

## Eastern Asia and Oceania

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Whereas in previous years I tried to publish an annual report on each area, no matter how short, henceforth when the news and bibliography of an area is less than three pages, I shall briefly give its major items in my general sections and let the regional editor give the details in his next report, covering a period of two or three years.

The sectional reports for China and Japan are absent in this volume not because there is too little news, but too much. From Kwang-chih Chang, Regional Editor for the China Mainland, we hope to have a large China section in Volume VIII; in the meantime his contribution to *COWA Surveys and Bibliographies, Far East, Area 17, No. II, 1961*, should be referred to. We had planned complete translations of the annual *Archæologia Japonica*, with the support of the East-West Center, but a big cut in its budget made this impossible. The alternative would be to give abstracts of the articles in *Archæologia Japonica* with plates, maps, and line drawings that appeared in the original.

With this volume we begin to cover India, Pakistan, and Ceylon. The India section contains a brief report on activity in Nepal. In Part I we give the second report on archæological field work in the Ryūkyūs. For the Ryūkyūan specialists a limited number of both reports are reprinted and are obtainable from the Hong Kong University Press.

In Part II, the Special Formosa Section, edited by Kwang-chih Chang, while bound with Part I for members and subscribers, will also be obtainable in separate form, from the Hong Kong University Press.

Books for review should be sent to our Book Review editor Mr Colin Smart, Department of Anthropology, University of Hawaii, Honolulu 14, Hawaii, U.S.A. Henceforth a book review section will appear separate from the Reports but with cross references to the appropriate area or topical sections.

### EXPEDITIONS IN THE FIELD

Under the *Pacific Area Archæology Programme* six parties are in the field sponsored by different institutions in New Zealand, Hawaii and Norway—The Bishop Museum, Honolulu, in Tahiti, The University of Auckland in Western Samoa, the Canterbury Museum in the Cook Islands and the Kon Tiki Museum in the Marquesas.

A new expedition connected with the PAAP is going into the field in November 1963. Richard Shutler of the Nevada State Museum with José Garanger of the Centre National de la Recherche Scientifique is to start field survey and excavation in New Hebrides.

Field work in Southeast Asia continues to expand. Borneo, Indonesia, and Philippines are continuously active, while a second major programme starts in Thailand. The Thai-Danish Expedition completed its field work in west-central Thailand in 1962; its final reports will begin to appear in 1964. Wilhelm G. Solheim II has received a National Science Foundation grant for a field survey in northeastern Thailand; the work is done jointly with the Fine Arts Department of Thailand. This project, begun in October 1963, is being planned for three years in an effort to salvage archæologic relics in reservoir areas which will be under water when dam construction begins in 1964 and 1965. Excavation in early historic cities in Burma continues with the first C-14 dates from one of these sites presented in this volume.

#### NOTES FROM PERIODICALS AND INSTITUTIONS

##### *Andaman Islands*

Pratap Chandra Dutta has a paper on 'A trial excavation of a kitchen-midden at South Andaman' in *Wiener Völkerkundliche Mitteilungen*, 5(1962), 17-29. This site contained shell, bone, stone, iron artifacts and potsherds. It was excavated in eleven levels and in all of them pottery was found. An iron object was found on the lowest level, as well as in higher levels, and indicates that the site was recent. The crude pottery was made by coiling and decorated with incised linear designs. A brief summary of Dutta's work appeared in *Current Anthropology*, 4(4), 1963, p. 356, titled 'Recent research on kitchen-middens in the Andamans'.

##### *Indian Ocean*

'Tradewind beads once more' by W. G. N. van der Sleen appears in *Man* for August 1963, Art. No. 154, 128-129. In his brief note on glass beads found from Zanzibar to India to Indonesia the authors says that beads made in Amsterdam may be distinguished from those made in Venice by their high content of potassium compounds and little or no soda. A more detailed report on the Indian and East African beads referred to in this note is titled 'L'analisi chimica aiuta l'archeologia', *Vetro e Silicati*, 4(23), 1960, 19-24, by M. Tornati and van der Sleen.

##### *Oceania*

The TENTH PACIFIC SCIENCE CONGRESS symposium volume on *Plants and the Migrations of Pacific Peoples*, edited by Jacques Barrau, 136 pp. with illustrations, has been published by the Bishop Museum Press, Honolulu, Hawaii, U.S.A., and costs \$4.00 plus postage. It contains the following reports:

Introduction	<i>Jacques Barrau</i>
Movement of people and ideas across the Pacific	<i>George F. Carter</i>
Prehistoric voyages as agencies for Melanesian and South American plant and animal dispersal to Polynesia	<i>Thor Heyerdahl</i>

Vernacular plant names in Melanesia: Some examples from northern New Caledonia	<i>A. G. Haudricourt</i>
Proto-Melanesian plant names	<i>Ann Chowning</i>
Correlations of plant patterns and population migrations into the Australian New Guinea Highlands	<i>R. G. Robbins</i>
The role of Pandanus in the culture of the Marshall Islands	<i>Benjamin C. Stone</i>
Appendix: Marshallese cultivar index and distribution of the names by atoll	<i>Benjamin C. Stone</i>
The migration of rice from Mainland Southeast Asia into Indonesia	<i>J. E. Spencer</i>
Rice cultivation of the ancient Mariana Islanders	<i>Ichiro Yawata</i>
Sweet-potato variation and its relation to human migration in the Pacific	<i>D. E. Yen</i>
The origin of the sweet-potato plant	<i>Ichizo Nishiyama</i>
The Oceanian-African hypothesis and the sweet- potato	<i>Harold C. Conklin</i>

A second PACIFIC SCIENCE CONGRESS symposium volume put out by the Bishop Museum Press is *Man's Place in the Island Ecosystem*, edited by F. R. Fosberg. It is obtainable from the Press for \$8.00 plus postage. The papers included are:

The island ecosystem	<i>F. R. Fosberg</i>
The variety of physical environments among Pacific Islands	<i>William L. Thomas Jr</i>
The influence of the sea	<i>Phillip Helfrich and Sydney J. Townsley</i>
Nature of the land biota	<i>Elwood C. Zimmerman</i>
Biological evolution in island populations	<i>Theodosius Dobzhansky</i>
This growing second world within the world of nature	<i>Clarence J. Glacken</i>
Nature's effect on and control of man	<i>Marston Bates</i>
The effect of man on the plant world	<i>G. Mangenot</i>
Island cultures	<i>Andrew P. Vayda and Roy A. Rappaport</i>
Human influences on the ecosystems of high islands in the Tropical Pacific	<i>George P. Murdock</i>
Aspects of man's influence upon island ecosystems: alteration and control	<i>Roy A. Rappaport</i>
Nature of changes of living patterns of Pacific Island Man	<i>R. R. Nayacakalou</i>

Man's role in modifying island environments in the Southwest Pacific: with special reference to New Zealand	<i>Kenneth B. Cumberland</i>
Pressure on island environment	<i>Pierre Gourou</i>
Demographic instabilities in island ecosystems	<i>Irene B. Tauber</i>
Islands and men	<i>Oscar H. K. Spate</i>

*Man in the Pacific* is a new mimeographed publication put out by the PACIFIC SCIENCE INFORMATION CENTER, Bernice P. Bishop Museum, Honolulu, Hawaii, U.S.A. In its 'Statement of Purpose' it says: '*Man in the Pacific* is a newsletter devoted to Pacific anthropological activities. It is not a new scientific journal, but an informal and informative means of communication between persons of diverse occupations and backgrounds who work with any phase of man in Polynesia, Micronesia, Melanesia, and New Guinea. The newsletter will appear as the occasion arises rather than at regular intervals, probably two to four times per year, depending on response. It will be sent to everyone listed in *Pacific Anthropologists*. 1962 [see *AP* 6, 5], those added to the list since its appearance, and to other interested individuals and institutions'. To receive this publication write and ask the Information Center for it.

The CENTRE DOCUMENTAIRE POUR L'OcéANIE has been organized in Paris under the directorship of Jean Guiart. Its five primary activities are documentation, automatic bibliography, comparative iconography, research, and information. Documentation involves microfilming and at a later stage putting on micro cards, series of records from many sources on the Pacific. The bibliography ' . . . will permit, from 1963 onwards, the analysis and coding of current papers published on Oceania, as well as tracing our steps back in the past, so as to cover, at first, all papers contained in the series of specialized publications (*Oceania*, *Journal of the Polynesian Society*, etc. . . ). This treatment of the literature bears upon texts concerned with all aspects of human sciences in Oceania, whatever they may be, printed monographs or general works, published papers, specialized literature with restricted circulation, or manuscripts, which may be made available to research workers in microfilm form'. Comparative iconography is concerned with building up an extensive collection of photographs of Oceanian art. Research of an original nature in the social sciences will be done under the auspices of the Centre. A quarterly bulletin entitled *Réalités du Pacifique*, in French and English, will carry information of its activities and publications. For further information contact Jean Guiart, Centre Documentaire pour l'Océanie, 293 av. Daumesnil, Paris XII, France.

#### *Micronesia*

A new *Journal of the College of Guam* plans to publish original research in the fields of physical and social anthropology, archæology, linguistics, systematic botany, systematic zoology, ecology, marine sciences, and related disciplines concerned primarily with Micronesia and adjacent areas of the Pacific. It will appear twice a year; its subscription rate is \$3.00 per year. Address: Benjamin C. Stone, General Editor, College of Guam, Box 97, Agana, Guam.

*Cook Islands*

From the *Information Bulletin*, 15(4), 1963, 7-8, PACIFIC SCIENCE ASSOCIATION, it is noted that a Cook Islands library and museum is being organized and built, with locally raised funds and government support. 'The museum section of the combined building will house an historical collection covering the archaeology, ethnology, and post-European history of the group. The Canterbury Museum Archaeological Expedition to Rarotonga (November 1962 to January 1963), led by Dr Duff, entrusted the artifacts found or presented during the course of their work to the local museum committee after cataloguing.'

INTERNATIONAL COMMITTEE ON URGENT ANTHROPOLOGICAL RESEARCH  
IN NEW GUINEA

The Committee, which was organized at the Tenth Pacific Science Congress, has issued three bulletins up to March 1963. Its task may be set as follows: 'Coordinating, and stimulating field research by indicating priorities through the dissemination of information on research needs and research opportunities, on research plans and current research, on personnel available for carrying out research, and, if possible, on funds available. The Committee is not going either to sponsor or to supervise research. This is the task of the institutions and universities that bear responsibility for the work that is done, the Committee acting as an advisory body only'.

The contents of the first three bulletins was primarily concerned with research in progress. In the first bulletin a chapter was devoted to a survey of research in western New Guinea. Within this chapter was a small section entitled 'Archæology and history' (pages 23-24) from which I quote:

Early in 1961 villagers of Kwadeware, Sentani district, found, without any real digging having been done, two artifacts of the Dongson-type on a grave-mound called Marweri Urang. A detailed description of the objects by Dr. J. V. de Bruyn (Bureau of Native Affairs) will be published in 1962 in *Nieuw Guinea Studien*. Previously, other artifacts had been found on the same spot. A report on these finds is published in *Nieuw Guinea Studien*, vol. III (1959), pp. 1-8. Thus far Marweri Urang has turned out four bronze socketed axes, two Dongson-spearheads, a brass hilt of a dagger, and a brass oil burner. Besides, native informants stated that about 1930 at least three Dongson-axes, a bronze ceremonial bell, and an artifact described as crescent-shaped, all originating from Marweri Urang, were given to a Protestant missionary who died during World War II. Nothing is known of the whereabouts of these objects. The finds include 'ear-typed' Dongson-axes such as have never been found in Indonesia but are well known from Siberia (Minusink type). The recent finds recall earlier ones such as the small, flat, and irregular pieces of metal used as amulets, and three flat, heavy, metal objects regarded as sacred, found by J. E. Elmberg in the Ayamaru district in 1957, and mentioned in *Ethnos*, vol. 24 (1959), pp. 70-80. ('Further notes on the northern Mejbrat'). A chemical analysis of these objects showed the pieces of metal to be cast of the leadcopper alloy that is typical for the Dongson bronzes; the three heavy objects were found to be tympani or bronze drums, well known from the Southeast Asian mainland.

MR KARL HEIDER, of the Harvard-Peabody Expedition, discovered a number of rock paintings in the Kurulu area, which, as yet, have not been described. In a low hill near Sausapor (N.W. Vogelkop peninsula) potsherds were found which show some resemblance with the potsherds found by Calis and Kamma near the old fortress of Jembakaki (west

New Guinea). Cf. Calis and Kamma in *Nieuw Guinea Studien*, 3(1958): 206-222. The Sausapor potsherds are described as decidedly finer.

'The bulletin of the *International Committee on Urgent Anthropological Research in New Guinea* is obtainable from Dr J. van Baal, Royal Tropical Institute, Department of Anthropology, Linnaeusstraat 2 A, Amsterdam-O, Netherlands. Mr Karl G. Heider writes from West Irian, Indonesia, on 30 June 1963 to say that his work in the highlands of West Irian will continue there to the end of 1963, when a big ceremony climaxes the Dani ceremonial cycle. He reports that Professor Koentjaraningrat of the University of Indonesia, Djakarta, now associated with the new Tchendrawasih University (Bird of Paradise University) established in Kota Baru Dalam (formerly Hollandia Binen), is very encouraging about the future of anthropological research in West Irian. He himself is planning an expedition to the Tor region (east of Sarmi, on the north coast). Persons interested in doing anthropological research in West Irian may write to him at Pegangsaan, Timur 42, Djakarta, Indonesia. Heider further mentions that he received a very nice carved stone, fist sized, looking very much like an embryonic churinga, from the manager of Mt. Hagen Hotel, who had dug up a number of these just outside the town of Mt. Hagen.

#### BOOK REVIEW

EMORY, KENNETH P. and SINOTO, YOSHIHIKO

1961 *Hawaiian Archaeology—Oahu Excavations*, Bernice P. Bishop Museum Special Publication 49, 77 pp., 73 figures, Bishop Museum Press, Honolulu.

This is the first published account of the recent excavations carried out in the Hawaiian Islands under the direction of Kenneth P. Emory of the Bishop Museum. (The University of Hawaii—Bishop Museum excavation programme began in 1950.) The above work is for the period 1950-1955 ('excavation' at one site began in 1938). It describes the excavation of four shelter sites, along the south coast of the island of Oahu.

First comes an account of the excavation of the four shelters—Kuliouou (site 0·1), Makaniolu (0·2), Hanauma (0·3) and Kawekiu (0·4), with notes on the composition of the deposits and the nature of the non-artifactual materials recovered; separately for each shelter. Then follows a detailed description of the artifacts from all four shelters, by functional categories of domestic implements, fishing apparatus, nets and netting implements, tools, and so on; this takes up over a half of the book.

This first account of Hawaiian excavations is a new source of important information, but its special interest is on several aspects of archaeological research in Hawaii which demand close attention, particularly Emory's use of the technique of excavating by arbitrary levels (by 6-inch levels in sites 0·1, 0·2, and 0·3), and the subsequent analysis and description of the artifacts in terms of these levels and the relative sequence which results. Under certain circumstances this technique is justifiable, though they do not seem to exist in the Hawaiian shelter deposits. Indeed, the authors provide a strong argument against it in the illustration which shows the clear stratigraphy of the Kuliouou deposits (fig. 9) where intrusive disturbances are only too apparent. The description suggests that some degree of stratification of the deposits was encountered in all four shelters, with obvious disturbances in two shelters, but no attempt seems to have been made to follow these natural layers or disturbances in the excavations. From the evidence it is difficult to place much confidence in the analysis of the faunal and artifactual materials. Some items were inevitably displaced by the disturbances within the deposits and would thus clearly invalidate the sequences.

The narrow bands of shell, ash and earth which characterize the deeper Hawaiian shelter deposits present problems to the excavator; but that stratigraphic excavation is indeed possible in such deposits was recently demonstrated in the nearby Hawaii-Kai shelter (site 0·5). The ash and shell layers tend to exhibit extreme variability in thickness within a very small area, making excavation by the usual small grid square (of 3 feet side) a rather complicated technique. Possibly the excavation of a single natural layer at a time over a much wider area than usual, with the retention of narrow baulks along carefully selected lines for stratigraphic control, would solve some of the obvious difficulties. In the application of the stratigraphic technique in the local conditions, experimentation is required to some extent, but there seems little justification for the continued use of the imprecise and wasteful excavation of shelters by arbitrary levels when clear stratigraphy is present. Their comparatively shallow time depths and the fine degree of change evidenced in much of the Polynesian material demands the use of the most precise techniques available.

Another interesting aspect of Hawaiian archaeology is in the presentation of the artifactual materials. They are grouped together for purposes of description and analysis, subdivided on the basis of functional categories, without any attempt to reconstruct the assemblages belonging to any specific level within a site, or even to a specific site. It is possible that certain factors justify this sort of presentation for these particular sites; it might be argued that all four shelters occur in such close proximity that their material culture might be expected to show little, if any, evidence of regional variation. This assumption demands verification for the four shelters do show a considerable gradation in the degree of their enclosure and protection (the Hanauma shelter is very exposed while the tube-like Kawekiu shelter provides an extremely well protected cavity); thus we may reasonably expect different assemblages of material due to different utilization in earlier times. Then again, as already said, in the absence of good stratigraphic control, any assemblages that might be presented would inevitably contain at least some fortuitous elements. But to argue against the use of the assemblage on this basis would make one doubt the value of any assumptions that might be drawn from the graphic sequences of fishhook material (figures 43, 44) and faunal material (figures 12, 13), which are arranged according to the arbitrary levels employed in the excavations of the deposits concerned. Even though to some extent at least, the reader may reconstruct assemblages from the evidence presented, a more complete presentation by the authors (in spite of the inherent errors the assemblages possess) would have been very valuable.

One other aspect of *Oahu Excavations*, which requires special comment, is the complete absence of any interpretation by the authors of the evidence they present. This is an unusual departure from the accepted standards of excavation reporting and nowhere did the reviewer find an explanation for this omission. The authors are in the unique position of being much more familiar with the evidence described than the reader is and surely should use their advantage by interpreting their evidence.

The appearance and general format of the book is excellent. Sinoto's clear illustrations impress the reader, but why remove the illustrations so far from their relevant text in place (figures showing fishhooks appear on pages 45 through 52 while the related discussion of this material appears on pages 48, 49, and 50) when this could have been avoided by devoting two or three consecutive pages to the illustrations without spoiling the appearance of the publication. Without doubt *Oahu Excavations* does, as the authors claim, ' . . . add considerably to our knowledge of early Hawaiian culture' (page 3). In the reviewer's opinion, however, it could have contributed more to our knowledge of early Hawaiian culture than it has in fact done. We hope that future excavation reports in the *Hawaiian Archaeology* series will receive a more rigorous and thorough treatment of the archaeological evidence.

