

traception with any persistence or with any significant effect on fertility.

Whether part or all of this change would have occurred had there been no IUD program is a complicated question. We hope we have established that something has happened which needs explanation, and that taking the next step in analyzing the effects of family planning programs is worthwhile.

The potential importance of the family planning programs in implementing policies of population control is recognized generally. However, much of the discussion and many policy decisions are being made without factual assessment of the operation of such programs. The data presented from the Taiwanese and Korean programs illustrate how systematic evaluation may resolve issues, or at least narrow the range of speculation.

References and Notes

1. In making this statement we assume that there is a family planning program on the mainland of China.
2. D. Kirk, "Natality in the developing countries: Recent trends and prospects," paper presented at the University of Michigan Sesquicentennial Celebration, Ann Arbor, November 1967.
3. Relatively optimistic statements appear, for example, in B. Berelson, "National family planning programs: Where we stand," paper presented at the University of Michigan Sesquicentennial Celebration, Ann Arbor, November 1967; D. Bogue, in *Alternatives for Balancing World Food Production Needs* (Iowa State Univ. Press, Ames, 1967), pp. 82-83; R. Freedman, in *Family Planning and Population Programs*, B. Berelson *et al.*, Eds. (Univ. of Chicago Press, Chicago, 1966), pp. 811-825; D. Kirk, *Annals* 369, 48 (Jan. 1967); F. Notestein, *Foreign Affairs* 1967, 167 (Oct. 1967). Less sanguine views appear in K. Davis, *Science* 158, 730 (1967); P. Hauser, *Demography* 4 (July 1967); W. Petersen, in *Asia's Population Problems*, S. Chandrasekhar, Ed. (Praeger, New York, 1967), pp. 204-205.
4. *Parity* is a technical term meaning parous condition, number of children previously borne.
5. B. Berelson and R. Freedman, *Sci. Amer.* 1964, 29 (May 1964); R. Freedman and J. Y. Takeshita, *Eugenics Quart.* 1965, 233 (1965); L. P. Chow, *Population Studies* 1965, 155 (1965).
6. S. Keeney provides an authoritative comparison of the Korean and Taiwanese programs at three different dates, in *Studies in Family Planning No. 6* (March 1965); *Studies in Family Planning No. 10* (Feb. 1966); *Studies in Family Planning No. 19* (May 1967).
7. R. Freedman and J. Muller, *Population Index* 33, 4 (Jan.-Mar. 1967).
8. S. Kuznets, "Economic aspects of fertility trends in the less developed countries," paper presented at the University of Michigan Sesquicentennial Celebration, Ann Arbor, November 1967.
9. The data presented in this section are drawn entirely from the Taiwanese study. However, partially analyzed data from the Korean national program show very similar results, so far as the analysis has gone.
10. L. P. Chow and T. C. Hsu, "Experiences with the Lippe loop in Taiwan," paper presented at the Regional Seminar of the Western Pacific Region of the International Planned Parenthood Federation, Hong Kong, 1967.
11. R. G. Potter, "Estimating births averted in a family planning program," paper presented at the University of Michigan Sesquicentennial Celebration, Ann Arbor, November 1967.
12. The support of the Ford Foundation and the Population Council in the evaluation studies is gratefully acknowledged.

China at 1000 B.C.: A Cultural Mosaic

Study of early Chinese civilization requires
the delicate details of local culture histories.

Judith M. Treistman

Thus far in sinology there have been two major contexts in which the study of prehistory and the beginnings of civilization have developed; both have tended to obscure the fragmented nature of China's cultural past. The first context is Chinese history itself, probably the most self-conscious history known from early times anywhere in the world. In its ethnocentricity Chinese documentary history is "universalistic"; the absence of relativism has meant that cultural phenomena identifiable as "Han" are applied everywhere as historical explanation. Most of our knowledge of early China comes from Han historians, from scattered references to

events and personalities, mythology, and traditions that have been selected (and at times distorted) to serve the political end of unification and justification of Han expansion. Such history should be treated much as we do colonial history of any kind: the truth must be corroborated by other evidence and the distortions must be rectified.

For example, the Han tell us of *their* China—a great and noble civilization surrounded by "barbarians." Typical of colonial historians, they deny the attributes of civilization to these barbarians, and frequently equate the "lack" of high culture with racial inferiority. Not only do the sons of Han spread agriculture and the niceties of urban life, but the racist overtones of such expansionist theories are quite explicit. The

data derivable from prehistoric skeletal materials are still meager, but recent studies by physical anthropologists indicate that the present-day distribution of Asia's heterogeneous populations has a very long history with no remarkable changes from prehistory to contemporary times (1).

