

On the Improbability of Austronesian Origins in South China

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INTRODUCTION

IN THIS PAPER I will focus on three themes, and endeavor to demonstrate their interrelationship. The first is a general review of archaeological "models," methodology of interpretation and previous success or failure of the various approaches. The second is a critical examination of the very popular hypothesis of a South China origin for the Austronesian-speaking peoples (Malayo-Polynesians), with particular reference to mainland-Taiwan relations in prehistory. Finally, I will suggest a scenario for the appearance of Early and Middle Neolithic cultures along the South China coast and in Taiwan.

THEORETICAL CONSIDERATIONS

In 1977, I published a paper in *Current Anthropology* appealing for the general use of a local evolution and continuity model in reconstructing the prehistory of South China. I should acknowledge here my debt to several Chinese archaeologists whose writings were the source of many of my ideas, notably An Zhimin, whose 1963 article on the pile-dwellings of South China consumed many hours of my time (my first effort to read archaeological Chinese!); Su Ping-chi, whose 1965 correct estimate of the age of the Ch'ing-lien-kang culture made a deep impression; and to my good friends Mo Chih of Kwangtung province and Sung Wen-hsun of Taiwan who have spent many hours discussing with me the archaeology of their areas.

These acknowledgments are necessary because I wish to claim with humility some remarkable successes for the local evolution model, and to reaffirm its great practical value. This model was deemed necessary to replace the faltering North China (Nuclear Area) origin hypothesis which had dominated Chinese archaeological thinking for the previous decades, with a few notable exceptions, and which was rapidly collapsing with new archaeological discoveries in the 1970s. The popularity now enjoyed by the hypothesis of a South China homeland for the Austronesians derives from many of the same fac-

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tors and attitudes that made the Nuclear Area concept so attractive—a proven early agricultural development in the origin area, followed by population growth and assumed pressure, leading to an “explosive expansion” of agriculturalists with their neolithic material culture into marginal areas considered only sparsely inhabited, if at all, by hunter-gatherers. This scenario has proven totally incorrect for South China, and it will, I suggest, be the same for Island Southeast Asia.

There is probably an inevitable tendency to look to an area of demonstrated early development as the source of dispersals of people and/or ideas into remoter or less favored environments. When this “center” of perceived early innovation happens to be the birthplace of later civilization, the Nuclear Area notion seems irresistible. But the archaeological work of the last 20 years in East Asia has brought to light so many other centers of technological development that there is very little marginal region left. Ten years ago, Donn Bayard (1975:75) prepared a map of “areas of progressive economy and technology c. 3500 B.C.” which showed five such areas covering about 10 percent of the Far Eastern mainland; revised today there would be several new centers and the area covered would be at least 60–70 percent. Clearly the very idea of pinpointing such centers should be abandoned, along with that of identifying the specific place of origin of individual traits such as bronze or domesticated rice.

Island Southeast Asia is one of the last major regions still considered by some to have lagged far behind the rest of the Asian world. However, one must constantly be reminded of the totally unexpected early pottery in Japan and the early agriculture in the highlands of New Guinea; the former and probably the latter dating back some 10,000 years. It seems to me highly reasonable to maintain that Island Southeast Asia was also the scene of a largely independent evolution of the Neolithic, which was not the result of any major expansion from South China.

It is instructive, and highly ironic, to find a nucleus for dispersal/expansion now being posited in South China, a region deemed not so long ago to have “had a rather simple culture and [to have been] comparatively quiet in Late Neolithic times” (Cheng 1966b:38), with an indolent, primitive, and backward population (Ho 1975:73), under the constant impact of advances occurring in the North (Chang 1977:44). Having argued for years for the importance of South China in the Neolithic, I find it strange now to be contending against the notion that it was the source of an expansion of people and culture into the islands of Southeast Asia. The archaeological evidence does, however, weigh very heavily against this hypothesis, as I attempt to demonstrate below, but of equal importance are the repeated failures of similar diffusion/migration hypotheses. To mention some of the more prominent examples, Chinese civilization was traced to an origin in the West, rice agriculture and painted pottery in Asia to North China, bronze in Yunnan and Thailand to Chou, agriculture in all of Asia to China, and the peoples of Southeast Asia to southwest China.

On the other hand, the use of a local evolution model has consistently resulted in predictions verified in the field—notably, a pre-Yangshao Corded Ware Culture in North China (Chang 1963:57; Chang, of course, used a local evolution model in the nuclear area itself), a neolithic culture based on rice cultivation on the coast of South China antecedent to Ch’ing-lien-kang (Meacham 1973:51, 1974:81), the antiquity of the Lungshano (Su 1965) and Geometric Horizons (Mo and Yang 1961:665), the early bronze industry in Thailand (Solheim 1969:135), and the autonomous development of the Neolithic and Bronze Age in North Viet Nam (assumed by most Vietnamese archaeologists since the 1950s).

Briefly stated, this local evolution model would:

focus mainly on the man-land relationships, environmental changes, previous culture history and, most important, the forces and potentialities within the Neolithic cultures themselves as the most probable stimuli of culture change. . . . Until the hypotheses and interpretations have manifestly failed to accommodate the data, speculative reconstructions positing significant diffusion or migration into the area cannot be other than ill-founded and will prove very likely to require drastic revisions with small variations in the patterns of evidence. (Meacham 1977:419)

Focusing on the lineal and genetic relationships between cultural phases in Chekiang is exactly what led Su (1965) and others (*KKHP*, 1964, No. 2) to the correct estimate of the age of Ch'ing-lien-kang. In contrast, Cheng Te-k'un (1966a:110) affirmed Ch'ing-lien-kang to "represent undoubtedly a motley mixture of all three Huangho cultures, all in the late stage of development. The culture may be considered as a Neolithic survival in the historic period." These two opinions are not simply examples of brilliant and poor judgment; the credit and fault lie partly with the models employed. Two ¹⁴C dates for this culture did require drastic revision of former attitudes, as Wu (1973:57) noted: "In the past, we supposed that the Yangtze and Huai Basin Neolithic cultures were later than those of the Central Plains. But now we realize that [the Yangtze-Huai Basin] is also a cradle of development of ancient Chinese culture."