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## Northeast Asia

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### FIELD WORK

Information now available to me on 1960 excavations in eastern Siberia is given below:

The Krasnoyarsk Expedition of the Institute of Archæology, under M. P. Griaznov, continued work in the area which will be flooded by the Krasnoyarsk hydroelectric barrage. The palæolithic section, headed by Z. A. Abramova, examined seven sites previously known, discovered seven new localities, and also did small-scale excavations at the sites of Tashtyk I and II. Another section of the expedition, headed by G. A. Maksimenkov, discovered twelve neolithic sites in the Truby area between Divnogorsk and Daursk. The Potroshilova section, under A. A. Gabrilova, investigated eneolithic and Afanasievo sites on the Yenisei right bank near Potroshilova village. A character of the Afanasievo grave superstructure was established for the first time: hardly noticeable circular features proved to be remains of flagstone walls. A cemetery of the second millennium A.D. was investigated at the foot of Mount Sukhanikha. The Karasuk section of the expedition, headed by M. N. Komarova, opened 76 burials of 10th–8th century B.C. in a cemetery on the Karasuk river—typical Karasuk pots, bronze knives, copper and white argillite beads, bronze bracelets, and argillite imitations of cowrie shells were found in the burials. Maksimenkov's section carried out excavations in the cemetery of Grishkin Log I which contained burials of the Bainovsk stage of the Minusinsk Kurgan culture (7th–6th centuries B.C.); eleven kurgan groups were investigated. A section headed by A. V. Davydova excavated two kurgans of the 6th–5th centuries B.C. at Podgornoe lake. The Tashtyk section under E. F. Sediakina investigated remains of the Tashtyk culture on the edge of Saragash ridge: one tomb and four graves were excavated—detailed studies were made of the wooden structures and stone-grave construction, which were imitations of pit dwellings. In another cemetery L. P. Ziablin excavated two Tashtyk graves: the remains lay in a small timber structure on the floor of deep pits—vessels and fragments of plaster burial masks were found. Ziablin's section also excavated a cemetery of the Kirgiz period, Grishkin Log II, containing stone kurgans of the 6th–8th centuries A.D.

G. A. Maksimenkov made small excavations at the Ust'-Sobakinsk site, which revealed three cultural levels. Objects of the Serovo, Kitoi and Glazkovo stages of the Baikal neolithic, and of the Karasuk and contemporary Tagar cultures were found.

An expedition of the Krasnoyarsk Regional Museum under R. V. Nikolaev worked on the route of the railroad under construction between Abakan and Taishet.



Six kurgans with burials of the Tagar culture were excavated in a Minusinsk I group; and a series of Minusinsk II kurgan groups were investigated in the vicinity of Shoshino, Kochergino and Kuragino stations, as well as ancient sites at Stoiba.

Two sections of an expedition from the Institute of Archæology worked in the area which will be flooded by the Bratsk dam on the Angara river. The neolithic section under the direction of V. E. Larichev excavated in Lenkovka gorge on the bank of the Angara, near the palæolithic site of Buret'. Several neolithic objects were discovered in the lower part of the cultural deposit, and materials assignable to the iron age in the upper part. In a layer of buried soil cultural complexes of upper palæolithic age were recovered.

A second tower from the mid-17th century Russian fort at Bratsk was removed to the grounds of the Bratsk hydroelectric plant and restored by A. V. Nikitin of the Institute of Archæology. (See *Sovetskaia Arkheologiia*, 1961, 4, 281-85 for details.)

An expedition of Irkutsk University, under P. P. Khoroshikh, investigated in the Ilim hydroelectric plant reservoir area of the Ilim river valley the stretch from Zatopliaemoe to Stupinaia village. The oldest level (mesolithic) was discovered in a site near the mouth of the Tushema river; neolithic remains were also found.

The expedition of the Irkutsk Regional Museum, directed by G. I. Medvedev, continued excavations in the stratified settlement of Ust'-Belaia (Mesolithic and later).

The expedition of the Buryat Joint Scientific Research Institute, under P. B. Konovalov, made an archæological survey of the Khilok river valley (Bichurskii *aimak*) and along the Brianka, Il'ka and Cheluzhai, tributaries of the Uda river in Zaigraevsk *aimak* of the Buryat ASSR. At Bichura on the Brianka river a palæolithic site was discovered as well as other remains—in particular petroglyphs and a cemetery in Ara-Kirso gorge. Finds of neolithic and iron age materials were made along the Il'ka and Brianka rivers.

The Onon section of the Mongol Expedition from the Institute of Archæology, directed by Iu. S. Grishin, carried out archæological surveys in Kyrinsk *raion* of Chita *oblast*. Several groups of slab tombs and a series of settlements were discovered. In the Aginsk Buryat National District (*okrug*) 19 slab tombs were investigated and a bronze age settlement was excavated at Budalan village.

The Tuva Joint Expedition of the Institute of Ethnography conducted investigations on the territory of the Tuva ASSR in two sections. The first under A. D. Grach, worked mainly in Oviursk *raion*; remains of various types and periods were examined: palæolithic sites, ancient Turkish stone figures, burials of the Mangun-Taiginsk culture, kurgans of Pazyryk type, burials of ancient Turkish and later periods. Two gold belt plates were found in one of the ancient Kyrgyz kurgans in the Sagly valley. In another kurgan were fragments of birch bark with Tibetan inscriptions and pieces of Chinese silk fabrics. The second section of the expedition, under S. I. Vainshtein, continued excavations in the Kok-El' cemetery near Ishkin in Sut-Khol'sk *raion*, opening burials of different periods from the middle of the first millennium B.C. down to the 18th-19th centuries A.D.

An expedition of the Tuva Scientific Research Institute of Language, Literature and History, directed by M. Kh. Mannai-ool, excavated several kurgans in Oviursk

*raion*. In the Solchursk cemetery an ancient Turkish enclosure and four kurgans were opened; one was ancient Turkish, another contained a burial of the Uruk culture. Two kurgans were excavated in the Torgunsk cemetery, one contained an Uruk culture burial. A kurgan near Torgalyga yielded a burial unaccompanied by grave goods; here also two walls and two stone figures were examined and a late palæolithic locality discovered with cores, blades and core tools.

In 1959 and 1960, a section of the expedition from the Yakutsk Branch of the Siberian Division of the Academy of Sciences made archæological surveys in the construction zone of the projected Viliui hydroelectric plant, under the leadership of S. A. Fedoseeva. Five burials, including that of a dog, were uncovered in a neolithic cemetery on the slopes of Tuoi-Khaia mountain. In the southern part of Tuoi-Khaia village remains of a neolithic settlement were discovered. Of particular interest is the carved figure of a moose on a flake of argillite which was found here. In the course of surveys along the banks of the Chona and Viliui six neolithic settlements were discovered and a stratified site (at Tumul village) containing neolithic and iron age levels.

On the Chukchi Peninsula, the Chukotsk section of the Northern Expedition from the Institute of Ethnography, directed by M. G. Levin and D. A. Sergeev, concluded its investigation of the ancient cemetery at Uelen, opening the remaining five burials. Under one stone superstructure was discovered a stratified complex containing four burials.

The Far Eastern Expedition of the Institute of Archæology in collaboration with the Far East Branch of the Siberian Division of the Academy of Sciences and the Khabarovsk, Komsomolsk and Blagoveshchensk Museums, under the leadership of A. P. Okladnikov, excavated a settlement of the shell-mound culture period on Peschanyi peninsula in the maritime territory. Dwellings were uncovered and a considerable amount of artifactual and faunal material found. In the Amur valley (Khabarovsk Territory) in a very ancient settlement in the vicinity of the former village of Osipovka on Mount Sun, several living complexes were identified. A cemetery of the early iron age was excavated near Naifel'd *kolkhoz* on the Bira river. Ancient material was collected in the vicinity of Konda village on the Amguni river. Excavations in the fortress on Krasnoiarovsk hill near Ussuriisk continued under the direction of M. V. Vorob'ev, a large building identified as a palace-temple structure assignable to the Jürchen (11th-12th centuries A.D.) was cleared and a type of pottery previously unknown here was discovered.

The coastal section of the expedition, headed by G. I. Andreev, discovered more than thirty new sites in Shkotovsk, Partizansk and Lazovsk *raion* of the maritime territory; the most interesting are the settlements of Sudzukhe V at the village of Temp and the one by the lighthouse in Pkhusun bay. In the upper level at the Sudzukhe III settlement, material like that found in the shell-mounds of the southern maritime culture was discovered, and in the lower level, finds reminiscent of Zaisanovka. The settlements of Valentin-Peresheek and Pkhusun existed somewhat earlier than the Zaisanovka sites and possibly at some time were contemporary with it. Several iron objects were found in the Sudzukhe V settlement; a dwelling was excavated at the Sinie Cliffs settlement; both are dated to the late Han period.

An expedition of the Far East Branch of the Siberian Division of the Academy of Sciences, under E. V. Shavkunov, made excavations in a second Buddhist temple of the Po-hai period (11th century A.D.) in the Chapigou river valley. Discoveries include roof tiles of eight types, fragments of large ceramic slabs decorated with a relief design, fragments of pottery and porcelain vessels, ceramic ornaments, statuettes of the Buddha, and a dragon head; part of the walls were covered with geometric decoration. Medieval remains in the vicinity of Ussuriisk, including those of an ancient building on the Suifun river bank and the ruins of the Zapadno-Ussuriisk *gorodishche* (fortified town site) were also examined.

No further information on 1961 field work has yet become available. For 1962, we have the following brief report of A. P. Okladnikov, now Head of the Department of History, Novosibirsk University, taken from personal correspondence. Professor Okladnikov, who visited the Altai region in the spring of 1962, discovered a post-glacial palæolithic industry with disc cores, Levallois-type cores and massive *skreblo* (large scrapers) and points. Proceeding to Outer Mongolia, the scene of much of his recent work, he again made many new discoveries. Excavations in the Shara-Khada settlement in the vicinity of Ulan-Bator revealed an industry of epi-Levallois character, datable to the upper palæolithic, and faunal remains. Visits were made again to Artsa-Bogdo mountain, Baga-Bogdo mountain and the important early site at the Sino-Mongolian frontier post of Ottson-Man't. The new material collected will give a fuller picture of the sequence of a series of palæolithic cultures in Mongolia. A palæolithic site of Siberian type with choppers and *skreblo* was also discovered at Lake Orok-Nor in the Buryat ASSR. Professor Okladnikov then transferred his operations to the Amur valley; the neolithic settlements at Blagoveshchensk revealed a pure blade culture as well as a culture of the type found at Anganghsi in Manchuria. At Kondon on Lake Evoron in the lower Amur valley a very interesting complex of ancient settlements, some stratified, were investigated again. Settlements with pottery decorated with curvilinear designs, including spirals and the so-called 'Amur woven' decoration received special attention. Vessels with a round bottom were discovered for the first time on the Amur, but are evidently of later date than the flat-bottomed wares decorated with curvilinear designs. In Okladnikov's opinion, the new vessel form may represent the infiltration of some new cultural-ethnic element from the north.

S. V. Kiselev, who died on 8 November 1962 in Moscow, was one of the leading archæologists in the Soviet Union and famous for his work in the Altai region and, more recently, in Outer Mongolia. The Institute of Ethnography of the Academy of Sciences in Moscow announces the equally premature death on 18 April 1963, of Professor M. G. Levin, an outstanding authority on the racial history and historical ethnography of Siberia. He was Deputy Director of the Institute and is known to our readers for his recent important excavations of the Uelen cemetery on the Chukchi peninsula.

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Preliminary report on 1957–59 excavations in this three-level site. The middle (main) level contained 12 hearths and 23 pits, without trace of dwellings. The other levels cover limited areas and yielded few finds. Little significant time differences appear between their occupations. Although there is little basis for dating the site, it may be possibly a late descendant of Mal'ta and Buret'; actually, it resembles Talitskii's site in the Urals more than anything else in Siberia. The first instance of the use of coal as fuel in Siberia is of particular interest.

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This survey of the Krasnoyarsk dam reservoir area is the first systematic palaeolithic research on the middle Yenisei since the pre-war period; the focus was on Tashtyk creek in the vicinity of Bateni, where two sites were tested. The finds show closest analogies to Pereslanchenskii Punkt and Kokorevo I.

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## Korea

KIM WON-YONG

*Received 21 February 1963*

The present report covers a period of twenty months, from May 1961 to the end of 1962, during which several prehistoric and historic sites were excavated and a long range project of research on Korean prehistory was initiated by the University of Wisconsin, who sent a team to make the preliminary survey trip.

### FIELD WORK AND RESEARCH

1961

*May: A prehistoric dwelling site near Seoul.* A hill-top site near Susok-ri village on the northern bank of the Han river was excavated by the present reporter. It is about 10 miles east of Seoul and was discovered by Sgt. D. Chase, who briefly described it in *AP* 5, 1. Work was interrupted by the May military revolution, and was being resumed in the autumn of 1963.

The initial dig revealed five pit-houses each measuring three by four metres. They were cut horizontally into the northern slope of the hill, but erosion and illegal diggings by various visitors and villagers have since destroyed more than half of its floor area. The floor is hardened with clay, sometimes mixed with charcoal; the fireplace was not in the centre but toward a corner of the square chamber.

The associated pottery type is the plain coarse pottery of reddish-brown colour. The clay, unlike most cases with this pottery type, is rather fine and shapes include straight-sided pots with flat bottom and round pots with large, flaring mouth. Several sherds of the comb-pattern pottery and the black shiny pottery that is found around Seoul were also collected from the loose earth which fill the pit.

Among the stone implements were polished and chipped axes and adzes. The latter apparently shows an influence from the comb-pottery culture such as the Misari industry (see *AP* 5, 1) that is found on the opposite river bank of the present site. No other artifacts were collected.

*October-December: An ancient cemetery in Ulssan:* A Silla vase with engraved line drawing of horses, seen at a Seoul antique dealer, led to the discovery of cemetery of early Three Kingdoms' period (4-7th century A.D.) near Ulssan in southeastern Korea. Some 150 small rectangular burial pits were excavated by a team of the National Museum of Korea led by Mr Hong Sajun, Curator of its Kyongju branch. These pits, without any surface marks or mounds, lay side by side without fixed orientation within a small area on the slope of a roadside hill. Their four-sided walls were constructed with river pebbles. Numerous sherds of grey pottery together with some glass beads, comma-shaped jades, and iron objects



were collected. The tombs obviously are the interim form between earlier prehistoric stone-cists and later historic rectangular pits covered with a huge earth mound. Of particular interest were several oval pots with cup-like lids, hitherto unknown.

*November:* Dr Erika Kaneko of the Tokyo Metropolitan University, during a two-week survey trip to Korea, visited the southern part of the peninsula around the city of Kyongju to investigate prehistoric and historic sites; she also saw the excavation site of the Soksil.

1962

*March and July: Dolmens in Central Korea.* Mr Kim Chongki, Assistant Curator, Department of Archæology, the National Museum of Korea, excavated twenty dolmens in Chech'on, Central Korea. In some of them, lined up along a shallow river, were found human skeletal remains, stone daggers, reddish pottery, etc. The dolmens are of the southern type, which consists of a huge rock above the ground and a subterranean stone or earth pit.

The excavation was to study regional differences in structure of Korean dolmens, and additional digs will be continued in 1963 at various places. I took part in the March excavation, and shall be co-operating again this year.

*August: Archæological Survey by the University of Wisconsin.* Mr and Mrs Albert Mohr, from Wisconsin, who came on a preliminary reconnaissance of several months to survey prehistoric sites and remains in Korea are the first foreign archæologists since 1945 to do field work in Korea. Their visit and a future project of the University of Wisconsin, under the supervision of Professor Chester Chard, will greatly advance studies of Korean archæology—but government regulations do not encourage full-scale archæological activities by foreigners.

*October: A Neolithic cave-dwelling site discovered.* On 6 October workers while bulldozing a construction site of the Catholic college in Ch'unch'on, some 50 miles east of Seoul, accidentally cut open, on a mountain slope, a prehistoric cave-chamber cut into weathered granite pan. The labourers collected three originally extended human skeletons together with five partly polished stone adzes, seven polished arrowheads, one big stone axe, one stone knife, two stone hammers, one triangular stone, one stone drill, one partly perforated tubular bead of white agate and five pots with flat bottom. The stone implements were mostly of basalt; some granite, slate and magnetite were also noticed.

When the news appeared in the next day's paper, I hurried to the site, but found everything had been removed and cleaned up. The skeletons, which had been reburied on a nearby hill, disintegrated into a heap of dust and small pieces beyond restoration.

The cave is a circular chamber with domed ceiling; its diameter was about four metres and two metres high. A thick layer of shiny soot still adheres to the ceiling. Traces of a fireplace could be noticed toward the entrances; the workmen said they found the artifacts around it. According to them, the skeletons lay with their feet extended toward the centre of the chamber.

The stone adzes, of local basalt, clearly follow the tradition of the flake industry characteristic to the so-called comb-pattern pottery culture of the west coast. The

arrowheads of flat elongated-triangular shape are connected with similar arrowheads of the west coast comb-pottery culture. The huge flat granite axe, however, is of the northeastern Korea type.

The very interesting potteries are made of clayey earth without tempering and baked rather hard, ranging in colour from whitish brown to dark brown. Except for one pot, these oval-shaped flat-bottomed vessels all have a band of pits or imprinted short vertical lines around the mouth. This is certainly the so-called 'mouth-rim decoration' of a typical comb-pottery of the west coast. Flat bottom and plain body without decoration are characteristic of northeastern comb-pottery. Thus, the Kyodong culture (a term I have proposed from the name of the area where the cave is) is a hybrid of two different cultures of east and west, meeting here by the Han river and belongs probably to the end of the neolithic period around the fifth or sixth century B.C. (See my report, A prehistoric cave dwelling site at Kyodong, Ch'unch'on, Central Korea, in *Korean Historical Review* 20, in press.)

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This second monograph on Korean prehistory which follows the author's *Studies on Korean Stone Daggers* (1959), is a detailed study of Korean comb-pattern pottery based on materials and data known prior to 1945. Two new comb-pottery sites discovered in the north Korea recently come in an appendix. Like in his previous work, the author sums up and publishes here the archaeological data gathered by Japanese scholars during their field work in Korea down to 1945. Although limited in some sense, this is a major contribution on Korean prehistory.

KIM WON-YONG 金元龍

- 1962a Dolmens in Korea (in English). *Journal of Social Sciences and Humanities (Bulletin of the Korean Research Center)* 16: 1-11. A brief survey of their general character, origin and date, etc.

- 1962b Amsari eui sokki t'ogi 岩寺里 石器土器 (Stone implements and pottery of Amsari site) *Korean Historical Review* 17, 18: 355-383.

Amsari, on the southern Han river bank, is a type site of Korean comb-pottery culture. This study of the Amsari culture is based on materials in the National Museum of Korea and the University Museum of Seoul National University. The original site, which was first exposed and then washed away in the great 1925 flood, has never been reported, though it produced the richest and most typical examples of Korean comb-pottery. In this article, the author makes for the first time a claim for the presence of 'Black pottery' in Korea. The Amsari black pottery in its vessel shape and texture recalls specimens from the Kurokawa pottery (southern Kyūshū, Japan. Late Jōmon).

MIKAMI TSUGIO 三上次男

- 1961 *Mansen genshi humbo no kenkyū* 滿鮮原始墳墓の研究 (The dolmens and stone cists in Manchuria and Korea). In Japanese 697 pp., + 18 pp. of English. Yoshikawa Kobunkan. Tokyo, Japan.