The contemporary context for reconstructing China's ancient past does not differ dramatically from the historicist viewpoint just described. For example, in his syntheses of Chinese prehistory, Chang Kwang-chih (2) proposes a "nuclear area"—the plains of the Huangho—and describes the history of culture in this region from the paleolithic period through the culminating civilization of Shang-Chou.

However, this description is then stretched thin so as to cover prehistoric and early historic phenomena occurring outside of the nuclear area; it becomes, in a sense, a reversion to the technique of writing colonial history. The only difference is chronological: thus the so-called prehistoric "Lungshanoid" is conceived in terms of dynastic succession and expansion as it spreads its enlightening influence throughout China, and, in the minds of some writers, into southeast Asia as well (3). The nuclear area is a valid descriptive device, applicable to a particular sequence of events; it is not an explanation.

As anthropologists we know that the "barbarians" have cultural identity and

The author is assistant professor of anthropology and Asian studies, Cornell University, Ithaca, New York.

Table 1. Pre-Ch'in (221 B.C.) cultures in several areas of China. The chronology of several dynasties, based upon the traditional dynastic succession of the literate tradition, is as follows: Han, 206 B.C. to A.D. 220; Ch'in, 221 to 206 B.C.; Eastern Chou, 700 to 221 B.C.; Western Chou, 1027 to 221 B.C.; Shang, 1500 to 1027 B.C. This chronology masks the previous history and probable contemporaneity of the several cultures discussed. Thus the body of this table illustrates a horizontal "slice of time" within which cultural diversity is demonstrated. Before the rise of Ch'in the temporal boundaries are misleading, as, for example, in the coexistence of Shang and Chou and in the persistence of the "neolithic" peasant-village long after the emergence of bronze-age centers of civilization.

Kansu	Shensi	Hanshui	Szechwan
Shu-ching, Ssu-wa, T'ang-wang, and Hsien-tien	Western Chou	Ch'u	Shu-Pa
			Tung-shan-pa and Pao-lun-yuan Shui-kuan-yin
Ch'i-chia	K'ê-sheng-chuang neolithic	Neolithic (related to Honan-Shensi)	Szechwan neolithic

integrity. They must be understood on their own terms and in the light of their own histories. Once we can eschew the idea of the Chinese monolith as fiction created by early Chinese historians, it is probable that we can come closer to understanding the development of civilization; the genius of Chinese civilization can be viewed as the result, the product, of many cultures interacting with a heretofore unsuspected intensity (see Fig. 1).

What are these cultures? Are they archeologically recognizable and linguistically diversified, and do they correspond to historically categorized ethnic units? On the last two counts, linguistic and ethnohistoric studies remain mute; scholarly investigation has not yet begun. The information of archeology casts only a very dim light on the problem, but it illuminates sufficiently to make research in all these areas an imperative.

Only a few examples will be given here to alert the nonspecialist to the scope of the problem of interpreting Chinese archeology (4).

The Problem of the "Proto-Chou"

One of the most tantalizing but most difficult questions of Chinese culture history is that of the origins of the Chou people. Who were they, where did they come from, what was the nature of the Chou indigenous culture, and what caused them to move from their homeland into the recognized territory of the Shang kingdom? Although generations of scholars have attempted solutions, these questions remain basically unanswered. Archeology has been surprisingly unhelpful; unless a pot is found to be wearing a label "read me, I am Western Chou: 1027-770 B.C."

the historians are not happy; yet as anthropologists, we continue to look for a "proto-Chou" cultural manifestation.

Using one of the most reasonable of the suggested solutions to the problem of Chou origins (5), we can fill out somewhat our archeological expectations, and perhaps reevaluate some of the ethnohistoric evidence. This hypothesis generally conceives of the Chou as one of the many oasis peoples of Central Asia, subsisting in favorable environmental circumstances by the practice of a mixed (farming and stock-breeding) economy. In view of the fact that the Chou probably "conquered" some 50 "city-states" before attacking Shang, it is beneficial to envision Chou expansion as part of the very widespread unrest and movement that took place in Eurasia about 1000 B.C. Even if it is not possible to identify the early Chou, we can expect resemblances to the other "Ch'iang"—tribal groups in the northwest—with which the Chou necessarily allied as they moved eastward along the path of least resistance to eventual confrontation with Shang. We do have some archeological information about the Ch'iang.