I would beg the indulgence of readers, especially those who have heard me on this subject before, in reviewing these events of the last two decades. It is encouraging to note that continuity and local development are usually given first priority in Chinese archaeology today. To cite one minor example, the "double-f" or *kuei* pattern on Bronze Age pottery in Kwangtung, which was so long described as an imitation of bronze decoration imported from the north, is now seen (Xu 1984:66) to have been derived in the main from the earlier "angular meander" pattern on neolithic pottery in the same area.

Unfortunately, this is not the situation with regard to Island Southeast Asia. The hypothesis of an expansion of the early Austronesians from South China has gained a wide acceptance. At the conference of the Indo-Pacific Prehistory Association in January 1985 in the Philippines, archaeologists and linguists spoke of the movement of Austronesians from South China via Taiwan to Luzon in terms of "probable," "undoubted," "clear," etc. W. Solheim and I were, in his words, a minority of two! This expansion scenario is based mainly on two lines of evidence and several assumptions. The evidence is the linguistic evaluation of the Taiwan aboriginal languages as the descendants of the earliest branch of Austronesian, and the indication of a highly developed rice agriculture in South China by 5000 B.C. The assumptions are that cereal agriculture led inexorably to population growth, which in turn led to pressure, expansion, and eventual migration into the islands of Southeast Asia which were sparsely inhabited by Australoid hunter-gatherers with a Paleolithic industry. This proposed expansion from South China and its underlying assumptions seem to me untenable archaeologically, seriously flawed theoretically, and unnecessary to explain the presence of either Austronesian languages or neolithic technology in Island Southeast Asia. I would thus concur with Bellwood (1978:88) that "the earliest reconstructable 'homeland' of Austronesian languages lies somewhere in Island Southeast Asia," as opposed to Bellwood (1983, 1984) as principal archaeological exponent of the South China homeland hypothesis.

Running through most prehistories of Southeast Asia has been a constantly recurring theme—the origins of both the populations and their material culture in one part or another of China. Heine-Geldern was not the first to postulate waves of Mongoloid

migration sweeping south in the Neolithic, but his was the first system to incorporate some archaeological data. By the 1960s, the ultimate origin of the peoples of Southeast Asia in southwest China had become a textbook cliché; van Heekeren (1967) summed up the spirit of the times in his remark that “the Mesolithic tribes (of Indo-China) might have continued their foodgathering economy indefinitely if it was not for the rather explosive migration of Mongoloids from the north who introduced agriculture, stock-breeding, the new techniques of stone-polishing, pottery-manufacture, and the art of weaving” into Indo-China and finally Indonesia. Duff (1970) continued in the outmoded Heine-Geldern format by using adze types to trace a population movement from the lower Yangtze to Taiwan and the Philippines. Shutler and Marck (1975) were perhaps the first archaeologists to propose a southward migration from Taiwan based primarily on linguistic reconstructions. Bellwood relies even more heavily on linguistic data and speculation to write the prehistory of the Austronesian expansion and its early culture. Predictably, he arrives at a scenario strikingly similar in its broad outlines to the now discarded schemes of van Heekeren for Indo-China and Chang for South China—a rather sudden (in archaeological time) expansion of rice agriculturalists propelled by population pressure, bringing pottery, polished stone tools, domesticated animals, the art of weaving, etc. that “changed the whole face of the region” which had “up to 5000 B.P. been occupied by hunting and gathering societies with fairly uniform flake industries” (Bellwood 1983:77).

I shall concentrate here on Bellwood’s latest synthesis, as it appears to me the most elegant and comprehensive. Much akin to Chang’s Lungshanoid expansion hypothesis of just a decade ago, Bellwood’s draws upon data from various disciplines and disparate areas, is certainly creative and stimulating, but is I believe doomed to failure for the same reason. There is, quite simply, a much more economical and appropriate foundation on which to reconstruct the prehistory of the region—population continuity and local evolution. Not only is there insufficient evidence to sustain or even to warrant the postulation of a movement of people from South China through Taiwan to the Philippines, but there are I believe insuperable obstacles to this hypothesis in the archaeological record, which must form the basis for prehistory.

AUSTRONESIAN ORIGINS IN SOUTH CHINA

The Linguistic Evidence

At the risk of seeming hyperskeptical, I must confess to the conviction that linguistics has very little to contribute to the writing of prehistory, especially regarding population movements and cultural development. The time spans that must be bridged by extrapolation are enormous, the rates of language change are known to be highly variable, and the degree of contact or isolation of specific groups is unknown. Even with the aid of limited written records, the reconstruction of spoken forms of early languages is fraught with difficulty. Clearly, any description of “Proto-Austronesian” society must be based on conjecture, extrapolation, and assumptions which cannot be tested. While this may be a fascinating parlor game, the results are obviously of extremely limited value to the prehistorian. To cite one example, Blust (1976:28) argues that the term for iron was present in Proto-Austronesian, which he places at 7000-5000 B.P. It would seem prudent, therefore, to claim only that certain cultural traits have a considerable time depth from the linguistic perspective, not that the features of any particular prehistoric society can be set out.

Similarly, the reconstruction of probable "family trees" and genetic relationships between languages is no doubt beneficial as a taxonomic tool, but these schemes can tell us nothing about the time and place of the supposed evolution, just as archaeology tells us nothing about the language behind the material culture. It is, I would contend, impossible to make even reasonably probabilistic statements about the languages spoken in Taiwan at 500 A.D. or 500 B.C., not to mention 3000 B.C.—even if we assumed no movement into Taiwan in the last 5000 years, which of course we cannot. Was there at 1500 B.C. a uniform "Proto-Formosan" which later broke up into the present variety? Or were there already Proto-Atayal, Proto-Bunun, and other Proto languages? Glottochronology is, of course, totally discredited as a means of estimating such divergences. There are many factors which might have played a role in the linguistic diversity of Taiwan, for example, cultural diversity, isolation, fossilization, immigration, etc. A somewhat comparable situation occurs among the aboriginal Aslian languages of Malaya: a high degree of differentiation suggestive of great antiquity, and location far south of the main body of Mon-Khmer languages. But no one so far as I know has yet proposed Sumatra as the homeland of Proto-Mon-Khmer!

Obviously, there are such complex, unknown, and unknowable conditions involved that a linguistic prehistory of East Asia cannot be written. Confident conclusions such as "The Austronesian languages had their origins in the region of South China and Taiwan" (Bellwood 1983:78), or "If Taiwan was not the Austronesian homeland it was certainly settled from the adjacent coast of China [c. 5000 B.C.]" (Blust 1985), are built on layer over rarified layer of extrapolation, with correspondingly reduced credibility.