Prof. Mikami, Tokyo University, though not a field archaeologist but a historian, made a painstaking effort to collect all the known data in order to define the character, date and distribution of dolmens and stone cists in southern Manchuria and Korea. His great work has brought to light not only the character of the burial systems but also the society which they characterize. His thorough bibliography is of particular value.

## 4

**Hong Kong**

S. G. DAVIS

*Received 14 May 1963*

Throughout the year the Archæological Team of the University (and unfortunately a large number of free lance enthusiasts with varying competence) continued archæological field work.

A preliminary report by M. W. Welch (1962) described middle age neolithic finds from three new sites on the small island of Kau Sai Chau in Rocky Harbour. A wide variety of patterned pottery of the 'hard' type and polished stone adzes similar to other finds reported elsewhere in Hong Kong were collected. All three sites are located about 30 to 50 metres above sea level. Some of the adzes are made of stone different from the Rocky Harbour volcanics that form Kau Sai Chau and so were brought to the island from elsewhere. It has been suggested that their place of origin was Vietnam.

Much publicity was given to a discovery in March 1962 on the reservoir site at Shek Pik, Lantau Island (Fig. 1), of copper coins and pottery. This find was brought

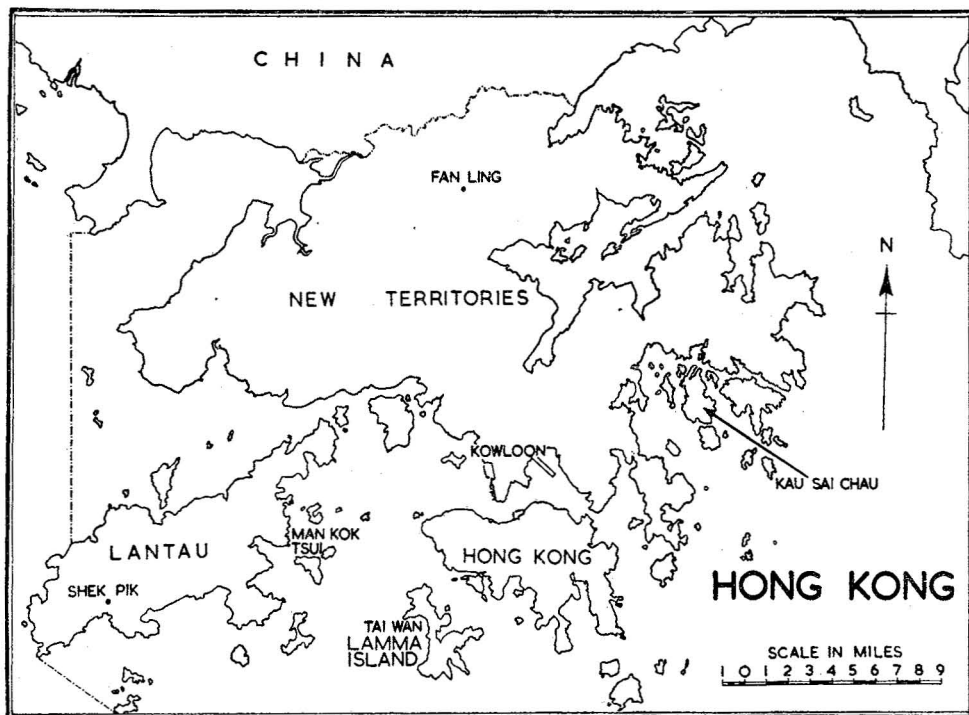


FIG. 1. Hong Kong.

to light by the large earth moving and bulldozing machines that were levelling the floor of the reservoir. The coins are clearly dated and range in age from A.D. 713 to 1226, (T'ang dynasty to Sung). The richly glazed potsherds are of vessels, which if whole, would be of priceless value today.

These finds come from poor farming land, until recently malarial and with no nearby natural resources of economic value. They might have been the property of a rich man (or party) who was possibly in transit or resting, or as has been suggested was the property of the court of the boy Sung emperor, Ti Cheng. In A.D. 1277 when the Mongols were extending their control over China, Ti Cheng in his flight stayed for some time in Kowloon City. Later he crossed the mouth of the Canton river over to Chung Shan, and thus probably travelled along the southern shore of Lantau Island, going ashore for food and rest.

In 1954 when the Shek Pik area was being surveyed for a reservoir, the University Team was first to do archaeological work there by trenching across the sandy raised beach, where in 1938, Professor W. Schofield reported artifacts. During the work a rock-carving behind the beach was found about 200 yards from the seashore on the east side of the valley. It was cleaned up and later in 1958 had a protecting wall built round it (Pl. Ia-b).

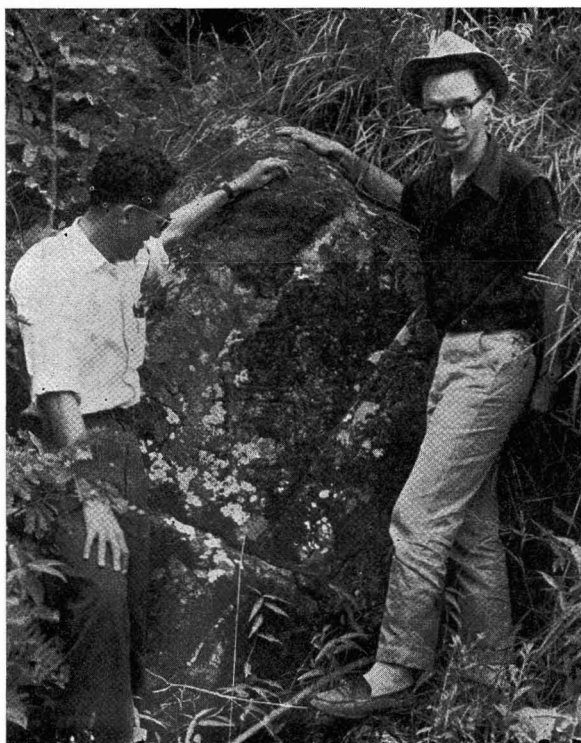
Local legend and history had it that there was another rock carving in the valley. A search on the west side of the valley was unrewarding and it was assumed that if it originally was there it had been obliterated by weathering and erosion. During Christmas 1962 the spur in the middle of the valley, at about 400 feet, was explored. On a prominent rock the second carving was found (Pl. Ic).

The most recent find was in May 1963 when farmers digging a well near Fanling struck a cache of coins. Some date back to the T'ang dynasty while others are Sung. So far over 500 coins have been collected by the farmers who presumably offer them for sale.

A much needed ordinance controlling archaeological sites and exploration is about to be passed by the Legislative Council of the Hong Kong Government. This is urgently needed because enthusiastic amateur archaeologists often dig indiscriminately and their finds are lost and neither reported nor described.

Many fine specimens have left Hong Kong; some have fortunately found their way into overseas museums. In the Bishop Museum in Honolulu there is half a pot, nearly 3 feet in diameter from a site near Fanling. [A check was made at the Bishop Museum. A number of large stoneware sherds with a fine crossed relief on the outside and reputed to be the lower portion of one vessel were located as well as several boxes with stone artifacts. We shall attempt to have a report on this material for the next news issue. ED.] Harvard University is said to have received specimens during the year. Many other finds have been sold to private collectors and are lost.

Two permanent homes in Hong Kong for local archaeological treasures are now being planned. One is in the new City Hall and the other in Fung Ping Shan Museum in the University of Hong Kong. The Fung Ping Shan Museum has a workroom suitable for cataloguing, repairing, making rubbings, photography and other practical work. It is further proposed to set aside duplicates for exchange purposes.



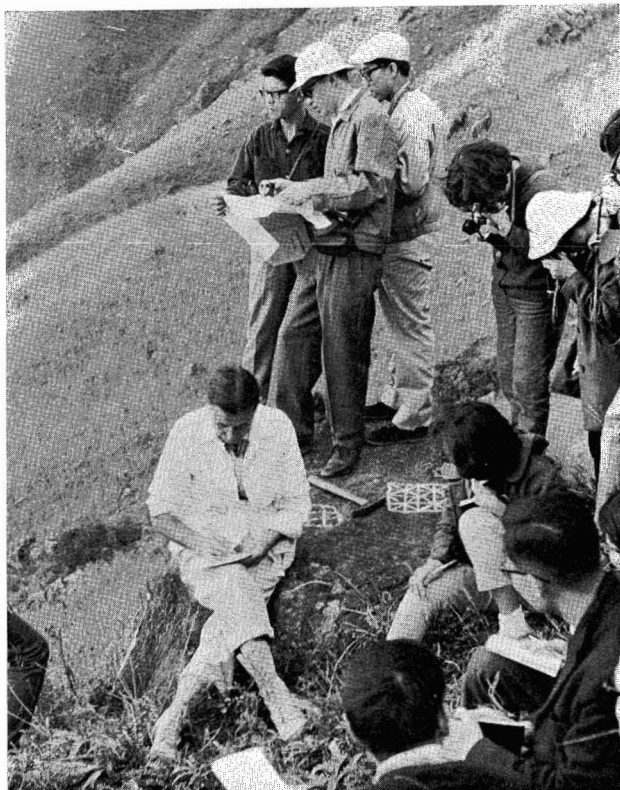
*a.* Rock carving at Shek Pik.



*b.* Rock carving at Shek Pik on a spur at 400 feet.



*c.* Inscription reads: 'By Order of Government. These carvings must not be defaced'.



*a.* Rock carving on spur above Shek Pik Reservoir discovered Christmas 1962.



*b.* Rock carving at Shek Pik at sea level.

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## Union of Burma

### U AUNG THAW

*Received 14 March 1963*

#### FIELD WORK AND RESEARCH

*Peikthanomyo.* The department resumed the scientific excavation at Peikthanomyo during the open season of the year. Regular work at the site during the three preceding seasons had produced reliable evidences of the antiquity of Peikthanomyo which was vaguely known in traditional account and legendary history. The discovery of massive brick structures, the palace complex, the burial urns, pottery and other small but important cultural objects now give us a fair perspective of the city. It is so vast that large scale excavation of the whole area is not feasible or even necessary; but much can still be done to define its cultural characteristics within the framework of the Burma's past cultures and their chronological sequences.

In a more intensive study of the mounds within the fortified city, this year's excavation was devoted to two mounds near the northern wall and a third one standing squarely on that wall. At the first mound, numbered 11, was exposed the ruins of a rectangular brick structure measuring 88 by 48 feet. The four walls, which have a uniform width of 4 feet, stand freely on the ground level and now remain to a height of 16 courses of bricks. On plan it resembles the structure uncovered previously at mound No. 9. The inner sides of the walls have square vertical slots at regular intervals to accommodate wooden posts. Within the enclosing walls there is a high brick platform with a base roughly 17 feet square; it rises to about 4 feet in three receding stages. The higher parts of the walls, the windows or openings, if any, and the superstructure of the building had suffered complete damage and its original design is lost to us. Its plan, however, is clear and is reminiscent of the vaulted type of temples of early Pagan with an obelisk in the centre which supports the spire. Traces of an earlier occupation of the site are also detected. Stratigraphical evidence in relation to the remains of charred wooden ports within the building indicate that a wooden structure had preceded the monument now exposed. The whole structure is enclosed by a brick retaining ridge  $1\frac{1}{2}$  feet in width. From this site, within and outside the structure, nine intact burial urns were recovered similar to those found at mound No. 9, but no other minor antiquities save a few fragments of terracotta bangles. The nature of the brickwork and the presence of clay urns of exquisite design indicate that the brick structure on site 11 is a part of the homogeneous cultural activity of the ancient city.

The buried brick structure at site No. 12 represents an altogether different type of architecture from those so far brought to light within the city. It is square on plan, each side measuring 34 feet, with a stepped projection on the east side approximately 12 feet square. Traces of an opening exist on the south wall but the



structure does not seem to be originally the hollow type. The walls now stand at a height of about 4 feet, with elaborate designs on the exterior. The lowest six courses of bricks are laid flat in the usual manner resting on the ground level. Over the top course is a taller course of bricks on edges, with upper ends rounded smoothly and uniformly. The next course (which was indented so as to show the curved moulding below) is the usual flat layer. The overlying course comprises two types of bricks placed alternately on their edges. The first type has a gadrooned end, the upper part of which being smaller than the bottom part and a little retracted. The second type is the common plain brick which is indented between the decorated bricks. The pattern thus formed is a series of protruding beaded bricks interspersed with small recesses. This course is topped by another flat course and the decorative pattern is repeated in succeeding layers. Eighty burial urns were recovered around the structure. Close to the projection on the east was found a skeleton which looked flexed and cramped. This is the first unusual instance of the discovery of a human skeleton within the city. Mingled with clayey soil it demands an experienced anthropologist to give restorative treatment and record its features. While this might help future research on the subject, for the time being, this only sample is too meagre to establish its racial affinities.

The position, size and shape of mound No. 13 (the third site excavated this season) suggest that the brick fortification was strengthened by two or three bastions on each side. The excavation showed that the debris was formed by the crumbling walls of the gateway which has a pair of arms extending inwards to a distance of 80 and 86 feet respectively on the east and west sides. These arms or ramparts do not turn at right angles to the main wall but bend gradually southward to form the gateway (20 feet wide) and a long passage. An iron socket and the remains of a burnt wooden door were found in the process of excavation. It may be surmized that similar mounds at other points on the fort walls mark the entrances into the city.

While the mounds of Old Prome yielded numerous terracotta votive tablets and relics, at Peikthanomyo they were void of any religious object; this presupposes that the site is pre-Buddhistic.

The sample of charcoal from site 9 which was analysed by Isotopes Inc., New Jersey, U.S.A. for C-14, shows that the site is about 2,000 years old; this would place the culture of Peikthanomyo within the chronological framework of the early history of Burma. Three more charcoal samples from different locations in Peikthano have been dated by the Institute of Nuclear Sciences, New Zealand, at approximately 1720, 1810 and 1970 B.P., not far removed from the first result. All samples are from burned wooden posts within the brick structures.

Excavation of five more mounds in the area is in progress at the time of writing.

*Pagan.* A test excavation was carried out at the site of Paunggu pagoda, south of Pagan. It is on the top of a high cliff on the Irrawaddy west bank about one-half mile due west of the Myazedi at Myinpagan. The erosion of the bank had worn away more than half of the monument leaving only a small mound barely 20 feet high; a vertical section of the bank exposes the brick core of the structure. This pagoda is recorded as the find-spot of some stone plaques with fine sculpture in relief, which in 1915 were deposited in Pagan Museum. As the remaining ruins of

the pagoda will perish sooner or later, the mound was excavated to salvage any important antiquity that might be found. Digging was confined to its southern portion to expose the base of the stupa and the foundations of another structure close to it on the east. The latter is a hollow rectangular building with a sanctum at the western end containing a square pedestal. No niches for stone sculptures were found at the base of the stupa to our disappointment. However, our efforts were partly rewarded by the discovery of a clay votive tablet bearing five figures of the Buddha and two lines in old Mon writing recording the donor's offer of the tablet.

*Halin.* This old city site in Shwebo district was explored during the year to guide systematic excavations in the next field season. Despite the dry climate of the area the brick walls of the city, rectangular on plan, have decayed so badly that long stretches could hardly be made out on the ground level. Halin is a well-known ancient site in Upper Burma; and the earlier discoveries here of two Pyu inscriptions, a stone sculpture and numerous symbolical coins confirm its cultural link with Old Prome. But further field work is needed for fuller information of its structural remains and related cultural data. Apart from its historic remains, the site abounds with neolithic objects. Surface collections were made of fragments of ringstones, and one jade ringstone in good condition, found by a lad south of Halin village, was acquired for the department. A detailed survey and mapping of the site to facilitate excavation is being undertaken and digging at one site within the city has commenced.

#### EPIGRAPHY

With the revision of the Mon Inscriptions of Burma completed, the compilation of the text and translation went to press before the end of the year. It will be the first publication of the entire collection of Mon epigraphs in Burma, with the exception of the Kalyani Inscription of Dhammazedī. Our epigraphic section has continued its transliteration of Burmese inscriptions and has dealt with over 150 epigraphs during the year. Five new inscriptions were recorded. To have a complete record of all the mural inscriptions of the Pagan temples for further publication and research, the work of surveying their interior was begun and over seventy monuments were inventoried before the close of the year. The legends describing the 550 Jataka scenes on the walls of the Shinbin Sagyo temple at Sale were placed on record in the course of exploring the area.

#### CONSERVATION OF ANCIENT MONUMENTS

The ancient monuments maintained by this department got special and annual repairs. Within the budget allotment of K75,000 for conservation works in different localities the expenditure incurred was as follows:

Pagan . . . .	K23,173	Monywa . . . .	K 3,352
Hmawza . . . .	16,253	Tada-u . . . .	3,146
Mandalay . . . .	7,762	Pegu . . . .	2,609
Mrohaung . . . .	6,570	Twante . . . .	363
Peikthano . . . .	4,975	Ava . . . .	314
Amarapura . . . .	4,451	(Miscellaneous charges) . . . .	1,415

At Pagan, repairs were carried out particularly at the Setana pagoda which was recently put on the list of scheduled monuments. It was built by Htilominlo, and is one of the largest solid stupas in Pagan. To preserve the structure the repairs began with the basement and the removal of large quantities of debris from four terraces. The Thandawgya, a colossal Buddha image of hewn stones within the city of Pagan, which stood open to the air for many years, has now a vaulted roof over the brick chamber; it is now properly protected against the ravages of weather for centuries to come. Major repairs were made to the Somyingyi pagoda and the Gudawthit temple. The Ajagona, Thinganyon and Asawkywan temples near Minnanthu got a fair share of the funds for their preservation. A labour gang for about three months carried out annual repairs on several monuments in need of immediate attention.

Maintenance repairs were made on the *pyatthats* (wooden pavilions) on the fort walls at Mandalay, for the first time since the war; and steps were taken to restore the severely shattered masonry walls at an initial cost of three lakhs. Inside the fort, the clock tower east of the palace platform was restored to its original height short of the wooden superstructure. Annual repairs were executed at the Atumashi monastery and King Mindon's tomb.

Conservation work at Hmawza was confined to the Bawbawgyi, one of the oldest monuments of Burma which still retains its original form. The bricks on the cylindrical body of this pagoda had decayed so much that large patches of its surface, a couple or more feet in thickness, had gradually fallen down. Special repairs were undertaken during the year at a cost of K16,253, to arrest further deterioration and remedy the state of long neglect. The work is not yet completed and a substantial sum is provided to continue the work in the ensuing year.

Four new inscription sheds, two at Salingyi in Monywa district, one at Payagyi village and one on the Shwemawdaw Pagoda platform at Pegu were constructed for the preservation of lithic inscriptions *in situ*. At Amarapura a masonry shed was built to shelter the Gogyi pagoda inscription.

The brick structures exposed by archæological excavation at Peikthano received needed attention. Conservation works at Twante, Tada-u and Ava were of the nature of maintenance repairs. All the above works were undertaken departmentally by the Conservation section.

#### GENERAL

A new field museum building at Hmawza (Old Prome) was constructed at a cost of K35,000 which was funded by the Cultural Council. It has exhibition space for about a hundred selected specimens of stone and terracotta objects collected on the site since the inception of the department. The old building within the compound of the Kyaukka Thein monastery continues to serve as a storehouse for numerous votive tablets and a shelter for huge stone sculptures preserved *in situ*.