From the site of K'ê-sheng-chuang (6), for example, there is an established chronological sequence, leading from "neolithic," to Ch'i-chia (discussed below), to Western Chou, Chankuo, and Han. K'ê-sheng-chuang is near Sian, in Shensi province, and approximates the site of the suspected Western Chou capital, Feng. The pre-Ch'i-chia occupation is most interesting because of its pit houses, sometimes built with tamped earth walls and connecting passageways, and its large refuse or storage pits—some 4 feet (1.2 meters) in diameter—in which were found human burials. The people of K'ê-sheng-chuang were agricultural, raising millet, the primary do-

mesticate of northern China, which they cultivated with stone and bone hoes and reaped with stone and shell sickles. They also kept a variety of domesticated animals, among which pigs were most important. Cattle, dogs, and sheep were raised, and products of fishing and hunting rounded out the diet. The artifacts suggest some contact with the so-called Lungshan of Honan, but there are also objects indicative of contact with the Kansu bronze-age cultures. These latter include bronze hairpins inlaid with turquoise and small winged arrowheads.

Indeed, the sites of Kansu province, the upper Weishui and T'aoho valleys, are instructive regarding the "proto-Chou." The chronologically ordered sites of Ch'i-chia, Hsien-tien, T'ang-wang, Ssu-wa, and Shu-ching present a picture of a movement of rather poorly adapted farmers toward dependence on animals (7). There is the now familiar association of frequent use of metals and increased mobility. Real "village" sites become scarce and the burial is the sole archeological unit. In the early phases there is substantial evidence of millet cultivation, but again accompanied by a wide range of domesticated animals. In addition there is an indication of hemp-growing; there are copper ornaments, and what the Chinese excavators describe as "religious constructions": circles of small stones and "sacrificial" deposits of animal bones, that may very well be tent circles and associated refuse dumps. The pottery of the time is predominantly cord-marked, and the most distinctive (and portable) shape is the double loop-handled vessel. Later pottery is more frequently painted; the curvilinear designs are free-wheeling and bold, totally unlike anything known from the neolithic of northern China. Bronze and copper were used for buttons, arrowheads, and knives. Cremation was frequent, although red ocher burials also occurred; when habitation sites are found, they are on high terrace remnants, defensively protected by deep ravines.

Moving further into historical times, a dozen or more local styles or lesser traditions can be distinguished, but these will not be elaborated here. The point to be emphasized is that before 1000 B.C. the area was well populated, probably by Ch'iang—including the proto-Chou—and certainly was in contact with the steppelands of central Asia, the Ordos region, and probably the northern forest zone as well.

The Ch'ü-chia-ling Complex

Another example of the local development toward civilization, largely independent of the northern Chinese sphere of influence, is the Ch'ü-chia-ling complex of the Hanshui valley in central Hupei and northern Hunan (8). The Ch'ü-chia-ling is distinctive because of the established dependence on paddy-rice cultivation and because of its unique "style," reflected in pottery, burial customs, and tools. Almost 100 sites are typologically subsumed by this "culture," although there are clear stratigraphic indications of early and late phases.

The earlier phase is marked by a well-developed small village complex with an all-purpose stone-tool kit adapted to simple millet farming, hunting, and the raising of domesticated pigs. It appears to be related in direct ways to the Honan-Shensi neolithic (Pan-p'o and Miao-ti-kuo) and to persist for a long time as a moderately successful and suitable adaptation to the riverine valley conditions. Then, before the first millennium B.C., a new way of life emerges, one that is based on rice agriculture. It is this later phase which is called Ch'ü-chia-ling. The pottery includes the horizon-marker, which is wheel-made "painted eggshell ware," in addition to some geometric stamped ware, apparently made in imitation of bronze decorative patterns, and cord-marked cooking vessels. There are a large number of realistically modeled pottery figurines, including representations of dogs, ducks, geese, turtles and fish, sheep (of a domesticated curled-horn variety actually found in the refuse heap of a nearby site); numerous net-sinkers and hooks demonstrate the importance of fishing for subsistence. The sites are large (some reported as 40,000 square meters) and generally located on the gentle slopes of hills abutting small rivers. Funeral customs include urn-burial for children (one with deer antler and one with pig bones) and adult inhumation. Two-roomed houses had burnt-clay floors and plastered walls; there were also large storage pits.

From the plastered walls archeologists retrieved the impressions of stalks and chaff of *tao* paddy-rice. This is the first evidence of rice in China. [The earliest rice yet identified archeologically comes from India, where it was found at Navdatoli (9) and dated at about 2000 B.C.] However, no matter where the center of dispersal for rice



Fig. 1. Location of major groups mentioned in text.

cultivation was, this discovery substantiates an early interchange between the regions of southeast Asia and the inhabitants of the Yangtze river valley. When the idea of rice cultivation reached the Hanshui valley it was received by an agriculturally oriented people who were able to experiment and explore its potential exploitation. It is probable that rice cultivation moved rapidly from the Hanshui region to the Yangtze delta and along the coast of southeast China. The mound-dwelling terrace-builders who have been called the "Hard Geometric Pottery" people—but who more likely were the Yüeh—brought this innovation to its climax and may have been responsible for later transmitting it to Japan (about 300 B.C.) and reintroducing it into southeast Asian centers.