Having now incurred the wrath of perhaps every linguist, I should hasten to add that useful inferences for prehistory can be made from divergence studies. Dahl (1973:125) appears to be on much more solid ground in concluding that the Formosan languages "represent the first offshoot from the main Austronesian body." We shall leave aside discussion from this view (described in Pulleyblank 1983:436), as well as possible reservations based on the high degree of isolation of Taiwan over 6000 years. Dahl's assessment of the Formosan languages is a probable datum from linguistic analysis, which should be integrated with the evidence from archaeology in any broad interpretation. It is consistent with a local evolution hypothesis placing the Proto-Austronesians squarely in Island Southeast Asia, as we shall see.

It should also be noted that the concept of a "protolanguage" is usually framed in reductionist terms leading to a single point of origin and single language ancestor. It may thus reflect a migration bias, as Pawley and Green (1984:137) have pointed out, suggesting a network-breaking model to be employed as freely as the former radiation model. They make the strong argument that "in some cases . . . the location of the ancestral language was approximately equal to the area now occupied by all of its daughter languages."

If I may indulge in a few speculations arising from a population stability bias, the original body of "Proto-Austronesian" speakers may have been spread over a large area, may have evolved *in situ* with a very high, New Guinea-like linguistic diversity in the early stages, grading into Austroasiatic or Thai-Kadai to the north. It may only have been through a gradual process of increased mobility and communications by boat that the early diversity, perhaps preserved in Taiwan, was honed into the more uniform Proto-Malayo-Polynesian from which all of the later Pacific languages arose. The Taiwan subgroup may have been "the first offshoot" from the main body, in the sense that it is a surviving relic of the original high diversity present in Proto-Austronesian.

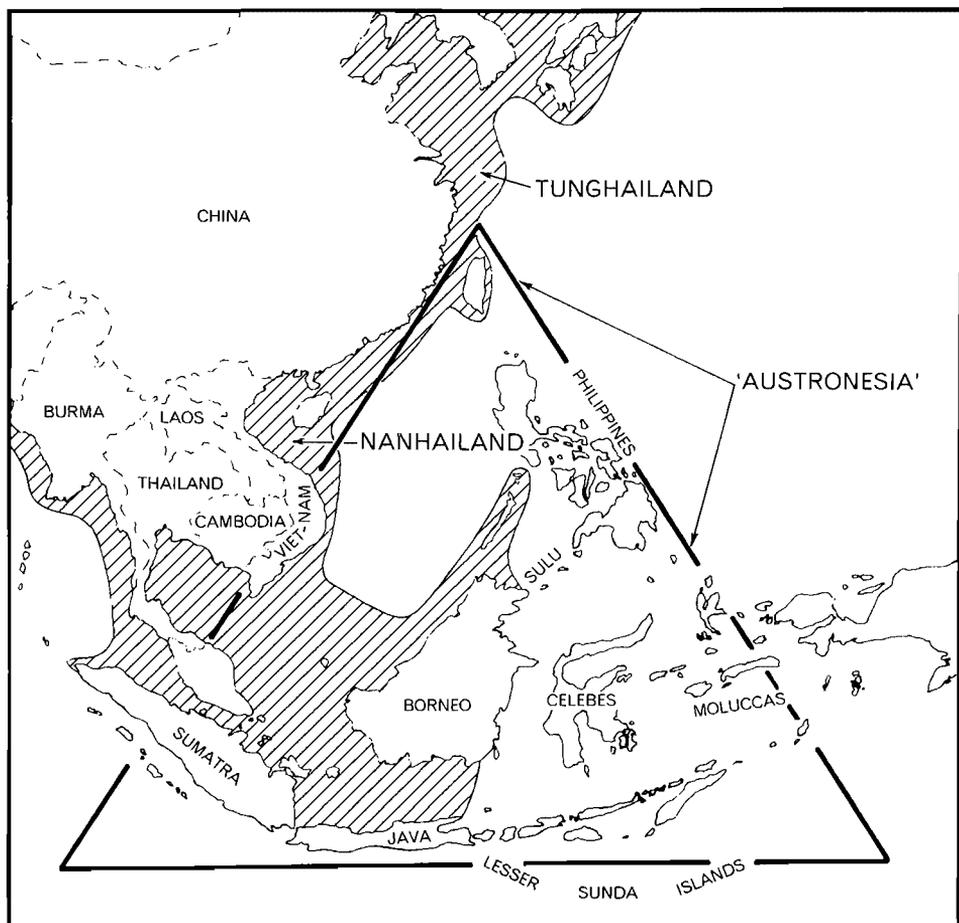


Fig. 1. "Austronesia," the proposed homeland for Austronesian, within the triangular-bounded area.

Finally, another datum from linguistics should be mentioned in this context—that the languages of the South China coast prior to sinicization (that is, prior to 200 B.C.) were probably Mon-Khmer. Studies of historical records of Yueh words and of remnant words and forms in the Min dialects (Norman and Mei 1981-1982) and in Cantonese (Hashimoto 1972) indicate that the Bronze Age Yueh spoke Mon-Khmer languages akin to Proto-Vietnamese. And among all the diverse minority languages in South China, Hainan Island, and North Viet Nam, there is no trace or remnant of the putative original body of mainland Austronesian-speakers.

In sum, there is no firm linguistic evidence that Austronesian was ever spoken in South China, or that the Formosan languages originated there. Surely it is a very strange proposition to have the original Austronesians moving south along one migration route via Taiwan, but not spreading further down the coast to Hainan and Viet Nam. Even stranger that this massive population, swollen by their successful cereal agriculture, would have been displaced from their homeland by Mon-Khmer speakers, who for some obscure reason did not reach Taiwan. The more likely place of origin of Austronesian would seem to me to be the broad triangular area formed by Taiwan, Sumatra, and

Timor, where the reputedly oldest Malayo-Polynesian languages are found and where no other languages are spoken today. I propose that we call this area "Austronesia" (Fig. 1).

The use of linguistic evidence and speculation to provide broad interpretive frameworks for the archaeological data is epitomized by Bellwood (1983:78, 80), who contends that "as far as the prehistory of the Austronesian-speaking peoples is concerned, the linguistic models are very much more important than those derived from archaeology." I, and most archaeologists I believe, would take strong issue with this, in the belief that only archaeology provides the raw material of prehistory. Inferences and hypotheses from linguistics, ethnography, history and other fields *must* be tailored to the material culture record. None of these disciplines can perceive early cultural development, migrations, or other human activity more clearly than archaeology. Quite the contrary. The models and data derived from archaeology are of much greater importance because they are firmly implanted in the time-space dimension under consideration. As a linguistic hypothesis without time and space coordinates, the Proto-Austronesian expansion from source area cannot be tested. Placed in South China at 3500–3000 B.C. or any other time, it can be rejected.