Experimental work in the chemical treatment of wall paintings in the Pagan temples was continued with success. For the proper conservation of the murals a UNESCO expert was invited to observe their condition in different stages of decay and report on the suitable means to effect their preservation. One of his recommendations is that a technical section and workshop be set up at Pagan to carry out the project to save these national treasures—this will take many years. The first step

to send a chemist to Belgium, for training in scientific methods of preserving murals and art objects, was taken before the end of the year.

Our photographic section took over one thousand photographs during the year. They include the details of the excavation work at Peikthano, the recording of architectural features and antiquities at various sites and the copying of rubbing of inscriptions. Forty measured drawings were made of the exposed structures and pottery from the three sites excavated at Peikthano. Line drawings of architectural motifs at the Pagan temples were also executed and copies were made of 19 Jataka scenes from Kubyauk-Gyi temple at Pagan and a score of similar scenes from Shin-bin Sagyo at Sale.

The Annual Reports of the Director for 1958-59 and 1959-60, and U Mya's votive tablets of Burma, Part II, dealing with Srikshetra tablets were published during the year.

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## 6

**India**

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*Director, School of Archæology, Archæological Survey of India, New Delhi**Received 15 September 1963*

## INTRODUCTION

This is a brief review of the more important archæological discoveries made in India, or by Indian archæologists abroad, in the field year 1961-62, that is between April 1961 and March 1962.

As stated in the résumé covering the decade 1951-1960 (pp. 144-159), several institutions and universities as well as the Archæological Departments of quite a few State Governments are actively engaged in field work, in addition to the Archæological Survey of India—the Central and biggest archæological organization in the country. The yearly output, thus, is quite enormous, and it would be well nigh impossible to deal here individually even with the more important ones of the explorations and excavations carried out in the country. It is therefore best to take a collective view of them, classifying the results under three heads, the Stone Ages, the Protohistoric Period and Historical Archæology.

In this summary arrangement, I depart from my decade-résumé, by referring, as far as possible, to individual excavators and institutions. Following the section on Explorations, Excavations, etc., are two others, Indian Archæological Expeditions Abroad and The Archæological Survey becomes a Centenarian. Next year the reader may expect a separate summary of Carbon-14 determinations of certain important archæological sites in the country.

## EXPLORATIONS, EXCAVATIONS AND OTHER IMPORTANT DISCOVERIES

*The Stone Ages*

Year in and year out the field worker is adding to the list of sites of known types, but a discovery becomes significant only when some new area is involved or fresh and revealing observations are made regarding stratigraphy, etc. Thus, while many new sites have come to light relating to Early, Middle and Late Stone Ages of the country, the more significant discoveries are the following.

In the districts of Kangra in Panjab and Bilaspur in Himachal Pradesh, the Exploration Branch of the Archæological Survey of India (the latter hereafter referred to as the Survey), under the guidance of Shri V. D. Krishnaswami, explored an area of about 165 square kilometres, most of which will be under water with the completion of the Govind Sagar Dam (popularly known as the Bhakra Dam) on the Sutlej. A large number of tools of the Gulerian (Sohan?) complex came to light, comprising mostly unifacial 'choppers' and, to some extent,

bifacial 'chopping tools' (Fig. 1). No hand-axe or cleaver (typical of the 'Madrasian' industry) was found at any of the explored sites. At each of the sites of Alsu, Dahar and old Bilaspur, a series of three terraces was observed, tools being associated with two of them.

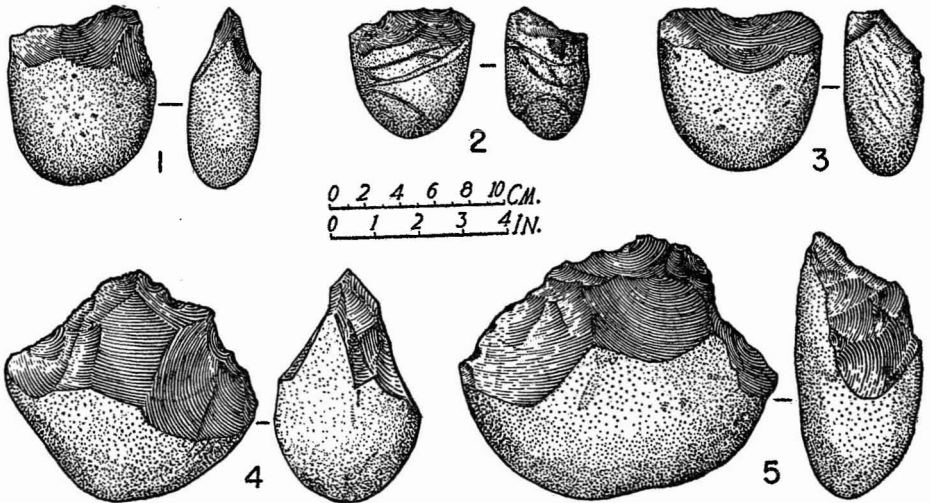


FIG. 1. BILASPUR. 'Chopper-chopping' tools.

Professor H. D. Sankalia and his colleagues of the Deccan College Post-graduate and Research Institute, Poona, excavated an 'open' Early Stone Age site at Lalitpur, District Jhansi, Uttar Pradesh. Two localities were taken up and a stratified sequence was noted from top downwards, with granite as the bed-rock. The artifacts included, besides bifacial hand-axes, cleavers and cores, a very large number of waste flakes indicating that the localities were possibly factory sites.

In the Singbhum District of Bihar, the valleys of the Subarnarekha, Sanjay, etc., were explored by the Department of Anthropology of the Calcutta University, under the direction of Shri D. Sen. At various localities were discovered, *in situ*: Early Stone Age tools comprising Abbevillian to Acheulian hand-axes; microliths of various types; and polished stone axes, chisels, pounders, etc. The University also carried out explorations in the Bankura and Midnapur Districts of West Bengal, bringing to light several Early Stone Age sites, in addition to those explored earlier by Shri V. D. Krishnaswami. In the Midnapur District, some of the tools were found embedded in laterite according to the report.

Under a scheme sponsored by the Council of Scientific and Industrial Research, Dr A. P. Khatri examined the Pleistocene deposits of the upper Narmada, between Bhera Ghat and Hoshangabad, and collected a large number of mammalian fossils including *Bos bubalus*, *Cervus*, *Elephas antiquus (namadicus)*, *Elephas indicus*, *Equus*, *Hippopotamus*, *Sus*, etc.; some were found *in situ* and associated with lithic industries.

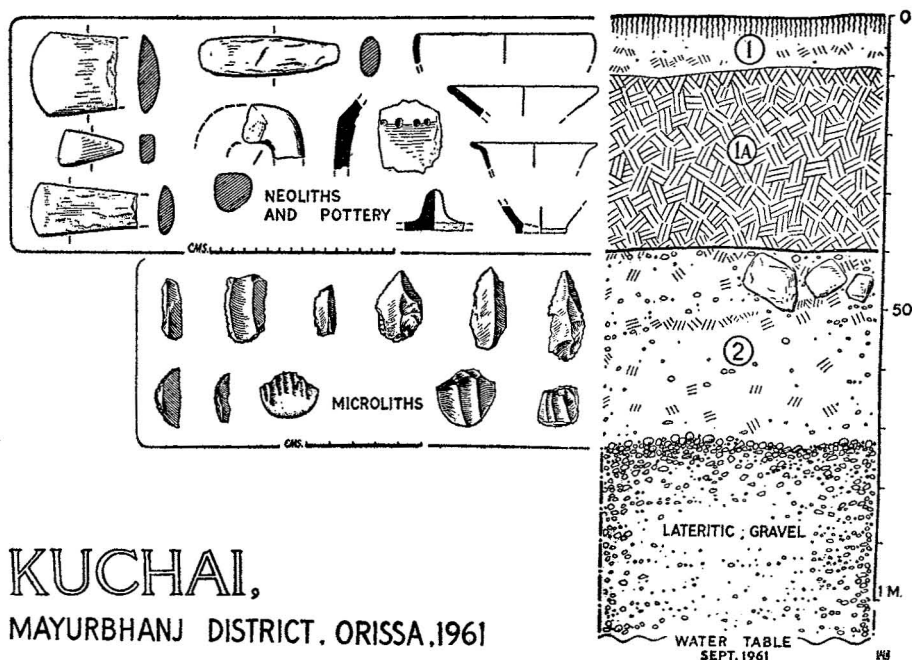
In the lower reaches of the Narmada, between Chandod and the sea, Dr G. J. Wainwright, Shri K. T. M. Hegde and Shri S. C. Malik of the M. S. University, Baroda, carried out an intensive exploration and collected Stone Age tools from

well-stratified deposits; they also attempted a correlation between the latter (i.e. the implementiferous deposits) and ancient sea-levels.

Shri P. C. Pant and others of the Banaras Hindu University explored a large area in Banda District, Uttar Pradesh, bringing to light sites of Early, Middle and Late Stone Ages, besides those with neoliths. An example of a polished stone axe, from a site called Lodhwara, is particularly interesting as it has two small 'pits' on either side (Pl. Ia).

The Vindyan region, lying to the south of Banda, is equally rich in prehistoric remains. Thus in two districts in Madhya Pradesh, by Shri S. R. Rao (of the Survey) in Rewa and Shri K. P. Jadia (an independent worker) in Panna, were located several rock-shelters with paintings (Pl. Ib); some also contained microliths.

Shri B. K. Thapar of the Excavations Branch of the Survey excavated an open-air microlithic station at Kuchai in Mayurbhanj District, Orissa. The lowest excavated deposit consisted of lateritic gravel bereft of any tool (Fig. 2). Above it was a layer of gravel mixed with greyish earth and loose lateritic pellets. It yielded non-geometric microliths, i.e. blades, points, scrapers, lunates, etc.; there were no triangle or trapeze forms, nor was any pottery associated with the tools. In the next higher layer—a clayey deposit lying unconformably over the preceding one—were polished stone axes of the usual eastern variety in association with a coarse brownish-red ware, occasionally slipped and incised; the association of this ware with the neoliths (which had been surmised earlier on the basis of mere surface explorations) was thus confirmed. The dig also provided further proof, if indeed such were still needed, of the comparatively high antiquity of the non-geometric microlithic industry.



### *The Protohistoric Period*

At Kalibangan, Ganganagar District, Rajasthan, the excavation I carried out during the preceding year had brought to light, from the lower levels of the larger of the two mounds, a black-painted (sometimes augmented with white) pinkish-to-red ware which in its totality was quite different from the classical Harappan ware. This year, the work, continued by Shri B. K. Thapar of the Excavations Branch of the Survey, brought to light, in the lower levels of the smaller mound, not only many more details of the pre-Harappan ceramic industry but also well laid-out structures associated with it (Pl. II*a*). Several structures belonging to Harappan levels were excavated, including the remains of two arterial streets. Amongst the finds in the Harappan levels, was a terracotta bull (Pl. II*b*), reminiscent of the one found years ago at Mohenjo-daro.

Continuing his work at Lothal, Ahmadabad District, Gujarat, (another Harappan site currently under excavation). Shri S. R. Rao of the Survey completely exposed the dockyard (Pl. II*c*), in the bed of which were also found five perforated anchor stones. Details were also obtained of the channel which connected the dockyard with the ancient course of the neighbouring Bhagavo river. A further study of the habitational strata and of the pottery and antiquities found in them confirmed that there was no break of occupation between Phases A and B at the site, the latter being nothing but a devolved phase of the Harappan Culture itself.

Ahar, the type-site of the protohistoric culture going by that name in Udaipur District, Rajasthan, had partly been excavated for two seasons, during 1954-56, by Shri R. C. Agrawal of the Department of Archæology, Government of Rajasthan. Its excavation was resumed this year under the joint auspices of the Deccan College Post-graduate and Research Institute, Poona, Department of Archæology, Government of Rajasthan and the University of Melbourne; the respective team-heads were Professor H. D. Sankalia, acting as overall director, Shri R. C. Agrawal and Dr William Culican.

The excavation confirmed an earlier observation that there were two cultural periods at the site; the earlier one associated with the white-painted black-and-red ware (Pl. III*a*), characteristic of the Ahar Culture, and the later with the historical Northern Black Polished (N.B.P.) and allied wares, with a clear-cut gap in between them. On the basis of pottery-variations, Period I was further divisible into three sub-periods, each with four to five structural phases. The houses were made of wattle-and-daub or of stone rubble-and-mud. The presence, in some of the houses, of large-sized hearths having up to four units (Pl. III*b*) is of interest. Iron was absent even from the topmost level of the Period. Amongst the small finds were terracotta spindle-whorls or beads bearing incised decorations, which seem to resemble, outside India, those from Troy and Anau.

Professor K. D. Bajpai, of the University of Saugor, continuing his excavation at Eran in Sagar District, Madhya Pradesh, brought to light much evidence of the four distinct periods observed there earlier. From bottom upwards, Period I was characterized by microliths and black-on-red ware; there were also a few sherds of the white-painted black-and-red ware typical of the Ahar Culture. A big mud wall—perhaps a fortification-wall—also seemed to be of this Period. Period II, marked



by the disappearance of the earlier materials except plain black-and-red ware, yielded thick grey ware, punch-marked and tribal coins and iron objects. Amongst the finds of Period III, was a hoard of 3,268 punch-marked coins, and also in its upper levels Red Polished Ware. Ascribable to Period IV was a fortification-wall of massive stones.

The excavation at Pandu-rajar-dhibi in Burdwan District, West Bengal, by Shri P. C. Dasgupta of the State Archæological Department, has brought to light, from the lower levels of the site, black-on-red and white-painted black-and-red wares (Fig. 3) which had never previously been noted in that region. Though much further investigation is necessary, it is quite possible these wares are connected with their respective prototypes in central India and Rajasthan.

Of polished stone axe (neolithic) cultures, something has already been mentioned in the preceding section, for the concerned sites had also yielded artifacts of the Early, Middle or Late Stone Age. As, however, no neolithic cultures in India are known to be earlier than the Harappa Culture, which is conventionally placed under the 'Protohistoric Period', they are also dealt with under this head.

To recall, the excavation at Kuchai (p. 29) showed the association of a brownish-red ware with the eastern variety of polished stone axes. As the tools and the ware are quite different from their respective counterparts in the Southern and North-western Neolithic Cultures, the separate entity of the Eastern Neolithic Culture is now duly established.

Of the Southern Neolithic Culture, a few sites were excavated this year. The excavation at T. Narasipur, Mysore District, was resumed by Professor M. Seshadri, on behalf of the State Department of Archæology. Within the neolithic culture, the pottery-sequence seems to have been, from bottom upwards: hand-made, coarse burnished grey ware and a cream-colour ware; coarse as well as fine burnished grey wares; and addition of painted black-on-red ware. It confirms earlier observations, made at other sites as well, that the painted black-on-red ware is an intrusive element in the southern neolithic complex. The dig also brought to light an extended burial of the Southern Neolithic Culture. In the upper strata of the site were profuse quantities of the Megalithic Black-and-red Ware with graffiti.

Shri T. N. Khazanchi of the Survey continued his excavation at the type-site of the North-western Neolithic Culture, viz. Burzahom, near Srinagar, Kashmir. The excavation, besides confirming the stratigraphic sequence of four periods identified earlier, brought to light much new material, particularly of Periods I and II, both ascribable to the Neolithic Culture. Of Period I, 16 dwelling-pits were exposed; the largest was about  $2\frac{1}{2}$  metres at the top,  $4\frac{1}{2}$  metres at the bottom and 4 metres in depth, with provision for landing-steps in its upper part. On the ground-level were hearths made up with odd stones. By Period II, the dwelling-pits seem to have gone into disuse, there being, instead, wattle-and-daub structures, as suggested by the presence of a series of post-holes. During both periods, the pottery comprised a burnished grey ware, though somewhat coarser in the earlier. In Period II, a burnished black ware, often with characteristic mat-impressions on the exterior of the disc-base, was also in use. Polished stone axes, harvesters, rings, etc. (Pl. IIIc) and bone tools comprising points, awls, chisels, harpoons and needles characterized both periods, the frequency and finish of bone tools, however, being

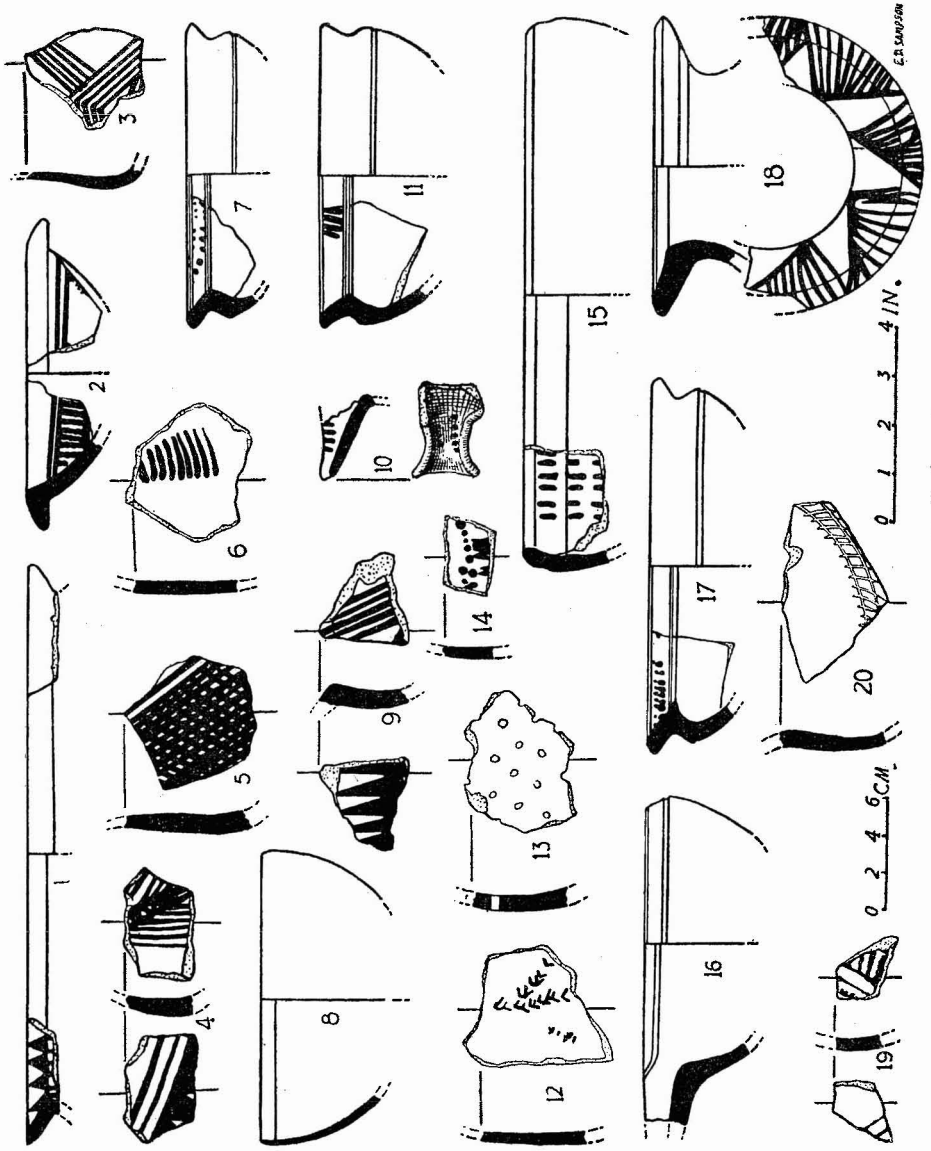


FIG. 3. PANDU-RAJJAR-DHIBI. Early pottery.

greater in Period II. In Period III were found structures of stone rubble and also 'megaliths' whose exact function remains to be determined. Period IV, characterized by a red ware industry, is ascribable to *circa* A.D. 3rd to 4th centuries.