As for the Ch'ü-chia-ling complex itself, historical records probably include these people among the *Miao-mên*, barbarians of the south, but they perhaps represent the cultural crystallization only somewhat later to be known as the kingdom of Ch'u. This latter florescence was possibly based on the introduction of iron—a necessary innovation before the Yangtze valley could be successfully cleared for cultivation.

If by 700 B.C. Ch'u had gained such momentum as to call into being a "league" of resistance in the north-central plains, if it is characterized by a pictorial script that is largely unrelated to the traditional script of China, if its stylistic development—pottery, bronze and lacquer—is so unique, so exuberantly different, then it seems fitting to look backward in order to perceive the origins of Ch'u. It is possible to suggest Ch'ü-chia-ling as a

historic candidate, and to think of Ch'ü-chia-ling relations with Shang (and perhaps Chou) in terms of economic and cultural exchange rather than simple colonial expansion on the part of the northern civilizations. It may even be suggested that, in the absence of any evidence for Shang rice agriculture, Ch'ü-chia-ling was an exporter of this commodity; again, this is a commercial relationship, and not expressive of migration or expansion.

The Shu and Pa Peoples of Szechwan

A final example of the apparent diversity represented by civilizational developments in early China comes from the southwest (10). Information gathered during the last 10 years concerns the unique character of the bronze age of Szechwan and the emergence of the "state" of Shu, a state that in all probability consisted of numerous ethnic units joined in a loose confederacy dominated by one group that could afford luxury products—bronzes, lacquers, and jades—and possibly imported the artisans as well as their manufactures. The stylistic affinities of these objects are not with the northern "nuclear" region, but are in large part with Ch'u and with Western Chou, the latter a reminder that "Chou" expansion was not simply directed toward the absorption of Shang but was based in the indigenous cultures of the western regions.

There is still very little known about the early Shu, although both legendary and archeological evidence make it seem unlikely that they were committed to a farming economy. The most recent archeology of Szechwan has revealed a geographically diverse and chronologically layered picture. During prehistoric times, that is, before 1000 B.C., the Yangtze river and the densely wooded mountains of the province may have represented too great a challenge to primitive technology; permanent settlements based on agricultural production may have been impossible. Settlements were primarily on the terraces of smaller streams, tributaries of the Yangtze. Cemeteries were sometimes associated with the sites, and there is sufficient depth of occupational debris to indicate semi- or even fully sedentary settlement. There is strong evidence to suggest that these settlements were economically dependent on fish and other riverine produce; huge accumu-

lations of fish bones, net-sinkers, and shell middens are found at most sites. There is no botanical or artifactual evidence for agriculture, although a casual cereal cultivation may have taken place in the uplands. In the western mountain region there is at least one find of yak bones associated with sickle blades.

Superimposed on this "layer" there is a cultural horizon having a metallurgy that was probably local in origin (forms and styles were not directly derived from the northern nuclear region), burial customs that are distinctly non-Chinese, including pit-burials, "boat-shaped" coffin burials, and a platform-mound burial complex, and a unique pictographic script. At least one site, Shui-kuan-yin, shows continuity from the earlier local culture: "neolithic" pottery appeared with bronze implements in the upper levels of an otherwise neolithic-type site. The bronzes are frequently very similar to pieces found at the early Shang city of Chengchou in Shensi province (Ehrlig phase), although an impressive hoard of bronzes discovered in Penghsien combined late Shang traits with items of obvious local manufacture. Other scattered finds of bronzes in the Chengtu region, Szechwan, include several pieces with the "tiger" motif, possibly related to the White Tiger that plays such an important part in the legends of Szechwan tribal unification.

In the Chungking region there are several significant sites and discoveries which evidence the prehistory or early history of Pa people (11). The cemeteries found at Tung-shan-pa and at Pao-lun-yuan included 70 burials which can be chronologically ordered by the presence or absence of bronze and iron implements and by changing pottery styles. Many of the burials are found in narrow pits that retain evidence of wooden "boat-shaped" coffins. They are tentatively dated 400 to 300 B.C., while rectangular pit burials are probably post-Ch'in. Even where bronze implements seem derivative in style they are frequently inscribed in the indigenous Shu script. Additionally, there are styles, such as the round-bladed *yüeh* (axes) and perforated leaf-shaped swords, which are distinctly local in design.