The Archaeological Record

The proposed Austronesian expansion from South China is based on population pressure. While it is true that both migration and growth of population may be difficult to detect archaeologically if they are gradual and incremental, they should nonetheless leave certain patterns of evidence. For population pressure, a high density of sites should be present, even though the latter does not prove the former. Fukien at present has no sites assignable to the period 4000–2500 B.C.; Taiwan and Kwangtung have perhaps a dozen each. In view of the substantial archaeological investigations conducted in these provinces, it seems safe to conclude that the population density was extremely low during the Middle Neolithic. At 2500–1500 B.C. all three provinces show an increase in sites, as do the contiguous regions of North Viet Nam and Luzon; a further increase throughout the region may be noted at 1500–500 B.C. Even then, however, one must note that great tracts of lowland appear to have been unoccupied. Much of this land was not farmed until well into historical times when population pressure was certainly a factor. If the Neolithic and Bronze Age inhabitants were cultivating rice throughout this region, as now seems likely, the land could have supported many times more people. The case for population pressure seems very weak indeed; in the Neolithic and indeed any period, growth and movement of populations were probably much more related to cultural factors than to any inevitable biological response to an increased cereal food supply. Cultural pressure in the form of an urge to explore, settle, and possess new territory would seem to have been the major factor in the spread of the Austronesians.

The broad northern coastal region of the South China Sea does show a cultural systems evolution from 4000 B.C. that parallels that of the Lower Yangtze, the Central Plains, and other geographical zones of the East Asian mainland. Revisions of the Lungshanoid necessitated by the radiocarbon dates have made it clear that its regional facies do not represent the expansion of rice agriculturalists into new frontiers, but rather interaction and diffusion of ideas and styles. There is no evidence of significant movement of people during the Neolithic in or through the South China coast, and much evidence of a stable population, local evolution, and often random distribution of specific cultural traits. The coastal provinces all seem to exhibit a similar cultural sequence, which I shall grossly oversimplify as follows:

Middle Neolithic	5000–2500 B.C.	painted and incised ware
Late Neolithic	2500–1500 B.C.	plain and geometric ware
Bronze Age	1500–500 B.C.	high-fired geometric ware

The Middle and Late Neolithic have yet to be clarified in Fukien, and I am extrapolating from the well-established sequences in Chekiang, Kiangsi, and Kwangtung. Taiwan has a quite different sequence, a fact on which I place great importance.

Even in its heyday, the Lungshanoid Expansion was not proposed as a “trigger” for any massive maritime movement of people into the tropics. As Chang (1969:239) observed: “Comparisons with the Philippines do not seem to show that Formosa was a steppingstone for migrations of populations and culture en masse from the southeast Chinese mainland into the Pacific areas.” These comparisons still hold true today, and I might add that it is scarcely conceivable that Taiwan itself could have been the source of a massive expansion to the south. While there are a number of shared traits in the ceramics and lithics, the neolithic cultures of Luzon are quite distinct from those of Taiwan. Only very sporadic contact and limited trait movement can be supported on the present evidence.

It is clear that Taiwan occupies a unique and highly important position in the question of Austronesian origins. Its relationship with the mainland is the crucial element, and it certainly needs to be reassessed in the light of new data and from the perspective of local evolution. I propose to examine in some detail the possibility of movement(s) of neolithic people or culture en masse from South China to Taiwan—the first stage of Bellwood’s Austronesian Expansion, the last stage of Chang’s former Lungshanoid scenario, and a recurrent theme in Taiwan archaeology. If such migrations cannot be upheld by the evidence, then the strong implication would be that the earliest inhabitants of the island were the direct ancestors of the present aboriginals. This is not such a radical proposition; it is really a very simple hypothesis generated from a local evolution model, but its ramifications would run against the mainstream of archaeological interpretation concerning Taiwan. I will propose that Taiwan has seen a mainly local evolution of cultures over the last 6000 years or more, that the earliest inhabitants were part of a tropical island population (as, of course, the aboriginals remain today linguistically and culturally), and that they probably did not come from the mainland. I would further propose that the single most important features of Taiwan prehistory are its local evolution of a bewildering variety of cultures and its isolation from the mainland.

Phrased differently, such an interpretation is equivalent to the probable Taiwan-Luzon relationship mentioned above, that is, only sporadic contact and limited diffusion are indicated by the evidence. There is certainly not the lock, stock, and barrel movement of material culture across the Formosa Strait that one would expect with any significant immigration and displacement or assimilation of existing population. In both major migrations that have been proposed, represented by the Lungshanoid and Yuan-shan cultures “arriving” from different areas of the mainland, the major evidence cited was the existence of specific “marker traits.” Selection of other traits, however, would indicate continuity and local evolution, with some input diffusion of the marker traits but no substantial movement of people into Taiwan. The diffusion of traits would be accomplished by the usual modes of accidental voyage, trade, raiding, marriage, etc. But I would suggest that such contact across the Strait would have been sporadic to very rare, especially after 1500 B.C. for the ensuing 3000 years.

To my mind, the pattern of isolation which is so evident in Taiwan’s later prehistory is

a dominant theme from the very beginning, with the post-Pleistocene Paleolithic Changpin culture. It has become increasingly apparent in recent years how markedly different are the Taiwan Neolithic cultures from their contemporaries on the mainland. I stress the temporal disjunction, as there are a number of traits, such as semi-lunar knives and *ting* tripods, which obviously originated on the mainland. But they appear in Taiwan in contexts so localized and so much later than their initial distribution in southeast China as to destroy effectively the notions of either a single massive movement of people onto the island or a regular, smaller scale, immigration. These lags are measured in hundreds or even thousands of years and are entirely consistent with the kind of rare and minor contact diffusion described above.