### *Historical Archaeology*

Many sites ascribable to the early historical times (i.e. from about the middle of the first millennium B.C.) have been excavated.

In the GANGA VALLEY, Professor G. R. Sharma of the Allahabad University continued his excavation in the palace area at Kausambi, Allahabad District, Uttar Pradesh. The horizontal dig exposed a good bit of the plan of the palace; stratigraphically, its earliest phase (there were three phases in all) appears to be anterior to the Northern Black Polished Ware, with which in the main it was contemporary. Thus, the palace may go back prior to the middle of the first millennium B.C.

The University also discovered, at Hathinia, Varanasi District, U.P., many stone circles with cairn-packing, simulating the megaliths, with which, however, a detailed comparison will be possible only after excavations.

In the same district, the University of Banaras, under Professor A. K. Narain, continued its excavation at Rajghat, and brought to light two phases of the clay rampart that enclosed this site of ancient Varanasi; traces of a moat around it were also observed.

South of the Ganga, at Ahraura, in Mirzapur District, a rock-inscription of Emperor Asoka (Pl. IVa) was discovered.

North of the Ganga, in Gorakhpur District, U.P., the University of Gorakhpur, under Professor G. C. Pande and Shri S. N. Chaturvedi, excavated the site of Sohagaura. It has four cultural periods. From bottom upwards, Period I was characterized by grey, black and black-and-red wares; there were also painted specimens in each case. Period II had the N.B.P. Ware, while Period III post-dated it, yielding, besides a red ware, typical Sunga terracottas and coins ranging from those of the Ayodhya and Panchala dynasties to the Kushans. The latest Period, IV, was datable to medieval times.

In BIHAR, four sites were excavated: Antichak, Bhagalpur District, by Professor B. P. Sinha and Dr R. C. P. Singh of the Patna University; Sonpur, Gaya District, by Dr B. S. Verma; Vaisali, Muzaffarpur District, by Shri Sita Ram Roy of the K. P. Jayaswal Research Institute; and Rajgir, Patna District, by Shri Raghbir Singh of the Survey.

At Antichak, a massive brick structure, probably a *stūpa* with chambers and antechambers, was excavated. Amongst the many finds were a bronze image of Tārā and a stone Buddha in the Pāla style.

The work at Sonpur confirmed the earlier findings of three cultural periods, with a subdivision in the first. This subperiod IA contained a coarse black-and-red ware and a few objects of bone, while in IB the ware was finer. Period II was noted for the N.B.P. Ware and iron, and amongst others a terracotta figurine (Pl. Va). In Period III, both the N.B.P. and black-and-red wares were in disuse, and a red ware industry made its appearance.

At Vaisali, the two excavated sub-sites, Baniya and Virpur, confirmed the usual pre- to post-N.B.P. Ware sequence of the region.

At Rajgir, excavation was done at the new fort, supposedly founded by Ajatasatru, the Magadhan king at the time of Buddha. Although its occupation more or less synchronized with the appearance of the N.B.P. Ware, the defences, as encountered in the excavation, seem to be a bit later; they consisted of a mud rampart having a base nearly 40 metres wide and revetted externally by a slightly tapering burnt-brick wall. An encircling moat was also evident.

In the deltaic region of the Ganga, in District 24-Parganas of West Bengal, work was continued at Chandraketurgarh by Shri K. G. Goswami of the Calcutta University. Eight occupational periods were identified, the earliest yielding grey ware and the N.B.P. Ware and the latest associated with a small-sized temple of ninth-tenth centuries A.D. Of interest was the occurrence, in Period VI, of Rouletted Ware, which is usually thought to be due to Indo-Roman contacts around the Christian era.

In GUJARAT three excavations deserve mention: at Nagal, Broach District, by Shri K. V. Soundararajan of the Survey; and at Devnimori and Shamlaji, both in Sabarkantha District, by the late Professor B. Subbarao of the M.S. University of Baroda.

The excavation at Nagal revealed, besides faint traces of a chalcolithic culture, a good picture of the evolution of the black-and-red ware industry.

At Devnimori, more details of the Buddhist monastic settlement were obtained. Beginning in the second century A.D., the complex comprised a simple *stūpa* and *vihāra*. In the fourth century, finely-moulded façades were added to the structures, with images, whose decorative elements show Gandhara affinities. The complex seems to have come to a close about the sixth century.

The Shamlaji excavation brought to light a town site complementary to the monastic complex of Devnimori. A noteworthy feature, was the presence of burnt-brick fortifications, even now 10 metres high. Numismatic and other evidence showed that the township at Shamlaji outlived the Devnimori complex by several centuries.

A hoard of 278 images of bronze and marble (Pl. IVb) was found in an underground cell of a Jain temple at Ghogha, Bhavnagar District. These images, with 3 Buddhist exceptions, belong to the Jain faith; the inscriptions on some of them, are datable from eleventh to sixteenth century A.D.

In MAHARASHTRA, two noteworthy excavations were undertaken: at Kaundanpur, Amraoti District, by Dr M. G. Dikshit of Nagpur University; and at Junapani, Nagpur District, by Shri B. K. Thapar of the Survey.

At Kaundanpur, identified with Kaundinyapura (according to tradition the famous capital of ancient Vidarbha mentioned in the Epics), the earliest of its six cultural periods yielded black-and-red and grit-tempered wares. The N.B.P. Ware and punch-marked coins appeared in Period III, while IV yielded the Russet-coated Painted Ware and Satavahana coins. Period V showed a late phase of the Satavahana age. With a break from the preceding ones, Period VI yielded medieval remains.

At Junapani, three megaliths, all of the cairn-circle type, were excavated. They revealed fragmentary human skeletal remains, in association with Black-and-red and grit-tempered wares and profusion of iron objects. The site marks a northerly extension of the megaliths, otherwise typical of South India.

In ANDHRA PRADESH, the State Archæological Department, under Shri Abdul Waheed Khan, continued the excavation at Yeleswaram, and brought to light megalithic burials, the remains of a stepped bathing *ghāt* on the Krishna, and a huge *mandapa*-complex, ranging in date from a few centuries before to a few centuries after the Christian era.

In Krishna District, Shri H. Sarkar of the Survey carried out an excavation at Kesarapalli. Four cultural periods were identified; the earliest may perhaps go back to the late neolithic times. Period II, however, yielded the usual Megalithic Black-and-red Ware, iron objects, etc. Period III yielded the Rouletted Ware, and IV the Ikshvaku coins.

In the State of MADRAS, the site of Tirukkambuliur, Tiruchchirappalli District, was excavated by the University of Madras. The remains of a culture associated essentially with Black-and-red and Russet-coated Painted Wares (the latter showing both wavy and rectilinear designs) were brought to light.

#### ARCHÆOLOGICAL EXPEDITIONS ABROAD

In 1956, almost half-a-century after the famous expeditions of Sir Aurel Stein to central Asia, an Indian exploratory expedition visited Afghanistan. The year 1961-62 saw a further renewal of the external activities of Indian archæologists. This year three expeditions were sent out, one to Egypt and two to Nepal. As Egypt is outside of the area covered by *Asian Perspectives*, it is not given here.

#### *Nepal*

The Director General of Archæology in India, Shri A. Ghosh, visited Nepal in May 1960 to advise its Government on archæological matters, as the result of a request received through the Indian Aid Mission in Nepal. Two archæological expeditions were sent to Nepal during 1961-62 in partial fulfilment of his recommendation.

The expedition led by Dr R. V. Joshi of the Survey was entrusted with the exploration of the Katmandu Valley for possible Stone Age remains. It found no Stone Age tool—be it palæolithic or microlithic—in the concerned river-valleys; it is true some of the terraces and their slopes could not be thoroughly examined owing to paddy-cultivation and other vegetation. It nevertheless collected very useful data regarding the Pleistocene geology of the region.

The expedition headed by Shrimati D. Mitra of the Survey explored part of the Nepalese *tarai* contiguous to north-eastern Uttar Pradesh and subsequently excavated a few selected sites. It brought to light a large number of sites in Bhairwa and Taulihawa Districts, ranging in date from *c.* fifth century B.C. to *c.* fifteenth century A.D. In Taulihawa District it excavated the sites of Kudan and Tilaura-kot.

At Kudan, which is within 3 kilometres of the site (Gotihawa) of an Asokan pillar, is a series of four mounds distributed along the banks of an ancient tank. The excavation brought to light a well and two temples. Made of bricks and ascribable to c. A.D. 1000, the temples are noted for their exquisite carvings (Pl. Vb).

Tilaura-kot, as its suffix 'kot' indicates, was a fortified township, whose fortifications go back to the beginning of the Christian era; the site itself is older, as evidenced by the presence in the pre-defence deposits of the Northern Black Polished Ware and black-slipped and grey wares, and also several terracotta-ring wells (Pl. VIa). Amongst other antiquities recovered here were punch-marked coins, terracotta human and animal figurines, terracotta sealings, beads of a variety of semi-precious stones, and objects of iron, copper, glass, etc.

The excavations fully bear out that, during historical times, the material culture of the Nepalese *tarai* was in no way different from that in the adjoining regions of India.

#### THE ARCHÆOLOGICAL SURVEY BECOMES A CENTENARIAN

On 1 December 1861 the Archæological Survey of India was born, with Alexander Cunningham as its first nurse. It grew steadily, and at the turn of the century, it reached a status which many of its contemporaries could envy. Indeed, in 1961, our centenarian could easily boast of being 'one without others', even internationally. Thus, when in December 1961 the country celebrated the Centenary of its Archæological Survey, it was showered with congratulations and blessings from all quarters of the world.

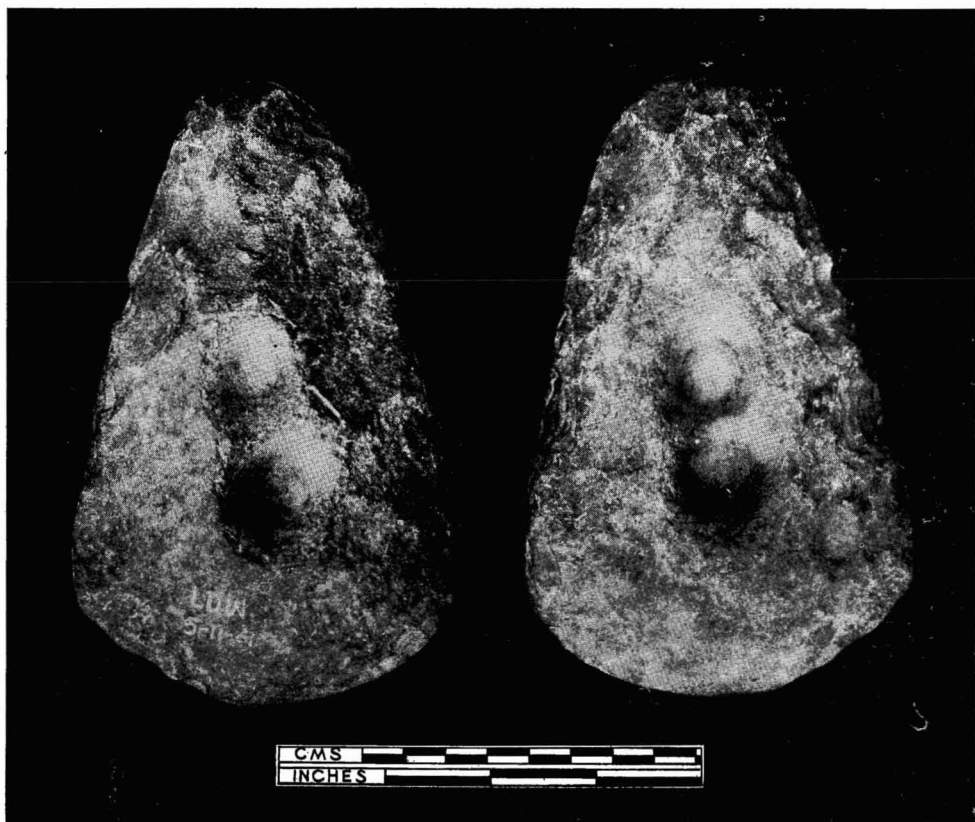
On this occasion, the Survey held a large-scale, well-displayed exhibition (Pl. VIb), which publicized its multifarious functions, ranging from structural and chemical preservation of ancient monuments to practical training in field archæology. It also organized an International Conference on Asian Archæology—the first one ever held. Over two hundred delegates, from the United States of America on the west to Japan on the east and from the Union of Soviet Socialist Republic on the north to Indonesia on the south, came to attend the Conference. With Shri A. Ghosh, Director General of Archæology in India, as the General President and the present writer as the General Secretary, the Conference was divided into four sections: (i) General archæology and archæological methods, (ii) Archæology of the Stone and Bronze Ages, (iii) Archæology of the Later Ages—general, and (iv) Archæology of the Later Ages—Art and Architecture, presided over respectively by Sir Mortimer Wheeler and Professors Robert J. Braidwood, Tatsuro Yamamoto and S. Paranvitana. It is impossible to go here into the details of the papers read at the Conference, but the meeting was so generally stimulating that the delegates present, under the leadership of Professor M. E. L. Mallowan, resolved that the Conference be held quinquennially, and our eyes are thus turned to 1966.

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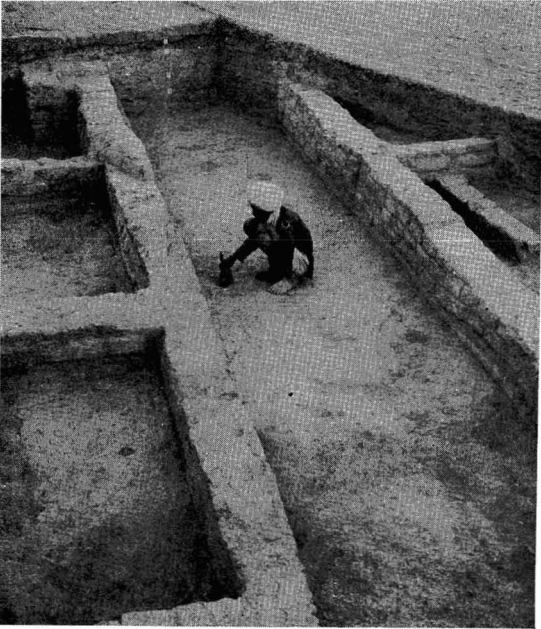
a. LODHWARA. Polished stone axe with a pair of small pits on each side (see p. 29)



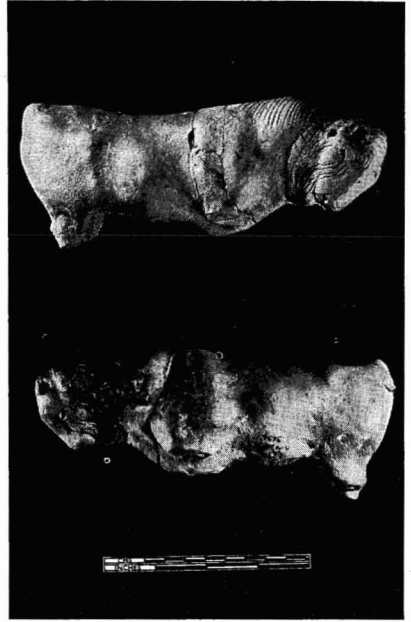
*K. P. Jadia, Panna*

b. BRIJPUR. Painted figures (see p. 29)

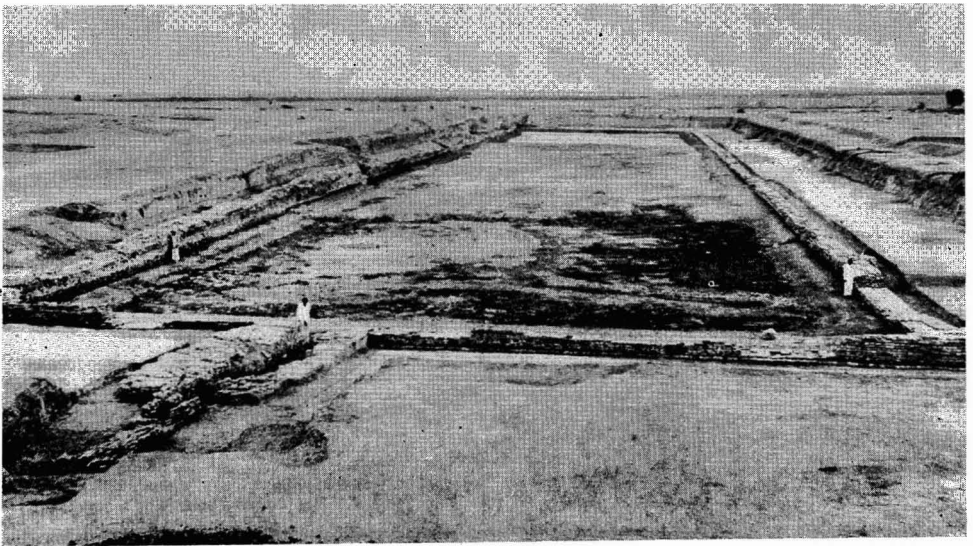
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a. KALIBANGAN. General view of pre-Harappan structures (see p. 30)



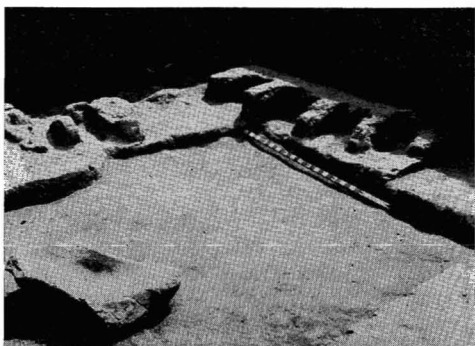
b. KALIBANGAN. Terracotta bull (see p. 30)



c. LOTHAL. General view of the dockyard (see p. 30)

