polynesian Outliers (Tikopia, Kapingamarangi, Nukuoro, Rennell) is still a matter of controversy. Thus Capell (1962) maintains that the Outliers represent colonies left behind during the eastward movements of the Polynesians and are therefore actually older than either Western or Eastern Polynesian. His views are shared by Marshall (1956), although most recent theorists have interpreted the evidence to indicate that the Outliers represent a westward "backwash" from Polynesia proper.

In physical anthropology the use of blood groups as a means of classifying genetic connections has been applied to the Polynesian problem. Initially the results lent what appeared to be strong support to Heyerdahl's thesis. Thus Graydon (1952), upon examining the known distribution of ABO, MN, and Rh blood types to mid-1951, concluded that Polynesians are clearly closer to American Indians than either the Melanesians or Micronesians; and Mourant (1954) wrote:

> Observations on the *ABO, MNS and Rh* blood group systems are all consistent with the theory of Heyerdahl. The results of tests for the other blood group systems in America are not sufficiently uniform to allow detailed comparison with the Polynesians The Maori and North American Indians agree in showing very high frequencies of tasters of phenylthiocarbamide, but while the Maori have a rather high frequency of non-secretors of *ABH*, the American Indians have a high frequency of secretors. Thus it may be said that a large part of the genetic constitution of the Polynesians can be accounted for on a basis of an American, and especially a north-west American origin, but there must have been a considerable amount of mixing with other peoples, presumably the islanders to the west, to account for the *MNS* and secretion frequencies. Even if the hypothesis of migrations from America to Polynesia should prove untenable there would still be a strong suggestion that Polynesians and North American Indians had in the not very distant past received many genes from a common pool (pp. 146-147).

But more recently Simmons (1962), summarizing his own work and that of his associates, has painted a more complex picture:

blood grouping data show that all unmixed Polynesians to-day are basically of the same stock. Contributions to this stock have undoubtedly come from the west (Tonga and Samoa), the north-west (Indonesia) and the east (South America) to form a common gene pool and a different physical type. The original numbers were few and came (as others have said) in canoes, often at the mercy of wind and current. Just as we have shown that in isolated areas, for example New Guinea human types evolve with slightly different characteristics such as skin colour and an occasional gene mutation, so a blood pattern in one area differs slightly from those in isolation over the next mountain range, or in the adjacent inaccessible valley, or deep in the rain-forest. The variations in blood group frequencies we have shown in Polynesia from island population to island population, reflects again the results of small numbers breeding in isolation as in New Guinea, and in other parts of the world. It could be that the original limited numbers, or basic stock of men and women from the west or north-west lacked by chance the glood group B, and this nucleus with additions from the east (South America) also lacking B, but rich in the Rh genes R^2 (*cDE*) and *M*, increased in numbers and covered most of Polynesia. Group B was then only introduced in marginal areas, when numbers became sufficiently great many centuries later for the interchange of visits, mostly with Melanesians and Micronesians. It seems likely that the original men and women who entered Polynesia lived and bred in isolation for at least 1,000 years, dispersing to adjacent areas by design, but to distant areas by accidental voyages. Population additions from the coast of America would have represented a voyage of no-return, and these individuals made their contributions to the Polynesian way of life.

In conclusion, points of broad serological similarity may be drawn with Polynesians as follows:

American Indians:	No B, high M, high R_2, moderate Fy^a.
Australian aborigines:	No B, high A.
Melanesians:	Nil.
Micronesians:	Nil.
Indonesians:	High M.
Ainu:	Nil.

If one makes and accepts such comparisons with Polynesians, then there are four points of similarity with American Indians, two with Australian aborigines, one with Indonesians, and none with Melanesians, Micronesians, and Ainu.

If the comparisons are valid, then American Indians and Polynesians shared in a common gene pool, more so than Polynesians and other races to the west and north-west.

After 25 years of progress, we serologists have mapped most of the known blood group genes for racial groups throughout the world, and while clear-cut gene markers are known in respect to some human races, it seems clearly evident that blood group genetical studies do not tell us the racial components of the Pacific peoples or their paths of migration. I believe that the blood grouping percentage variations demonstrate the impossibility of equating a component of one racial group, with the possible component of another some thousands of miles away. If the gene frequencies as calculated do hold the clues, then posterity alone will provide the proof and the answers.

It seems evident that there were no planned migrations into Polynesia, and that the Polynesian people spread mainly by accidental voyages to all the distant Polynesian islands. Blood group serology does not prove to us who they were or from whence they came. There is then no Polynesian problem, other than that created by ourselves, for it would seem that a handful of men and women from the east and the west, and not racial groups as we know them to-day, produced the Polynesian people as a distinctive entity amongst the races of Man (pp. 208-209).