The earliest sites in Taiwan are those of the Changpin caves in the southeast. The culture is of flake and chipped pebble tools, is nonceramic, and dates from more than 15,000 to c. 4715–3250 B.C. (I shall use "c." to represent radiocarbon dates calibrated according to the Klein et al. 1982 "consensus"). By the final period of occupation, the Tapengkeng Neolithic culture was probably present on the west coast. Changpin is important in another respect: it is to my knowledge the only cave site in all of China and Indo-China to be inhabited but to show no evidence of the Neolithic *during this time span*. In Island Southeast Asia, such is the rule rather than the exception.

The earliest neolithic culture on Taiwan is Tapengkeng, but it is only found on the west coast. There are two dates, c. 4995–4540 B.C. and 1945–785 B.C., but both have been questioned, the former by Sung and the latter by Chang. It can safely be assigned to the period 4000–2500 B.C. \pm a few hundred years. The culture is clearly separated from the Early Neolithic, both in dating and in its industries, but it is equally distanced in style from the contemporaneous Middle Neolithic cultures of southeast China, notably Machia-pang and Liang-chu, in Chekiang, Chao-an near Swatow, and Sham Wan in Kwangtung, all of which have sophisticated painted pottery, elaborate vessel forms, stepped and shouldered adzes, and a variety of polished ornaments lacking in Tapenkeng. A shellmound site on Quemoy in Fukien has (questioned) dates of c. 5710–3690 B.C. but a totally different, shell-impressed pottery. One must conclude that there was no movement of people or even significant contact across Formosa Strait during the duration of Tapengkeng. We shall consider later the question of its origins.

Cultures which did obviously have some input from the mainland are those classified by Chang as "Lungshanoid" on the central and southern west coast. These were traced by Chang (1969:233) to Ch'ing-lien-kang, Liang-chu, and T'an-shih-shan origins. However, the considered opinion of most Taiwan archaeologists (Wen-hsun Sung, Chao-mei Lien, Chen-hua Cheng, personal communications 1980) is that these cultures are primarily the product of local evolution, with the intrusion of Lungshanoid traits. Li (1983:102) points out the enormous geographical and chronological gaps (1500 years) on the one hand, and the local continuity on the other. He describes the site of Kenting near Oluanpi (dated c. 2900–2155 B.C.) as "a continuing community of the previous Tapengkeng culture rather than an early Lungshanoid . . . an indigenous development rather than a new wave of immigration from the mainland."

Dewar (1977:158) describes the sequences at Niumatou near Taichung as "a clear picture of continuity of development . . . incremental development," from the lowest cultural phase c. 3010–2150 B.C., which Dewar reports to have specific Tapengkeng elements, to the late Niumatou phase. The earliest phase at Fengpitou, estimated by Chang at 2500–2000 B.C., had no painted ware and no burnished pottery, while the latest phase, termed the "Lungshanoid climax" at the site (Chang 1969:129), was dated c. 800–385

B.C.—or more than 1000 years after the Lungshanoid had disappeared from the mainland. The peak of the Yingpu black pottery culture of central Taiwan is dated to c. 1425-170 B.C., also long after the demise of the Lungshan Liang-chu culture. Similar lags may be observed between the first circulation of the marker traits (e.g., stepped adzes, elaborate painted pottery, *tou* vessels) in southeast China at around 4000-3500 B.C. and their eventual appearance in Taiwan at 2500-1500 B.C.

Migration into Taiwan can be effectively ruled out for these cultures. In the sudden wave movement postulated by Chang, one would expect a rather pure form of the parent culture in the initial settlement, with local characteristics developing well after. In the persistent, incremental migration proposed by Bellwood, one expects a more or less simultaneous appearance of traits in both areas, and a much closer relationship among contemporaneous cultures. In neither case would one expect continuities with the previous culture, or the early adoption of alien burial customs such as stone slab coffins (southwest Taiwan), and abandonment of traditional customs, e.g., canoe coffin burial dated c. 2525-1380 B.C. in Fukien. Furthermore, not only are the long-distance migrations from Chekiang extremely improbable, but significant immigration from directly across the strait would also appear most unlikely. The T'an-shih-shan culture c. 2150-905 B.C. of central Fukien has almost nothing comparable opposite it in northwest Taiwan. It has numerous differences with the "Lungshanoid" of central and southwest Taiwan, namely, high-fired ware, geometric body decoration with painted rims, very angular forms, and high *tou* pedestals.

The Taipei Basin and northwest coast regions present even more cultural discontinuity from the mainland. The Yuanshan culture (c. 2640 B.C.-215 A.D.) has no geometric pottery, no corded ware, and has vessel forms and red slipping unique to it. Its stone inventory includes stepped adzes and shouldered axes, which indicate to Sung (1979:90) contacts with Kwangtung, but the ceramics and chipped stone tools are thoroughly different. In brief, it has no close relation "anywhere in the vicinity" (Chang 1969:239). The Taipei Basin Neolithic is confused at present, with a new painted pottery culture (Chihshanyen, see Huang 1984) dated c. 2530-1900, 1765-1355, and 1690-1140 B.C., definitely contemporaneous with the Yuanshan (c. 2640-2110, 1700-1260, 1525-625 B.C.) in the same restricted area, and possibly even with a surviving remnant of Tapengkeng at c. 1945-785 just outside the Taipei Basin.

The Geometric Pottery Horizon on the mainland is now generally dated to 2500-1500 B.C. in its early, pre-bronze phase. By the end of this period, carved paddle geometric decoration is found throughout southeast China. It does not occur in Taiwan until the Fanzuyuan (from about 500 B.C.), which has a few simple motifs—a mere shadow of the elaborate patterns of even the early Geometric. Again, a lag of 1000 years or more is evident. The high-fired pottery, conventionalized patterns, and bronze of the Yueh cultures of 1500-200 B.C. do not appear at all in Taiwan, except for a few isolated bronze fragments and one projectile point in contexts estimated at 500 B.C.-100 A.D. The spread of Han civilization did not, of course, reach Taiwan at all, though it reached central Viet Nam. And, to my mind, the most extraordinary and inexplicable feature of Taiwan's isolation is the absence of Tang and Sung trade porcelains, which are found in the Pescadores, and the Ryukyus, in the Philippines in large quantity, and virtually all over Southeast Asia. Finally, the historically-known population growth and pressure after 200 B.C. in South China, with new land constantly being brought under rice cultivation and with significant movements of people, did not lead to settlement of Taiwan until the seventeenth century.