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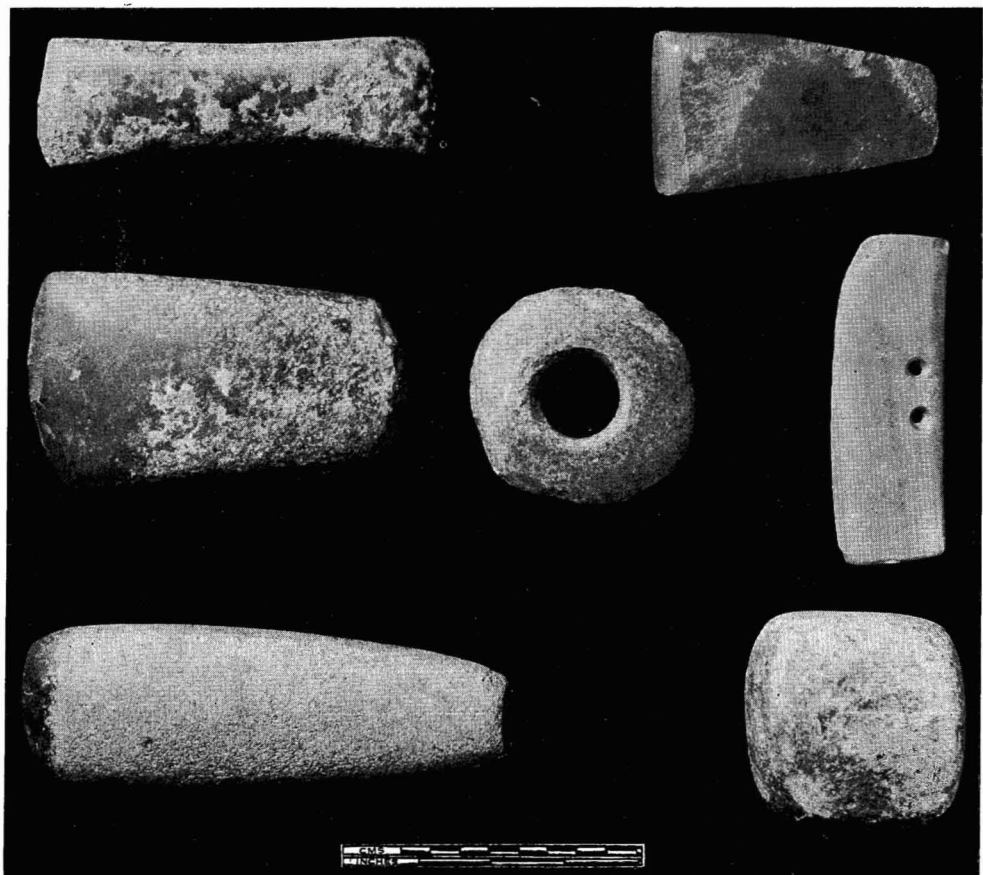




*Deccan College Post-graduate and Research Institute, Poona*

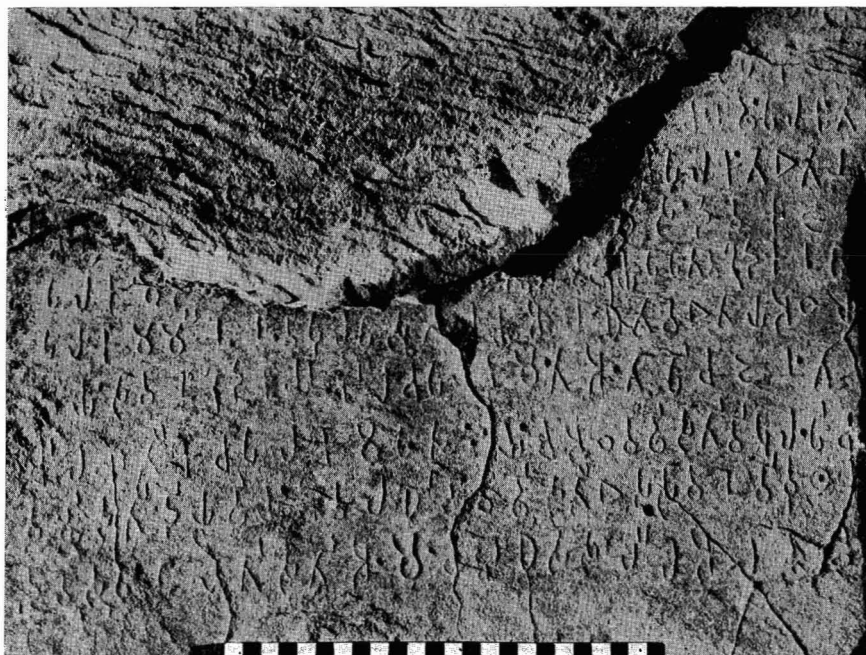
a. AHAR. White-painted black-and-red ware  
(see p. 30)

b. AHAR. Hearths (see p. 30)

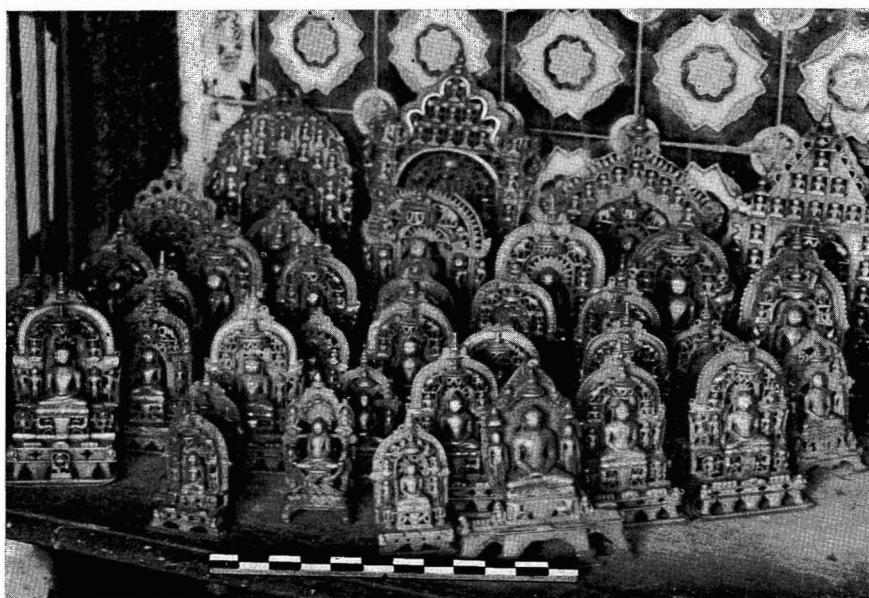


c. BURZAHOM. Neolithic tools (see p. 31)

*Archæological Survey of India*



a. AHRAURA. Rock edict of Asoka (see p. 33)



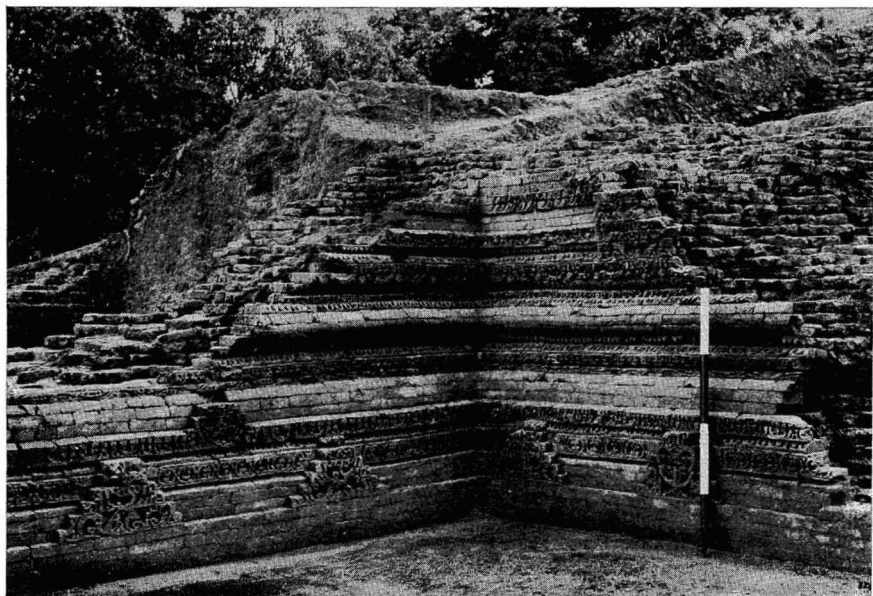
*Archaeological Survey of India*

b. GHOGHA. Hoard of images (see p. 34)



*Directorate of Archæology and  
Museums, Government of Bihar,  
Patna.*

a. SONPUR. Terracotta figurine (see p. 33).

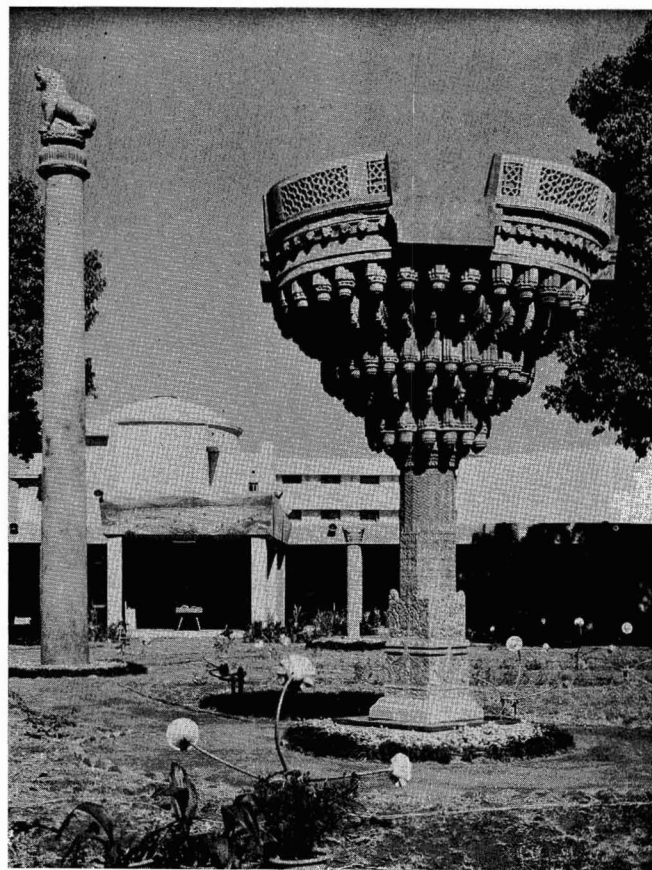


*Archæological Survey of India*

b. KUDAN (Nepal). Façade of Temple I platform (see p. 36)



a. TILaura-KOT (Nepal). Ring well (see p. 36)



b. NEW DELHI. At the Centenary Exhibition (1961), in front of the pavilions are life-size casts of the Asoka pillar, at Lauriya-Nandagarth (*left*), and the pillar in Diwan-i-Khas, Fatehpur-Sikri (*right*). See p. 36

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## Ceylon

P. E. P. DERANIYAGALA

Received 1 April 1963

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Fossils of ten extinct vertebrates are described, among which two Hominoids, viz. *Homopithecus sinhaleyus* gen. et sp. nov. and *Homo sinhaleyus*. Uranium assays by the British Museum of the teeth of elephant, rhinoceros and hippopotamus fossils from Ceylon are also given.

1961b Deposition of dentine in the fossilized tusk of *Elephas maximus sinhaleyus*, *Spolia Zeylanica*, 29(1): 15, 2 pls.

Fossil tusk fragments of the extinct *Elephas maximus sinhaleyus* are figured and described. They reveal that ivory is deposited both as a series of irregular islands and as concentric layers.

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Stone sarcophagi from three different sites indicated affinities with those of Egypt and also give some idea of the height of an average man of the period.

1961d The Maradanmaduva-Tabbova Culture of Ceylon, *Spolia Zeylanica*, 29(1): 91-94, 3 pls, 6 figs.

Grotesque and realistic terracotta figurines of humans and animals are figured and described, many are of phallic design. They appear to belong to an ancient fertility cult.

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The stone and bone tools of *Homo sapiens balangodensis* that were dug up from a kitchen-midden at Bellanbändi Pälässa are figured and described.

1962a The amphitheatres of Miniagal Kanda, their possible origin and some of the fossils and stone artifacts collected from them, *Spolia Zeylanica*, 29(2): 149-163, 8 pls, 4 figs.

These amphitheatres are possibly of volcanic origin; their stone-age camp sites with stone implements found in them are discussed. The presence of a bilobate transept suggests that they are of meso-neolithic age.

1962b The extinct hippopotamus of western Asia, *Spolia Zeylanica* 29(2): 241-242.

The name *Hexaprotodon asurus* is conferred upon the extinct hippopotamus of Palestine, Mesopotamia and Syria, and it is suggested that the ancient terracotta figurines from Byblos represent this species and not the African animal. This view is supported by the numerous hippopotamus fossils recently discovered in the Jordan valley by Haas. It is suggested that the mythical 'Makara' of Asia is the modern man's dim remembrance of the hippopotamus that once inhabited southern Asia.

1962c Was the extinct *Elephas maximus sinhaleyus* as hirsute as the young of *Elephas maximus maximus*?, *Spolia Zeylanica* 29(2): 246-248, 1 pl. 1 fig.

The hair tracts of a young *Elephas maximus maximus* are studied and it is presumed that this juvenile hirsuteness was the normal adult condition of the extinct *Elephas maximus sinhaleyus*, which had inhabited Ceylon with other extinct animals when the climate was cooler than at present.

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1962b The extinct hippopotamus of Ceylon, *Ceylon Today*, 14(9): 28-29, 1 pl.

The left half of the mandible of *Hexaprotodon sinhaleyus* dug out of a gem pit is figured. This species possessed six incisor teeth of which the second pair were greatly reduced; the third incisors were the largest. Its closest relative is *Hexaprotodon namadicus* of the Nerbudda lake deposits of India which are of middle Pleistocene age.



## Madagascar

PIERRE VÉRIN

*Received 11 March 1963*

In my article 'Rétrospective et Problèmes de l'Archéologie à Madagascar', which appeared in French with an English résumé in *Asian Perspectives* 6, 188-218, I briefly mentioned the test excavation at the site of Talaky, about which a report has appeared in the first issue of the *Annales de l'Université de Madagascar*, in February 1963. In the meantime the carbon sample from the site (Talaky, Zone B, site 2, C4-5) has been analyzed by Professor Kunihiko Kigoshi of the Department of Physics and Chemistry, Gakushuin University, Tokyo, Japan. The sample (Gak ) gave a date of  $-840$  years  $\pm 80$ . This first attempt of dating an old site of the island is encouraging and samples from other sites are being sent to Tokyo this year. The protohistorical inhabitants of Talaky had a maritime culture which bears similarities with the Vezo culture several hundred miles to the northwest. At the beginning of the second millennium iron was widely known in the area and sea voyages were more important than now. Other coastal sites between Tuléar and Fort-Dauphin will soon be studied by R. Battistini and P. Vérin.

Besides its activities concerned with dirt archæology, the Département d'Art et d'Archéologie, of the University has acquired a magnificent collection of wooden images from the Vezo cemetery of Bosy-Andraingy near Morondava. The Vezo still decorate their tombs with beautifully carved images of their defunct ancestors. Christianity which is spreading in the area has not wiped out the practice; even today one may see on some tombs Christian crosses surrounded with images of mating couples. However many new converts prefer burials without the decorating motives of the old pagan times. When the tombs are rebuilt the wooden images are thrown out and left to rot. Before collecting them, R. Mallet, P. Vérin and a few volunteers had to negotiate with the owners and perform the traditional ceremonies to propitiate the ancestors buried in the cemetery.

Two exhibitions were held; the first display was opened to the public in the University in September 1963, the second one was held at the town hall of Antananarivo the capital; over 60,000 people visited the exhibition. The catalogue printed in February 1963 contains 38 large size photographs of sites and specimens.

In August 1962, M. Babin, an amateur archæologist, made a field trip in the Bemaraha area and investigated the numerous burial caves in the cliffs along the shores of the Manambolo river. One important site has been mapped. Pottery, beads and a coin dated 1755, have been collected and turned over to the laboratory of the Département d'Art et d'Archéologie. A more careful study will determine

whether some of the burial caves may not have been used prior to the European period. A few skeletal remains have also been collected by Babin and are now being studied by Dr Chippaux, Director of the General Hospital Girard and Robic, Tananarive, who is reader in Physical Anthropology at the University.

A-M. Lavondès was not able to join the Department of Art and Archæology and S. Raharijaona became a member of the Department staff as from November 1962. Raharijaona completed a study of the upright stones and megaliths in Madagascar, which appeared in the *Revue de Madagascar*, 4e trimestre 1962, a quarterly published by the Service Général de l'Information. She describes the various kinds of uprights, which she calls *les pierres levées* and defines their functions as known from ethnographic reports. Raharijaona also recently completed a field trip in the southeast of Madagascar, buying artifacts for the Musée de l'Université.

M. Elie Vernier, Attaché au Musée de l'Homme, Paris, has been collecting artifacts to enlarge the Malagasy collections in his museum. At the request of the University he also completed a detailed catalogue of one of the most important collections in Madagascar, belonging to M. Charles Poirier; it contains more than 2,000 artifacts, mostly ethnographical—the University hopes to acquire it for its Museum.

Among the contributions which recently appeared on Malagasy Archæology and Culture History, Jacques Dez's article, *L'apport lexical de l'Indonésien Commun à la langue Malgache*, is worthy of mention. Dez classifies the words of Malagasy (including those from many dialects) originating from the Proto-Indonésien which Dempwolf called *Urindonesisch*. Dez's conclusion is especially interesting and even should one question the reliability of *Wörter und Sachen* methods, it serves as a working hypothesis. Dez states:

En définitive, il apparaît que le principal du vocabulaire malgache permettant à l'homme de se décrire lui-même, de décrire ses actions et le monde qui l'environne, vient de l'indonésien commun et constitue le plus vieux fonds de mots de la langue malgache, et, sans doute, d'idées aussi. Il semble que l'on puisse en déduire que la conception malgache globale de l'Univers est plus proche des conceptions indonésiennes que d'aucune autre.

L'héritage de l'ancienne civilisation indonésienne paraît notamment attesté, et plus particulièrement, dans l'expression des sentiments religieux, et dans la pratique d'un certain nombre de techniques, au nombre desquelles il est possible d'énumérer: la construction des maisons, la vannerie, le cordage, la poterie, la forge, la navigation, la numération les activités commerciales. Par contre, on notera qu'en matière d'élevage et d'agriculture, le vocabulaire est très pauvre et se réduit pratiquement à celui de la culture sur brûlis forestier. Doit-on en déduire que la domestication des animaux et les autres modes de culture ont été l'objet d'emprunts à d'autres civilisations? Pour l'instant, on ne peut que poser la question et affirmer qu'en tout cas la linguistique comparée ne saurait à elle seule la résoudre, qu'elle ne saurait constituer que des indices.

Also of interest is the article by Raymond Decary, *Les Anciennes industries du métal à Madagascar*, a good summary of the anthropological literature on industries and artifacts of iron, copper and gold in the island. Some of the types of jewels which he described were discovered by Babin in the burial caves of the Manambolo river.

As this article is being sent to the editor, Paul Ginther and Jean Claude Hébert, have published a description of the site called *Grotte des Portugais*, in the mountains

of Isalo near Ranohira. In a lofty area known as *Le Cirque de Tenika* are clustered caves, the entrances to which are partially closed by walls made of cut stones, flat areas with foundation stones, artificially hollowed excavations at the base of the cliffs, carved blocks of stones, etc. . . . The function of these stone structures is so far unknown and the names which have been given to them such as, *les sarcophages, le temple du soleil, la colonnade du marché, les réceptacles, les nids de pigeons*, may be misleading. The report gives few indications on excavations which 'yielded no results', probably because hidden structures were searched without taking the precaution to sift the earth removed. The map of the cave does not even indicate where the trenches were dug.