The first appearance of bronze in Szechwan is almost certainly an importation. The cultural demand for such luxuries may connote the increasing

differentiation of the ethnic groups later to amalgamate under Shu domination. By 500 to 300 B.C. we can assume a full-fledged bronze-age culture in which the peoples of the Chengtu plain participated, although the nature of this participation is not certain. During this period sites were situated on the well-watered plain itself, perhaps indicating an intensified attempt at agriculture. Legendary evidence (Pieh Ling, supposedly a man of Ch'u, defeated one of the early Shu kings and usurped his position) need not be interpreted as representing the actual movement of peoples from east to west, but rather may indicate the westward expansion of the agricultural innovation which was adopted by indigenous peoples wherever environmentally feasible and advantageous. The legend which ascribes to the engineer Li Ping the introduction of irrigation into Szechwan may in fact describe experimentation with the new cultivation techniques characteristic of this period.

There is as yet no archeological evidence to support any claims for the existence of feudal or slave society based on colonization by northerners in pre-Ch'in Szechwan; thus an indigenous social stratification must be posed. Its economic context is not well understood, but perhaps a clue can be found in the newly discovered script of Shu (12). The development of written notation, even under conditions of stimulus diffusion, is significant in that it may represent the commercial nature of Shu contact with other states and tribes. Located at a prime source of salt and historically known deposits of tin, it is not beyond reason that Shu chieftans were already exploiting these resources and the peoples who worked them. This is not a land-based feudal relationship, but might serve to explain the ability of Shu to raise troops in aid of Chou. We do not know how regular this trade was, nor its substance. Perhaps nothing that took root in Szechwan itself was brought into the area, but certainly there must have been new ideas which spread all over the southwest, bearing fruit in the Hanshui region and even in Yunnan (see Table 1).

Conclusions

Because current archeology in China is being carried on in a nonanthropological framework, it is extremely risky

to formulate problems in terms of anthropological concepts and attitudes. Questions emerging from the artifactual data, for example, naturally lead the anthropological archeologist to inquire into problems of ecological setting and variability, the processes of culture contact and acculturation and those behavioral complexes that may be inferred from patterns of community settlement and technological "levels." However, in almost all cases, it is impossible to proceed to these kinds of analyses because of insufficient or unavailable information. If the original investigators have not asked the appropriate questions it is likely that the critical evidence is missing. More importantly, if the evidence of prehistoric and early historic China is to have social scientific significance, it is in the dimension of comparative studies of such phenomena as urbanism, the emerging state, the sociology of agricultural technology and economy, and so forth, and it is precisely here that the finely sieved data of local cultural expressions can be most pertinent.

The history of the period around 1000 B.C. in the southwest of China, in the northwest, and in the Hanshui region illustrates our theme: it is a history of the "confrontation" of many cultural elements and not of the colonization of weaker or less-advanced peoples by stronger civilization. Historical inference and archeology suggest that China, at 1000 B.C., was an area of great diversity. Perhaps in this diversity, this mosaic of cultures, lies the clue to the significance of later Chinese civilization. Certainly this diversity is the proper concern of historical, linguistic, and anthropological study.

References and Notes

1. S. Sangvichieu, *J. Siam Soc.* 54, 3 (1966). See also K. A. R. Kennedy, *Man* 64, 77 (1964).
2. K. C. Chang, *Archaeology of Ancient China* (Yale Univ. Press, New Haven, Conn., 1963).
3. P. Sørensen, in *Felicitations Volumes of Southeast Asian Studies* (Siam Soc., Bangkok, Thailand, 1965), vol. 2, pp. 303-318.
4. I have omitted discussion of the culture of Tien, which has been described in several English-language articles [see M. von Dewall, *Antiquity* 41, No. 161, 8 (1967)].
5. See, for example, W. Eberhard, *A History of China* (Univ. of California, Berkeley, ed. 2, 1960), and O. Lattimore, *Inner Asian Frontiers of China* (Beacon Press, Boston, 1940).
6. *Kao Ku*, No. 5, 1 (1958); No. 3, 138 (1959).
7. *Kao Ku Hsueh Pao*, No. 2, 11 (1960).
8. *Ch'ü-chia-ling* (Science Press, Peking, 1965).
9. H. D. Sankalia, *Indian Archaeology Today* (Asia Publ. House, New York, 1962).
10. *Kao Ku*, No. 1, 62 (1958); No. 8, 404-410, 439-449 (1959).
11. *Kao Ku Tung Hsun*, No. 1, 11 (1958).
12. *Wen Wu*, No. 11, 22 (1961).