The east coast Neolithic has not yet been considered, and in a way I have saved the best for last. For this area is so markedly different from the west coast, and so completely beyond mainland influences, that it puts the finishing touches on the picture of isolation. Even more, one could make a much stronger case for movement of peoples from Luzon to eastern Taiwan during the Neolithic, since ritual features are less likely to spread by minor contact diffusion than are material traits. This incoming population could have spread to the west coast during the Iron Age, eventually subsuming whatever ethnic groups had come in earlier migrations. Naturally, I do not support this hypothesis either, for the same reason: the lines of continuity from Neolithic to Iron Age in Taiwan are much too strong. To cite one example, Tienliaoyuan in central Taiwan c. 20–450 A.D. has chipped and polished hoes, adzes, arrowheads, and semi-lunar knives; the culture there also seems to have connections with modern aboriginal groups (Tsang 1978:560). There are also marked discontinuities with Iron Age Luzon.

The southern affinities should be considered, however, as a counterweight to the “obvious” diffusion from the mainland. In the southeast, there is a megalithic Chihlin culture of stone cist coffins, stone platforms, and menhirs, dated to c. 1905–780 B.C., which has affinities with slate platform and column structures found among the Bontoc in the mountains of Northern Luzon. A separate Peinan culture with stone slab coffins is also found on the east and southwest coasts, dated to c. 1265–795 B.C., with a rich variety of polished jadeite pendants, lingling-o’s, and ceremonial weapons. Rectangular stone coffin-like boxes have also been excavated in northern Luzon. Primary and secondary jar burials are found in the east coast Iron Age, recalling the ubiquitous jar burial practice of the Late Neolithic and Metal Ages throughout the Philippines. Finally, the island of Lan Yu (Botel Tobago) off Taitung has yielded jar burials at c. 600–1155 A.D. and a double-headed nephrite pendant identical to one from Tabon and several from southern Viet Nam. The Lan Yu Yami speak a Philippine language. All of these “Luzon connections” are precisely where they might be expected by inter-island diffusion, that is along the east coast and especially in the southeast, whereas the opposite situation prevails on the west coast with its criss-crossing “Chekiang” and “Kwangtung” influences. I shall emphasize these facts and their implications in the final section.

To conclude this rather extended review, a significant cultural and ethnic frontier seems to have marked Taiwan throughout its prehistory, although it did unquestionably receive many traits from the mainland. The only early Holocene cave site yielded no Neolithic at all, elaborate painted pottery lagged by 2000 years, geometric pottery by 1500 years, bronze by 1000 years, Han Chinese settlers by 1700 years, and Taiwan is perhaps unique in all East Asia not to have Tang-Sung-Ming tradewares. I have attempted to demonstrate that not only is it rather far-fetched to graft onto the archaeological record an immigration in any particular period, but that it also runs counter to the definite pattern of isolation seen throughout Taiwan’s prehistory. On the other hand, sporadic and random contact leading to diffusion of specific traits into evolving, dynamic populations already on the island accounts for the material evidence quite adequately.

DEVELOPMENT AND POPULATION MOVEMENT IN THE EARLY/MIDDLE NEOLITHIC

Taiwan and the Austronesian question are only two of the great and manifold problems to be resolved in South China prehistory. I have focused on them here in the belief

that they hold a special significance concerning population movement, and the emergence of the Neolithic in South China vis-à-vis Island Southeast Asia.

For North China, South China, and Indo-China, a great migration during the Neolithic now seems out of the question. Within South China, each of the major geographic regions (Upper, Middle, and Lower Yangtze Basin, Southeast Coast, Yunnan-Kweichow Plateau) have evidence or reasonable indication of Pleistocene occupation, of Paleolithic to Neolithic transition, and of relatively stable populations. With Early Neolithic sites at Hsien-jen-tung (Kiangsi), Tseng-pi-yen (Kwangsi) and the Bacsonian of northern Viet Nam all dated c. 12,000-8000 B.C., along with the Earliest Jomon in Japan, it is safe to conclude that a broad circulation of specific "neolithic" culture traits and technology was occurring throughout the East Asian mainland. For the southeast coastal region, two Kwangtung cave sites at c. 14,000 and 11,000 B.C. have preceramic chipped pebble industries with a few tools showing edge polishing; other cave sites in the same province have similar deposits with pottery, and polishing over more of the surface on a few tools. The earliest open neolithic site with evidence of cultivation is of course Ho-mu-tu (c. 5310-4900 B.C. for the early settlement) in Chekiang, and different cultures are dated in North Viet Nam at Cai Beo (c. 4685-4405 B.C.) and Ha Lung (c. 5670-5050 B.C.). The most important gap in the neolithic record now is the total absence of open sites in lowland areas dating to 10,000 to 5000 B.C. Middle to Late Neolithic sequences are now firm or reasonably inferred for much of South China, and there is little evidence for wholesale movement of neolithic culture or people between major geographic, climatic, or vegetational zones.

This material culture mosaic arising from local evolution may conceal minor movements of people, and assimilations or extinctions of ethnic groups. But it would strongly indicate ethnic continuity from at least the Middle Neolithic to the Bronze Age in most areas. The logical conclusion is that the peoples of South China in recent prehistoric times were speakers of Thai-Kadai and Austroasiatic (Mon-Khmer and Miao-Yao) languages, and where they were not assimilated into Chinese civilization they survive today, represented by groups such as the Chuang and other Tai groups of Southwest China, the Li of Hainan, the Vietnamese, and the Yao of Kwangtung. As mentioned above, it seems most improbable that there could have been an extensive, ancestral stock of Austronesians which left no pocket of survivors, no evidence in the historical word lists or mention in the texts, and no remnant forms in the South Chinese dialects. These facts, coupled with the archaeological evidence against significant migration into Taiwan, point to the conclusion that the present Austronesian aboriginals there do not derive from mainland populations. Further, the evidence of continuity on Taiwan indicates descent from the neolithic Tapengkeng, who were thus Austronesians; the Yueh and their mainland neolithic ancestors were arguably Austroasiatics by the same reasoning. Two scenarios may be offered: (1) the Tapengkeng people moved onto the island from the tropics by 5000-4000 B.C., or (2) they were descended from the Pleistocene inhabitants represented by Changpin.

Both scenarios are fascinating propositions, and I would beg the indulgence of the reader in one further round of fact, reasonable inference and sheer speculation (that marvelous parlor game also played frequently by archaeologists!). These will not I trust be idle or untestable speculations, but predictions which are verifiable or falsifiable by certain new patterns of evidence. Some of that evidence is safely locked away in alluvial deposits below the South China Sea, so I doubt that any of us will be alive to see the final determi-

nation. But future excavations in Fukien, Taiwan, and Luzon will certainly provide data to clarify the issue.