The protohistorical inhabitants of the Tenika caves might have been people connected with the Rasikajy culture, the trading culture which dominated the western part of the Indian Ocean before the Portuguese took over. Hébert picked up in Tenika some potsherds of *poterie noire vernissée* [black polished ware], which he thinks are very similar to some which he collected in Antsoheribory, a Rasikajy site of the north-west coast of Madagascar. Of course this pottery might have reached the site by trade. More recent Portuguese castaways might have temporarily occupied the site, but there is no real evidence of their occupation and the name 'Grotte des Portugais' for the Tenika site should be avoided. More systematic work should be done on this interesting site.

In the near future, the Département d'Art et d'Archéologie plans to undertake excavations in the Vohitrandriana site (near the Alaotra lake) where a few years ago road construction cut down through deep layers containing a beautiful black and red pottery. Coastal sites (dune sites and caves) between Tulear and Fort Dauphin will be investigated. Later on, as soon as the beginning of the dry season enables better communications, test excavations will be opened in the Rasikajy site of Antsoheribory.

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## Malaysian Borneo

BARBARA HARRISSON

*Received 23 May 1963*

### ACTIVITIES OF THE SARAWAK MUSEUM

*Personnel and Contributions.* The Museum's activities were handicapped in 1962, by the absence overseas of the Junior Assistant Curator, Mr Lucas Chin, training in Hawaii's East-West Center, and of the Archæological Assistant, Mr Richard Nyandoh, who was seconded for training under Professor W. R. Geddes at the University of Sydney. But expatriate local residents taking up special Museum interests filled the gap and contributed to keep research going and the records up to date. They were Mr W. P. N. L. Ditmas on folklore studies; Dr Yim Khai Soon on human remains; Mr J. Chater on archive work; and Mrs L. Wall and Mrs E. Moore on archæological material, with particular reference to prehistoric earthenware and import ceramics.

The Curator, Mr Tom Harrisson, attended the International Centenary Congress on Rizal held in Manila in December 1961 and remained in the islands for some weeks as the guest of the Philippine Government and the National Museum of the Philippines. In February 1962 he attended a Conference of the International Geographical Union at the University of Malaya in Kuala Lumpur, where he contributed a paper on Niah Archæology and a full-session evening talk with films on the geography and peoples of British Borneo.

The Max-Planck Institute for Brain Research invited B. Harrisson in April 1962, to attend a Primate Conference organized by the Institute in Giessen, Germany. She contributed there a paper on Orang-utans.

A high-ranking distinction, the Founders Medal in Gold, was awarded in January 1962 to Tom Harrisson by the Royal Geographical Society, for sixteen years of pioneer exploration in Central Borneo. He was able to turn that gold into political currency, eleven months later, when a rebellion broke out in Brunei and northern Sarawak at the beginning of December. Then his unique knowledge of the interior's jungle borders and intimacy with its residents enabled him to give detailed service and advice to the British Forces that were rushed to Borneo at the time. He rallied volunteer guerillas in the Fourth and Fifth Divisions of Sarawak and successfully operated with 2,000 of them in conjunction with the British Army, until the country was clear of rebels. He has since built up a permanent organization of Border Scouts. In a small, lively booklet for the benefit of the Forces serving in Borneo the Curator described the historical background of the Brunei rebellion and the complexity of interests, races, ethnological and geographical difficulties in the trouble areas (T. Harrisson 1963a).

*Archives.* The Museum's Archives now incorporate most important documents from outstations in Sarawak. This material is being slowly indexed; a start was made with the cases registered since 1887, in the Simanggang Court Books. There are years of work ahead to catch up in sorting, filing—and presenting later for publication—much of the unique papers, specially from Sarawak's Brooke period. The Department of History of the University of Malaya (Prof. J. Bastin; Prof. Wang Gungwu) have taken a close interest in the Archives. The Museum's Archivist, Mr Loh Chee Yin, returned to Kuching during 1962 having won the Certificate of the New Zealand Library Association under Colombo Plan auspices.

The Editor of the *Sarawak Museum Journal*, Mr Tom Harrisson, issued a *Jubilee Number* (10, 17-18, 1961) on the occasion of the *Journal's* fiftieth birthday. Fifteen articles by various hands present archive material or memories.

The Museum's photographic archives, comprising over 10,000 negatives, were reorganized and re-numbered during 1961/2. Some pre-1900 material of exceptional quality miraculously survived the pre-airconditioned decades of tropical climate. Accurate dating and identification of some of the earlier material is still incomplete.

A 20-minute sound-film, showing (in 16mm black-and-white) the traditional Punan-Melanau burial rites of the Niah area, was produced by a Museum team and incorporated in the Archives.

*Folklore and Linguistic Studies.* The Asia Foundation, which sponsored a period of advanced training by Mr G. Jamuh, Assistant Curator, and the main costs of a Borneo-Philippine Seminar held in 1961 (see *AP*, 5: 61), in 1962 made a grant for the publication costs of the seminar's studies, which appeared in the 1962 July-December issue of the *Sarawak Museum Journal* (10: 19-20), by Drs J. R. Francisco, A. C. Haddon, José Maceda, G. Jamuh, B. Sandin, R. Bewsher and others.

During the year, much energy has also been put into the re-capture and recording of native lore, as even some of the most ancient and venerated themes of the past are rapidly becoming obscure with new moral tones or materialistic tinge. The Assistant Curator, Mr George Jamuh (himself a Balau Dayak), and the Research Assistant, Mr Benedict Sandin (a Saribas Iban), made extensive field tours in the Niah-Bintulu districts of the Fourth Division, the Belaga-Baleh area and the Mukah-Oya districts of the Third Division of Sarawak. Three groups of informants from Kalimantan also spent periods of up to a month in Kuching recording material from the Potok Muruts of the north-west, the Kenyahs of the Batang Kayan, and the Kayan and Ba Maloh peoples of the Kapuas river in the south-west of Kalimantan. The legends and ancestry of these neighbours across the border is of great interest and relevance to Sarawak because a large proportion of the inland population originated from the south and east, only migrating north-west over the spinal range of the island in the past three or four centuries. To get a clear picture of the Sarawak peoples it is essential to take their overland origins and migrations into account.

#### ZOOLOGY

A thorough investigation of Bornean mammals, with a view to producing a Checklist to be followed by detailed ecology and behaviour studies of individual species, was started by Tom Harrisson and Lord Medway (Department of Zoology,

University of Malaya) early in 1962. The Checklist will be based on Bornean material in reference collections the world over, which Lord Medway has undertaken to review, during 1962-3. At the Borneo end of the chain collection of poorly represented families and species was intensified.

At the same time, behaviour studies were made of captives, especially primates. Tarsiers, Flying Squirrels, Slow Loris, bats and other difficult nocturnal mammals whose behaviour pattern has so far not fully been investigated, were kept under close observation for long periods.

The special study of Orang-utans was continued by Mrs Harrisson (whose book *Orang-utan* was published in London in 1962), under the auspices of the World Wildlife Fund and the Wenner-Gren Foundation. In June 1962, three captive Orang-utan orphans were transferred from Kuching to Bako National Park in the Sarawak river delta, to grow up there, semi-wild, under close observation and guidance. This study will continue for some years. It is producing a wealth of new information on spontaneous jungle behaviour of young Orang-utans. Nine months' experience demonstrate that: (i) young Orang-utans re-adapt themselves to wild living patterns; (ii) this process is slow and in accordance with age and temperament of the individual animal and in gear with its social needs, i.e. dependent on available human or ape-companionship, and guidance; (iii) an arboreal parent can be replaced to a certain degree, by a human tutor.

Orang-utan nest-counts were made by Mrs Harrisson in three separate habitat areas of North Borneo in order to determine the numerical status of the wild animal in that country and to supply recommendations to the World Wildlife Fund for the preservation of this threatened species.

The Chicago Natural History Museum in September 1962, sent a field party to work in the Balleh area of the Third Division of Sarawak. Drs R. F. Inger and B. Greenberg remained in the field for two months, leaving Dr Wayne King behind who still carries on in the area in spite of much insecurity, excessive floods and no doubt, personal discomforts. His ecological study of amphibians and their cycles, however, should provide adequate compensation.

## ARCHÆOLOGY

### A. *Indoor Studies*

*Pottery.* Much of the year was devoted to analyse material collected during previous years of field work; and in particular the study of prehistoric earthenware pottery from Niah and elsewhere in Sarawak under Mrs L. Wall—who also compared at first hand this with material in Singapore and Malayan Museums (Wall 1962); the reconstruction of earthenware from the neolithic burial site of Lobang Jeragan, Niah; and of import ceramics from the Painted Cave, Niah, as well as of Ming-dated material from the Kelabit highlands and post-Ming material from near Miri in north-east Sarawak.

The reconstruction of archæological earthenware and import ceramics—a lengthy task as nearly all of it is highly fragmented—is necessary if detailed identification and interpretation of a burial site is attempted. At the same time, comparisons are made with dated material published elsewhere; but unfortunately, in

the case of the 'ordinary export-ceramics', little concrete information is available. Exchange of sherd-materials with other researchers (Honolulu Academy of Arts, Hawaii; Ashmolean Museum, Oxford; Oriental Ceramic Society, London) is the alternative line of investigation in this field where much uncertainty as to dating, provenance and early trade-routes of mainland ceramics persists. This section of the Sarawak Museum's organization (now under Mrs E. Moore) would appreciate further outside interest, especially from the Asian and Pacific sectors with a view to exchanging sherds from dated archaeological sites or kiln sites.

*Beads.* Glass and stone beads are a usual feature of a Bornean burial site which includes imported ceramics. In view of the immense varieties of shape, form, colour and decoration that occur—coupled with strong elements of fashion which brought selective material into specified areas at certain times—it is usually difficult to do more than describe a bead or types of beads obtained from any one site. A classification enabling a student to analyse his material both visually and chemically along certain criteria in a sequence of decreasing complexity, is badly needed to be able to document much bead material which has so far been stored for better or for worse.

Alastair Lamb and Tom Harrisson got together in January 1962 in Kuching to try to work out such a classification basing it on the rich reference material available both in the Sarawak Museum and in the University of Malaya. A campaign for exchange with interested parties overseas was launched at the same time and arrangements were made for chemical analysis of set types—some of which have already been published in *AP*, 6. Further material and suggestions are welcome.

*Bone Remains and Artifacts.* D. A. Hooijer continued his expert study of the remains from Niah Great Cave and produced an analysis of bone of prehistoric gibbons and monkeys; Dr Wayne King similarly reported on the reptile and amphibian bone, including fully palæolithic identifications (Hooijer 1962; Wayne King 1962).

A special study of bone and tooth artifacts by Tom Harrisson and Lord Medway was published in December 1962 (*SMJ*, 10: 19–20: 335). It describes in detail, 206 artifacts from Niah Great Cave, classified into 18 categories based on visual analysis of shape and form, and arranged in a broad sequence of decreasing complexity. The material is richly tabled and illustrated and should serve well as a reference guide for archaeological bone artifacts from Borneo or wider afield. A summary of this has appeared in *AP*, 6: 219–229.

### B. Field Studies

*Niah.* A small field unit worked in Niah during November–December 1962, on special aspects of the Painted Cave, where close to 200,000 items had already been excavated during two previous field-seasons (*cf.* previous reports in *AP*).

Special attention was devoted to relating the vivid scarlet wall paintings of death ships to the carved hardwood boat-coffins scattered about the cave floor. It was possible to establish the positions of post-holes spread below the main line of murals and to fit into them exactly fragments of uprights which once supported the boat coffins above ground.



The approaches to the Cave itself were also investigated in detail. Steps were found to have been cut or worn into the basic rock of the Cave mouth—and the limestone of the underlying floor itself had been trodden and polished by what can only be mass dancing as part of the burial ceremonies. Subsequent human activities and natural depositions of the Cave fauna and flora had overlaid this dancing floor which was reached for the first time in November 1962.

Excavations were also extended to the lower section of the Painted Cave and to the exploration of the cliffs encircling it. A series of small grottos high up on a ledge were discovered. These contained well preserved remains including bronze, wood-work and even textiles. Associated import ceramics suggest the same date limits as in the main Painted Cave, between early T'ang and early Sung.

A detailed analysis of the material from the Painted Cave is well in hand.

*Kelabit Uplands.* The main theme of a Museum unit working in the Kelabit uplands during September and October 1962 was a full study of some of the impressive stone monuments (megaliths) which until recently the Kelabits erected to the memory of their ancestors at great *Irau* feasts.

The 1962 operations aimed at a detailed analysis of selected individual megaliths with a view to determining their date more precisely. Special attention was paid to the numerous stone dolmens and slab graves around Pa Lungan, to a huge dolmen and related carved stones on the uninhabited Pa Ra, west of Bario, and at Long Berang, ten miles down the now uninhabited valley of the Lebung (true headwaters of the mighty Baram river, here only a few yards wide). This work proved painstaking owing to the difficulty of excavating under the monuments without bringing them crashing down with fatal results both academically and physically! Valuable material was obtained, including dateable series of pottery, metal and other remains. A full analysis is now being made (*cf.* also T. Harrison 1962 *b, c*).

Preliminary results confirm that the Kelabits have been resident in the far uplands over many centuries, and that the present system of irrigated rice cultivation as practised at Bario is of considerable antiquity—though its origins may not necessarily be bedded in *rice*. It is also further clear that the Kelabits have been in longer continuous occupation of any one place than any of the other peoples of central or western Borneo. There is also evidence that, despite of its extreme isolation, the area was inhabited well back into the stone age. But there is no evidence, so far, to associate the megalithic monuments with the stone age. The monument idea seems to have begun long after the arrival of metal—and perhaps not until well on into the iron age, conceivably after A.D. 1000 in this hinterland.

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## Philippines

ALFREDO E. EVANGELISTA

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The National Museum is still the only institution in the Philippines with a long-range programme of organized and sustained archæological research. In early 1962 it sent out two expeditions: (a) a two-man team headed by the writer which carried out an extensive survey of limestone caves in the central Philippines; and (b) another two-man team headed by Dr Robert B. Fox which undertook a small-scale excavation project on eastern Palawan Island and then proceeded to its western coast, facing the South China Sea, to explore a number of limestone caves on Lipuun Point (also known as Albion Head). The latter area led to discoveries of worldwide interest, for among other materials, a 'Late Pleistocene Stone-Age Complex' was found which included a fossil skull-cap representative of perhaps the earliest *sapiens* group in the Philippines. Both expeditions were supported by a grant-in-aid from the Asia Foundation.

The only other local activity which came to the author's attention was a limited cave exploration in Kulaman plateau, Cotabato province, Mindanao, carried out by Dr Marcelino Maceda of San Carlos University, Cebu City, with the assistance of a Government soil technologist. According to sketchy reports, the exploration party found skeletal remains in earthenware and stone jars, but no mention was made of the associated cultural materials. It is hoped that further work will be done in the area inasmuch as the cave appears to be the southernmost extremity of the jar-burial complex in the Philippines.

*Central Philippines Cave Survey.* The writer, with the assistance of Mr Inocentes Paniza, Museum geologist, explored the limestone formations on the islands of Burias, Ticao, Masbate, and Higantes from 30 March through 4 June and in particular the caves there. All too often these numerous caves have been made useless to the archæologists by the activities of the guano digger, the pot hunter, and, as the field workers later discovered on eastern Masbate, the folk medical practitioner. Strictly speaking, however, the field work was not confined to caves, for open-air sites, reported to the team were investigated as well.

Some 14 or so individual sites were investigated on the island of Burias. Of these, 12 were open-air, and two were cave sites; and generally speaking the sites were small in area and badly disturbed by modern-day farming and ranching. The sherd samples collected indicated a range from perhaps the Late 'Iron Age' to the 15th century. A ground stone adze and a 12th century stoneware jarlet from northern Indochina or southern China were collected from a farmer who found them in his cornfield.

Of the four islands in the itinerary of the workers, Ticao was the most extensively though not completely explored. It yielded a total of 20 sites, of which 3 were open-air and 17 were cave sites. The Ticao sites ranged from rock shelters to huge caves to wide-open-air burial and/or habitation areas. No stone-age site was located but an indication of the presence of this assemblage was found among present-day cockfighters who keep stone adzes (locally known as 'thunder teeth') for honing their spurs. The ensuing metal age is abundantly represented on this island and future excavations on at least four sites should bring to light significant new data which we lack to fill the gaps in our present knowledge. An export celadon plate of Sung date was acquired from a farmer who found it in an open field overlooking a bay; and in trenching on what appears a pre-porcelain site near San Jacinto town, the team found a burial jar.

The investigators located no less than 16 sites along the eastern coast of Masbate—11 were cave sites. Several surface materials of highly diagnostic cultural interest, which were collected, included a carved coffin and a skull-box of 14th and 15th century date, the latter being perhaps the finest example of pre-Spanish wood art yet found in the Islands. A clay figure of a human head was found in one of the caves on this part of the islands, but unfortunately no further work is possible as much as the cave floor has been removed by a group of guano diggers. Many caves on this part of the island have also been stripped of their skeletal contents by the activities of the folk medical practitioner. A common practice is to file a piece of bone into powder with the tail of sting ray, add to a glass of hot water or tea and administer to the patient. The folk 'doctor' and the charm (*anting-anting*) hunter together constitute a group of people who remove skeletal (often cultural) materials from the cave; the guano digger, on the other hand, collects neither but throws everything else into some corner of or outside the cave.

Towards the end of the survey, Mr Paniza proceeded westward from Masbate to check persistent reports of caves on a group of tiny islands all named *Higantes* (giants) on account of the bones in the caves. They were believed to be those of huge supernatural beings—an explanation given all over the Philippines for the presence of these remains in caves which, in folk belief, are one of the known abodes of spirits. The reports were a disappointment. On account of their popularity, the caves were frequented by visitors, including excursionists, who, according to Mr Paniza, disturbed the sites to such an extent that he was only able to gather a few scattered surface sherds.

Had these sites not been disturbed in this lamentable manner they would have given us unique opportunities to find out about the pre-Spanish occupants of these islands. Of the more than 60 sites investigated, only 8 or 10 may be worthwhile excavating.

*Archæological Explorations on Palawan Island.* Dr Robert B. Fox proceeded to Palawan early December 1961 for further study of the inter-relationships between religion and society among the Tagbanuwa, the basis of his doctoral dissertation. He also made an ethnobotanical and an ethnozoological collection among the people for the Museum.

Fox's survey of the Pala'wan, the largest indigenous group on the island, led to the discovery of the now famous Alfonso XIII Caves. From the Pala'wan he

acquired a fine material culture and folk art collection, including a superb type collection of export stoneware jars, which the people used for the ritual drinking of rice wine before their conversion to Christianity. The jars came into the area through trade beginning from late Sung to late Ch'ing periods.