Recent research in ethnobotany demonstrates that this comparatively new field may help solve some of the puzzles of human migrations in the Pacific. For example, St. John (1962) summarized his analysis of the distribution of crop plants in the following manner:

The Polynesians had a highly developed agriculture based upon the growing of 27 species of crop plants. One, *Piper methysticum*, was a beverage plant, the others were food plants. By the known source and by phylogeny, the home land of these crops can be determined. One, *Ipomoea batatas*, is demonstrably of American origin, but in aboriginal times was carried by native people as far west as New Guinea. One was domesticated in Polynesia; three in Polynesia and adjacent Melanesia, two in Melanesia, and one in Micronesia. These central Pacific ones make 25 per cent. The great majority of them came from farther west, 7 from Malaysia, 6 from Malaysia and southeast Asia, 3 from the shores of the southwest Pacific and the Indian Oceans, and 3 from India or Ceylon. These Oriental ones total 70.4 per cent. Hence, the geographic origin of their crops implies that the people brought them from Southeast Asia.

Evidence of origin can also be found in the vernacular names used by the many tribes of aborigines. It was pointed out by S. H. Ray that the coconut, *Cocos nucifera*, was known by the name "niu," in that same or in a cognate form of the word, all the way from Madagascar to Hawaii. The same wide usage is true of the name "taro" for *Colocasia esculenta*. Others of the 27 crops have names with a wide use, but over area of less size than the whole tropical Indo-Pacific.

Since all but one of these crops are of Asiatic or Pacific origin, it would be of interest to find the route over which they were imported, that is, either through Micronesia direct to Polynesia, or through Indonesia and Melanesia to Polynesia. The aboriginal occurrence and use of the crop plants gives the best evidence. In aboriginal times, in all Micronesia 4 of the crops were missing, while in the Marshall, Gilbert, and Ellice Islands, all of which are atolls or coral islands, 11 were missing. On the other hand, all 27 were in use by the natives in all or in several parts of the East Indies. This supports the theory that Polynesians, emigrating from Southeast Asia, followed the chain of islands of the East Indies or skirted and touched them while migrating through Malaysia and Melanesia to Polynesia (p. 308).

Perhaps the main single enigma remains the sweet potato. Until a few years ago it was generally accepted that it was of American origin, therefore posing a problem for those theorists advocating a west to east migration across the Pacific. However, several scholars have recently

suggested the possibility that Oceania or Africa may prove to be the place of origin. In a symposium on "Plants and the Migration of Pacific Peoples" held at the Tenth Pacific Science Congress in 1961, three papers were offered presenting data on the sweet potato. Yen (1963), after a careful analysis of variation throughout the regions of its cultivation, concludes that the sweet potato is a single species and that an American origin seems to be strongly reaffirmed. Nishiyama's research (1963) confirms Yen's conclusions and Conklin (1963) addressing himself explicitly to a consideration of the hypotheses that the sweet potato may have been of African or Oceanic origin, rejects the possibility on the grounds of ethnoecological, historical, and lexical evidence. The problem of how it got into the Pacific and the manner and course of its distribution therefore remains unsolved.

Without doubt the most dramatic advances in accumulating evidence with a bearing on Polynesian culture history has come from archaeology. Prior to World War II there was hardly any systematic digging beneath the surface; it was assumed by many that island deposits would be too shallow for meaningful stratigraphy. This has proved to be a false presumption and the past decade has seen a tremendous proliferation of well-planned excavations throughout Polynesia, with substantial beginnings in Melanesia and Micronesia as well. The findings have been extremely encouraging. Even the atolls appear to have sufficient depth to promise significant results, as Janet Davidson's (1967) excavation of Nukuoro has demonstrated. The introduction of techniques such as radiocarbon dating is providing a sounder method of anchoring time, and methods of artifact comparison suitable to the area are being developed. The fishhook classification scheme worked out by Emory, Bonk, and Sinoto (1959) is an example. It is therefore to archaeology that most serious scholars look for dramatic new evidence. However, it is clear that an adequate theory of Polynesian origins and migrations must take into account evidence from many disciplines. Unraveling the mysteries of prehistory is indeed a team game.

It should be evident from this review that the problem of Polynesian culture history has lost none of its fascination as the result of two centuries of inquiry and speculation. What is most remarkable about this is that the game of theory has had to be played in an arena of limited possibilities, and almost all of them were clearly spelled out well over a hundred years ago. Each new bit of evidence, each new approach, has therefore had the effect of shifting the balance toward one

or the other of possible solutions rather than suggesting radically new or innovative ones. Why then the fascination, the excitement, the heat of debate? Why do some men find it worthwhile to spend their lives trying to discover how a people in the distant past found their way to the remotest corners of the globe? Would it not be more gratifying to concern ourselves with fields in which theoretical revolutions can occur? But is there any story that better illustrates the height of human endeavor and the resilience of the human spirit than the settlement of the Polynesian islands? Are not our modern astronauts the same breed of men, with different faces and speaking different tongues? I would say that they are, and that the Polynesian story takes on fresh significance with each new exploration undertaken by man. It is therefore fitting that no final resolution is likely to be forthcoming, so that each generation can continue to be intrigued by a people who overcame all obstacles to create such remarkable societies at the ends of the earth.

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