Taiwan has not, of course, always been an island; it was part of the mainland during glacial periods, when sea levels were lowered by 120 m or more. Thus, it was probably linked to the mainland from 60,000 to 50,000 B.P., an island from 50,000 to 28,000 B.P. and has been an island again from 12,000 B.P. to the present (after Chappell and Thom 1977, Lin 1963). The earlier period need not concern us here; it is from the glacial maximum at 20,000 B.P. down to the present coastline formation at 6000 B.P. that important geological events were taking place which had great bearing on the island's early occupation. Taiwan is situated at or adjacent to the intersection between several pairs of important zones; for instance, Island Southeast Asia and the Asian mainland, and the Austronesian and Austroasiatic linguistic spheres. It lies also on the boundary between tropical and subtropical climates (the Tropic of Cancer bisects Taiwan), and is at the edge of the South China continental shelf. And, most importantly for our discussion, it was for nearly 20,000 years at the junction of two land masses which do not exist today.

This refers of course to the vast coastal shelf from the Gulf of Tonkin to Japan which was exposed lowland from roughly 28,000 to 8000 B.P., gradually being reduced during this period. The exposed coastal lowland was undoubtedly inhabited, however sparsely, and was probably the scene of early rice manipulation and domestication, along with the regions of South China, Indo-China, and India along the Northern Tropic (Chang, T. 1975), and quite possibly some areas of northern Sundaland (now the Gulf of Siam and the Java Sea). I propose to refer to these vast coastal plains to the north and west of Taiwan by two terms: "Nanhailand" for the region from central Viet Nam to Taiwan, and "Tunghailand" for the lowland of the East China Sea and Yellow Sea (see Fig. 1). Nanhailand was of course tropical, Tunghailand temperate. Each had between 200 and 500 km of plains at the maximum. The environment must have consisted of an enormous tidal zone, like that of southwest Borneo with its "invisible coastline," and tide-dominated delta land (such as the Mekong) with myriad channel sand and mud bars, grading into tidal mud flats and mangrove swamp, and finally into a lowland, like the Lower Yangtze Basin, of lakes, rivers, labyrinthine streams, and more swamp. This world had mostly disappeared when, at around 5000 B.C., at the edge of what was still a formidable lowland plain and tidal zone some 100 km wide, the settlement of Ho-mu-tu was established.

By 4000 B.C. in the coastal lowlands of Chekiang, Kwangtung, and probably Fukien, there appears a well-developed neolithic culture with elaborately painted ceramics, a variety of polished stone tools, rice cultivation, and domestic animals. That the marine transgression did in fact bring people off Nanhailand and onto the present coastline is most evident in Macau, Hong Kong, and Haifeng—three moderately rugged areas (extensively surveyed archaeologically) where the first sites are all at 4000 B.C. and all in the basal levels of beach dune deposits. I have suggested in detail elsewhere (Meacham 1983:151-156) how the rise of sea and flooding of the plains might have played a major role in the evolution and consolidation of neolithic cultures in the lowlands. Suffice it to say here that the period 10,000-5000 B.C., when rice domestication occurred, when ceramic and polished stone industries blossomed from Early Neolithic hunter-gatherer beginnings, when extensive sea travel by boat began, was also the time when the marine transgression was most rapid, totally reshaping the coastal environment. This is not meant to imply that sea level change has any direct causative role in these processes, but rather that it mediated and probably encouraged them by bringing on increased contacts and diffusion of ideas.

In Tung/Nanhailand, the period 8000-4000 B.C. was thus a time of neolithic consolidation. In Greater Sundaland (including Luzon, which was enlarged but not linked to Palawan-Borneo or to the Batan islands), it would appear to have been characterized more by the random and inarticulated circulation of a number of neolithic traits. To cite two examples; polished stone and shell adzes occur in Duyong cave, Palawan, in a pre-ceramic context dated c. 4850-4400 B.C., immediately overlying a layer with small flake and blade tools at c. 6525-5330 B.C.; and at Laurente cave in northern Luzon plain pottery is found in a flake tool context at c. 6220-5440 B.C. Most cave sites in the Philippines do not yield neolithic traits even at 5000-3000 B.C. (for instance, Guri cave, Palawan, with a preceramic flake and blade industry as late as c. 2910-2395 B.C.), but open sites along the coasts and in the lowlands are beginning to show a consolidated neolithic culture back to 3000 B.C. or earlier. While pottery and polished stone are obviously later than on the mainland, and the age of plant manipulation still unknown, it is a logical assumption that the development of boat technology (such as outriggers and rudders) and seafaring skills generally was much earlier in Greater Sundaland, as it broke up into island chains.

Because of its position at the juncture of Tung/Nanhailand and Greater Sundaland, Taiwan may hold important clues to the populations and culture processes of both regions. Changpin seems of great relevance here, for it shows a cave occupation with Paleolithic culture continuing well into the Holocene, like almost all caves in the Philippines but none in China. I stress this point, just as I stressed the absence of a Bronze Age and of trade porcelains at the other end of Taiwan's prehistory, for these anomalies do seem to form a definite pattern.

C. C. Lin (1963:209) reconstructs Taiwan at 20,000 B.P. as a peninsula from Nanhailand, with a major river bisecting its junction. It is probable that at the first occupation of Changpin, Taiwan was already an island with slightly wider lowland only on its western side. I would suggest that, at the beginning of marine transgression and break-up of Sundaland into archipelagoes, inter-island movements were much increased, and the entry of people into Taiwan began from the islands to the south. Of course, prior to the separation from Nanhailand, roving bands of coastal plains gatherers would have penetrated Taiwan on occasion. But such numbers as may have been "marooned" and survived on the island would have been absorbed into the population of the island world. That is, the maritime link would have proved more important in Taiwan's gradual inhabitation than such pre-separation survivors and accidental crossings.

I am making two major assumptions here: (1) that inter-island movements were taking place as early as 12,000 B.P.—a safe assumption in view of the earlier movement across Wallacea into Australia by 40,000 B.P., and the later spread from Austronesia as far as Easter Island and Madagascar; and (2) that for some environmental and/or cultural reasons, a barrier between Taiwan and the mainland came into existence in the early Holocene. The latter seems plausible in the light of the pattern of isolation through Taiwan's known prehistory. Perhaps treacherous currents made crossings difficult or unlikely for people adapted to moving across the still or slow-moving water of the plains. If the coastal Yueh, who "made their homes upon the water," could not or did not cross in strength during the Bronze Age, a somewhat lesser impediment may well have prevented the Early Neolithic Nanhailand people from doing so.

Several factors indicate to me that Taiwan was part of the tropical island world of "Austronesia" by 4000 B.C.—the aforementioned lack of Early Neolithic in the caves, the continuance of a flake and pebble Paleolithic industry at that time, its coexistence

with a fully neolithic culture in other zones, the absence of painted pottery, the evidence for horticulture but not for rice cultivation until 2500 B.C., and of course the Austronesian languages—all characteristics of the Philippines but not of southeast China. Wenhun Sung assures me (personal communication 1976, 1985) that there are no continuities between Changpin and Tapengkeng; perhaps the Tapengkeng emerged on the west coast, from an antecedent culture that will show the transition.

The forebears of Tapengkeng probably did not have pottery when they entered Taiwan, so their early ceramics, just as those of Tapengkeng itself, may be a limited and garbled reflection of those of the mainland, since only random diffusion of elements and stimulus was received. But it is in the chipped stone industry of both Tapengkeng and its possible predecessor on the west coast, and their contemporaries in northern Luzon, that the best indication of this early movement might be found. Indirect evidence should be seen in Fukien, which I predict will not yield any ceramic assemblage close to Tapengkeng; Luzon's ceramics of 5000–3000 B.C. might be closer owing to minor diffusion back along the inter-island route or to the existence there of a pre-Tapengkeng ceramic culture, but this is not the case as yet. Should a culture akin to Tapengkeng be found in Fukien, the possibility of an Austronesian salient on the mainland would be strengthened.

This initial migration into Taiwan, which I am proposing for the period 10,000–5000 B.C., would have been very limited, and would have ceased altogether in the following millennia, which would be characterized only by occasional contact and diffusion. As new territory was occupied, further immigration would be discouraged. This scenario would mesh with the linguistic datum mentioned above, that the Formosan languages are the earliest offshoot from the main body of Austronesian. Solheim (1975:112) also maintains that the earliest movement of Austronesians was from the Sulawesi-Mindanao region north to Luzon, Taiwan, and South China by 4000 B.C.

Small settlements and extensive contacts of Austronesians may, as Solheim contends, have been made along the Fukien-Kwangtung coast, later to be absorbed in the emergence of the Yueh-speaking peoples of the Late Neolithic. But it appears more likely that the mainland coastal region, with its stable rice-growing population and network of inland waterway communications, would not have offered favorable conditions for Austronesian penetration. The mainland was, like Japan and probably the Ryukyus, territory already occupied; Austronesian expansion almost invariably avoided settled areas, for example, Australia, most of New Guinea, all of Indo-China except a small salient into South Viet Nam, and the coasts of India and Africa. I find a fascinating parallel in the Austronesian occupations of Madagascar and of Taiwan, avoiding the mainland in each instance. Similarly, almost all of the islands around Australia were occupied, from the Lesser Sundas and Timor to New Zealand, but not the mainland itself. It is my belief that the early inhabitation of Taiwan was the first in a series of Austronesian movements in all directions in the search for new territory. The crossing of the 100-mile stretch of sea between the Batans and Taiwan foreshadows the later voyages across 1000 miles of open sea to reach Hawaii and Easter Island. And again, there was probably contact with, but not settlement on, the South American mainland.

Once occupied, Taiwan for some reason became increasingly separated linguistically from the mainstream of the Austronesian world. Perhaps a land adaptation weakened the former inter-island links, and Taiwan itself became *terra occupata* resistant and unappealing to new immigrants. Contacts and exchanges of ideas obviously continued, and the inter-diffusion of culture traits with Luzon seems generally more regular and patterned than

with the mainland, dominating the east coast and eventually the whole island. Finally, as the land adaptation intensified, Lan Yu may have slipped out of the domain of tribal territory. Its probable first millennium A.D. settlement by the Yami, speaking a language related to Ivatan of the Batan islands, provides a recent reflection of the earlier northward exploratory migration and occupation of Taiwan from the tropical islands to the south.

I would stress that this early migration is proposed only to account for the initial human settlement of Taiwan. All subsequent prehistory can best be interpreted in terms of local evolution, as is true not only for the East Asian mainland but for the Pacific islands as well. Even the Bismarck islands off New Guinea, supposed thoroughfare for a massive movement of Proto-Oceanic speakers, show strong lines of population continuity. Allen's (1984:192) conclusion might apply equally well to Taiwan: that there is "no indication in the range of material culture present [in archaeological sites] of large scale migration . . . at any point in the prehistory of the area," and that "the rapid spread of necessarily large numbers of Austronesian-speakers is not compatible with the known archaeological facts."

It remains, of course, a distinct possibility that the continuity of occupation in Taiwan extends much farther back into the Pleistocene. But the linguistic evidence does certainly indicate a more recent isolation of Formosan speakers, and the island-hopping necessary to have installed Austronesians in both Taiwan and Luzon seems much more likely to have had its stimulus in the early Holocene transgression and emergent archipelagic world of Island Southeast Asia, rather than in the diminishing marshes and plains of Nanhailand.

One final word on currents, unintentional migration, and diffusion. The currents in the South China Sea run north from Luzon to the Babuyan and Batan island groups then on towards Oluanpi for most of the year. While they may not have been the same in the transgression, it seems likely that, whether by accident or urge to explore new territory, those who went north of the Batans at 6000 B.C. and landed on Taiwan stood very little chance of getting back. Not, at least, until much better boats and nautical skills were developed.

On the other side of Taiwan, even more treacherous tide flows, currents, and unpredictable winds awaited canoes that failed to hug the Fukien or even south Chekiang coast. I would speculate that the Lungshanoid traits which appear in southwest Taiwan may have resulted from one-way accidental crossings. Upon landing, the material possessions of such unfortunates were probably the object of much curiosity, while their skulls quickly found a place on the rack!

In January of 1985, a French windsurfer with much experience crossing "similar" straits set sail from the Fukien coast, intending to land somewhere near Taichung. It was a clear day with slight sea and good wind. He was never found. My guess is he was blown or carried right past Fengpitou, and out to sea. The Fukien Lungshanoid strays did, at least, contribute to the development of Taiwan's Neolithic.

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