At Uring-Uring, Brooks Point, Palawan, Fox purchased a few archaeological specimens which the local people had dug up before World War II. One was a gold ornament of Javanese workmanship and identified by Prof. Juan R. Francisco, Honorary Curator of the National Museum for Indo-Philippine Studies, as a garuda image, the *vahana* or vehicle of the Hindu god Vishnu. It belongs to the Indonesian Madjapahit period (13th-14th centuries). Other acquisitions were a 14th century blue-and-white Annamese plate, perhaps the largest and finest specimen ever recovered in Museum excavations; a rare Chinese 13th century blue-and-white stem-cup; and a brown and white Siamese cover bowl of 14th century date, besides several unusual celadons of the Sung period.

With the assistance of Mr Manuel Santiago of the Museum, Fox spent three weeks at Uring-Uring digging a village site of the 14th-15th century. Though the materials recovered were generally poor, the archaeological data were significant according to Dr Fox.

When Fox and Santiago gave up the excavations at Uring-Uring, they went in search of older sites and, on the west coast of Palawan, came to the great Alfonso XIII series of caves in the municipality of Quezon. Before exploring the caves, they investigated a Spanish fort near the present townsite and presently in ruins; and in a quick excavation in front of the municipal building, a number of brass coins, probably Chinese, were found.

*The Quezon Caves.* By August of 1962, sixteen caves and ledges having cultural and skeletal materials have been located on Lipuun Point and three in the Iwa-ig area. With a grant-in-aid from the National Science Development Board, the Museum has formally set up a field station. The team headed by Fox included members of the staff of the Museum's Anthropology Division, and Mr Paniza of the Geology Division. Excavations began immediately when supplies and equipment arrived; many were donated by private persons, and also by the Research Foundation in Philippine Anthropology and Archæology, Inc.

At the present stage, I can only make a preliminary statement about the Palawan excavations, which are still going on; it is possible that new data will precipitate changes in interpretation.

On hand we have a wide range of distinct assemblages recognized on the basis of the finds from excavations proceeding in various stages in the caves of Lipuun and Iwa-ig. Seen as a whole the oldest materials appear to be late Pleistocene and the latest are associated with trade ceramics of 12th-13th century date. Hundreds of cultural and skeletal materials (mostly broken) have been recovered; many hitherto unknown to Philippine archæology. In a series of green jade ornaments, is a carved pendant with double-headed carabao motif; there are also adzes of ground giant clam (*Tridacna*) shell; a flexed early neolithic burial (Pl. Ia); a clay mould for a decorated bronze mace or axe, and so forth.

The most exciting cave to date is Tabon Cave (Pl. Ib), named after the Tabon bird or Philippine Mound Builder (*Megapodius freycinet cumingii*). It digs deep holes in the guano to deposit its eggs, and is thus responsible for the slight random disturbance of the cave deposits.

The fossilized human and animal bones, including a human skull-cap, discovered in Tabon Cave, have been reported in several newspapers and magazines, local and foreign.

The cave which is about 110 feet above sea level, is 8 metres high, twice as wide, and 38 metres deep. Its long chamber is well lit, airy and mostly dry, making it ideal for habitation and burial. Its multi-coloured and multi-textured bands of successive deposits reach 5 or 6 metres deep according to estimates.

A preliminary evaluation of the geology of Lipuun would indicate that Tabon Cave is old enough to contain mid-Pleistocene artifactual and non-artifactual remains. Hence the tentative dating, from finds including fossil human remains and one flake tool industry, is 15,000 years B.P. That certain fossilized bones and antlers are suspected to be those of deer is significant, for according to Fox, Palawan proper has no deer today.

The initial finds at Tabon appear to belong to two general groups of depositional activity: a secondary jar-burial assemblage and two (possibly three) flake-tool industries. Judging from the hundreds of large sherds of jars on the surface, Fox believes that the present floor of Tabon Cave is probably the same floor on which they were originally placed. The pottery complex shows similarities to the Sa-huynh pottery of Indochina (*AP* 3, 2, 1959), 'suggesting that a jar-burial complex came into this area from Indochina, but that the Palawan potteries are in some cases pre-iron in date'. Among the pottery forms were round-bottom burial jars with constricted waists and flaring lips, the truncated lids fitting within the lip of the jar and sealed to the lower jar with lime; a generally low-fired, heavy pottery, both unpolished and undecorated, except for rare instances of decorations with carved or cord-wrapped paddles and so forth. The size of the jars suggests a 'secondary jar-burial complex'. Bones of infants, children, and adults have been found near the jars, and in one instance the bones of a child was found inside the jar.

There were relatively few cultural materials associated with the jar-burials of Tabon Cave and these included a half-piece bracelet; nephrite and glass beads; fragments of copper (?) tools, etc. As no iron or ground stone implements were found Fox believes that the assemblage belonged to the chalcolithic, a stone-using to metal-using transitional period.

So far, the excavations have revealed more than one series of chert-flake tools, which vary greatly in age according to the stratigraphic evidence. What makes Fox think so is the abundance of chert on Palawan and the fact that the cave is ideal for habitation, although later on, during the pottery period, the cave was used for burial. The following is the delineation of the flake-tool assemblages as identified by the excavation team:

- a. Flake Tool Assemblage I and the Flake Tool Workshop where chert flakes were found on the surface, in nearby disturbed holes of the Tabon bird, and in anciently disturbed soil which is hard, granular and brown in colour that

forms a present surface of the cave in only 3 four-metre-square trenches. The latter hard soil contained only a number of large and tiny flakes associated with fossil human and animal bones;

- b. Flake Tool Assemblage II, found along the north wall in two squares in the guano beneath hard calcareous floors. In quality and colour, the cherts here are different from the other assemblage and are probably much older and;
- c. Flake Tool Assemblage III, discovered so far in one square in a soft, fine, red-brown deposit. The relationships that this band has with the two other assemblages have not yet been established.

*Carbon-14 Age Determinations.* To check the present calculated guestimates based upon typological and morphological comparisons, the Museum has sent some charcoal samples to the University of California at Los Angeles for analyses through the intercession of Dr Richard Shutler Jr, of the Nevada State Museum.

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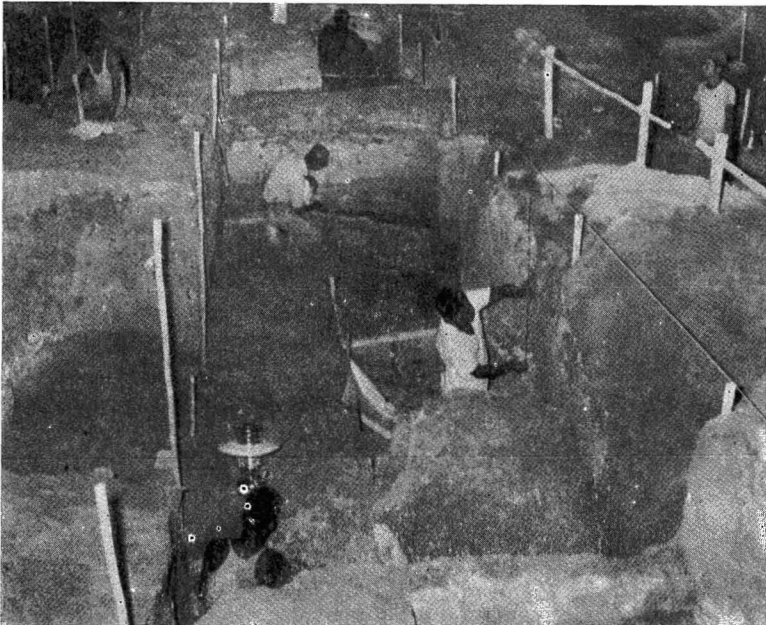
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a. Early Neolithic flexed burial Duyong Rock Shelter, Iwa-ig, Quezon, Palawan.



b. Tabon Cave, Lipuun Point, Quezon, Palawan. The excavation work.

## II

**Polynesia\***

Y. H. SINOTO

*Received 15 May 1963*

In recent years our knowledge of Polynesian prehistory has been greatly expanding, and 1962 marks the most extensive field work ever undertaken in the island groups of Polynesia. Two important scientific reports on results of earlier excavations were published in 1962: one by Robert Suggs, *The Archaeology of Nuku Hiva, Marquesas Islands*; and the other by Thor Heyerdahl, Edwin N. Ferdon, Jr, William Mulloy, Arne Skjolsvold and Carlyle S. Smith, *The Archaeology of Easter Island*. Bernice P. Bishop Museum, in co-operation with New Zealand archæologists and supported by the National Science Foundation, launched a three-year programme of Polynesian archæological research in the Society Islands, American Samoa, and Rarotonga in the Cook Islands.

The American Museum of Natural History sent a party to continue the field work of 1960 in Opunohu valley on the island of Moorea, Society Islands. The University of Madagascar began a preliminary survey and test digs on the island of Rurutu, Austral group.

In the Hawaiian Islands, Bishop Museum under contract with the National Park Service conducted a site survey and test digs on the island of Maui and salvage excavations on the island of Hawaii. The University of Hawaii conducted site survey and excavation on the island of Oahu.

## FIELD WORK

*Society Islands*

Research in the Society Islands was conducted by Kenneth P. Emory and Yosihiko H. Sinoto, Bishop Museum, Honolulu, from May to October 1962; it was the third expedition sent there by the Bishop Museum since 1960.

The most significant discovery of a Pre-Moa hunter (tentative term) burial was made on the tiny island of Maupiti, thirty miles west of Borabora, during the last expedition. A local planter, in digging post-holes for a boundary fence on Motu Paeao (one of the coral islets on the fringing reef), uncovered a human skull with two whale-tooth pendants and an adze, and gave them to Monsieur Schmidt (a medical practitioner at that time on the island) who showed the artifacts to the Bishop Museum party in Papeete. Realizing their importance, Sinoto left immediately for Maupiti with Aurora Natua of the Papeete Museum. Working with the local people

\* For information and help in assembling this section I am grateful to Lloyd Soehren and Marion Kelly, Bishop Museum; Roger Green, Auckland University; and Pierre Vérin, University of Madagascar.

on Maupiti, Sinoto expanded the post-hole and found an extended burial of a male with two more adzes on his chest, a small whale-tooth pendant, a human tooth pendant, and five pearl-shell bonito hook shanks and a point. The types of artifacts, the burial complex, and their authenticity definitely show a close resemblance to those of the Mōa-hunter burials of South Island, New Zealand. This discovery sheds light on the early movements of the Polynesian people, not only between the Society group and New Zealand, but also between the Societies and Hawaii. The preliminary report on the Maupiti burial will appear soon in the *Journal of the Polynesian Society*.

In the ancient fishing village at Afareaitu, Moorea Island, two months of extensive excavation were conducted by Sinoto with the assistance of Miss Marimari Kellum, University of Hawaii student. The site is located on the flat coastal area and extends from east to west about 500 metres. Among the structures uncovered were house sites and several *marae*, most of the latter destroyed and only upright stones indicated their existence. At its eastern end, a small feasting platform was excavated; test pits around it had been dug in 1961. Stone house foundations, midden material, and fireplaces were found in the two occupation levels below the surface. Charcoal samples were collected and dated by the radiocarbon method. The earliest date, TRC-8, A.D. 1022  $\pm$  90 years (Gakushuin-218) came from a sample collected at the 30 cm. level in the test pit No. 13. The date indicates roughly the age of the early period of Afareaitu site, but so far, we have no other criteria to confirm it.

In 1962, excavations were concentrated on the western end of the site. We sought places which would produce quantities of fishing gear and manufacturing tools, such as fishhooks and files, for comparison with those of other island groups and especially of Hawaii. As we had no surface clues to detect kitchen midden or workshops, we drove over 350 small test holes systematically in the area around the house sites and *marae*. From the quantitative and qualitative analysis of shell remains recovered from these holes, 42 two-metre squares were expanded. Concentrations of fishhooks and blanks with coral files were observed around groups of set stones (probably workshops) and fire-places. Grindstones and hammerstones were found in and around the groups of set stones; some were probably base foundations for house posts. A ditch, probably a drain, found in the excavation, extended below the water level and several artifacts were recovered under water. The accumulated cultural deposit was shallow, about 30 cm., and there were no distinct cultural layers.

Of the two excavated *marae* sites, one still retained its *ahu* and wall foundations; the wall stones had been removed to build a road and wharf. Its excavation revealed that it rested on a former living area. A fire-place was found below the wall foundation and charcoal pieces scattered beneath; a charcoal sample is now being dated. Among the artifacts recovered were a human bone chisel and several conus-shell chisels, fishhooks, stone and coral files, and grindstones. Some artifacts were found in the fill of the walls. From this excavation we found the first Tahitian dog skull, with other parts of the skeleton, from under the court pavement. A total of eleven human skulls, some of them associated with skeletons, were found inside and outside of the *marae* and under or between the paving stones. Besides the skulls, a bundle of human long-bones was found under its southwest cornerstone. One of four skulls

found in a pit appears to have a bullet hole and some stones used for paving were dressed wall-stones. This would indicate that not all of the skulls were of the same period. It is possible, that the bundle of bones is the remains of a human sacrifice offered at the time the *marae* was constructed. The excavation of the *ahu* revealed that the *marae* was rebuilt later and cut curb stones added in front of the old *ahu*. A rectangular, paved house-foundation with post-holes was found along the outside of the east wall of the *marae*.

In spite of extensive excavations in Afareaitu, few artifacts (about 300 artifacts, including over 80 adze chips) were recovered; this small number is quite usual for Society Islands' sites. The Afareaitu excavation has nevertheless added to the material culture of Tahitian prehistory.

At the end of August, the Bishop Museum party moved to Opoa, Raiatea Island, where it cleared, surveyed and mapped Marae Taputapuatea, and partly reconstructed the wall by replacing some of the fallen *ahu* slabs. Taputapuatea, one of the largest *marae*, was once the most important religious centre in the Society group. Kenneth P. Emory, who surveyed the site in 1926, thirty-six years later found it in almost the same condition but covered with a dense growth of trees. The *ahu* is 42 metres long, 9 m. wide and 2.5 m. high at the top of the fill; some of its coral slabs are 4 m. high and 2.5 m. wide at the maximum, and 0.4 m. thick. Emory and Sinoto found that the fill of the *ahu* is supported by the primary *ahu* slabs and the outer slabs are simply leaning on the primary slabs.

Several test pits were put down outside of the *marae* court. Two pits revealed the existence of a coral gravel floor under its present court; in one pit a considerable amount of broken human bone was found with charcoal.

Outside and toward the northwest of the *marae* was a large rectangular platform (which had been taken for a priest's house platform). Directly beside it an archery platform was discovered, the first ever found in the Leeward Island Group. Later, another archery platform was found in Opoa valley. Further research and excavation will be carried out in Opoa in 1963.

In June, Sinoto conducted a week of preliminary prospecting on Huahine; surface findings were poor except for *marae*. Matairea Hill behind Maeva village has a promising area for excavation. Here a considerable amount of shell deposit was noted by Emory in his 1926 survey; Sinoto in testing the area confirmed the deposit. In 1926 Emory had surveyed and recorded all the names of the approximately thirty *marae* in Maeva village; they were still intact in 1962, but the present villagers can only recall half of their names.

Roger Green and Janet Davidson of Auckland University did field work sponsored by American Museum of Natural History. They excavated *marae* and house sites in Opunohu valley, Moorea island, from December 1961 to March 1962. They concentrated their attention on the stratigraphy of selected sites in the interior of the valley. Two *marae*, a large round-ended assembly house, and a small rectangular house were excavated; test diggings were made on four *marae* and a small round-ended house.

Site ScMo-158 (a large round-ended assembly house) showed, on excavation, an occupational sequence and stratigraphic association of the various stone remains. Green's account of the stratigraphic sequence is as follows:

*Stage a.* Pit and post-hole stage, which shows numerous storage pits, post-holes, and several drains cut into sterile clay.

*Stage b.* Deposit of clay fill derived from disturbed, sterile soil and mixed with a small amount of charcoal. This stage marks the creation by the cut-and-fill method of a flat dwelling area.

*Stage c.* Accumulation of a more friable, heavily charcoal-impregnated, black fill.

*Stage d.* Building of a stone terrace wall at the front of the site, infilled at the back with additional, redeposited black fill. During this stage the 45 foot-long assembly house, the long terrace with uprights behind it, and the simple, stone *marae* were constructed.

*Stage e.* Abandonment or demolition of the assembly house and the construction within it at the west end of a small rectangular sleeping house.

Green collected a large number of excellent charcoal samples which will permit the radiocarbon dating of each stage.

Site 103c (a large pavement and small rectangular house) has a four-stage sequence very similar to that of SoMo-158. In its third stage, the dwelling area was enlarged and a 60-foot long round-ended assembly house built. It is the largest assembly house recorded in Opunohu valley according to Green.

Green did not find a single artifact of bone or shell in his excavations; and although no significant midden deposits were encountered because of acidity of the soil, some bone remains of pig and dog were discovered in the excavations of the sites. Only 26 broken adzes or fragments, 1 stone pounder, a cache of 25 sling stones in the wall of a *marae* (ScMo-1031), and several single sling stones in *marae* sites were recovered in the three months of research.

Three coral slab boxes inside the *marae* revealed nothing to indicate their function. Green's investigations around and under the uprights gave no new information on the position markers for gods, ancestors, and ceremonial participants on the *marae*.

#### *Austral Islands*

During September and October Pierre Vérin, Attaché au Département d'Art et Archéologie de l'Université Madagascar, with the help of Miss Marimari Kellum, University of Hawaii student, made an archæological survey of Rurutu in the Austral Islands. In this comprehensive survey of the most prominent surface ruins of the islands, they discovered in the northern part of Vitaria district an old urban complex, which was cleared, surveyed, and mapped. Vitaria contains more than fifty house sites, platforms with specialized functions, and several *marae*. The house sites belong to the round-ended type and are set up on rectangular, elevated platforms; the fronts of the latter are paved and show a line of uprights parallel to the curb of the houses. Rurutu *marae* are of several types. Some resemble the Tubuaian *marae*, the square-court type with lines of uprights on three sides and without *ahu* as has been described by Aitken (Ethnology of Tubuai, *Bishop Museum Bulletin* 70, 1930, 118). Others have only an *ahu* but no enclosed court or uprights in a court and are similar to those of the Society Islands and the Tuamotus.

Others again are a combination of both preceding types, a square or rectangular court with three sides of back-rests and an *ahu* on the fourth side.

One reason for the perfect preservation of the Vitaria ruins is that the site was completely abandoned before the Christian epoch; when Tearea, the district chief of Vitaria, became the king of the whole island of Rurutu he moved the capital to Moerai where extensive cultivation of taro was possible. In the three main villages of today, Moerai, Hauti, and Avera, none of the ancient remains are in good condition, but the urban pattern of life and the social unit of the prayer house within the village may be a continuation of the older pattern.

In Nauru district a large cave was tested and may be a well worth excavation. The first pearl-shell hooks from the Austral Islands were found here as well as adzes, a shell chisel, and scrapers. A charcoal sample for radiocarbon dating has been sent to Gakushuin University laboratory.

The expedition was financed by the University of Madagascar; M. Bertrand Jaunez of the Société des Études Océaniques, Papeete; and the Bishop Museum, Honolulu.

Vérin intends to return in the summer of 1963 to excavate in the Nauru district cave and the Vitaria village complex.

### *The Cook Islands*

A team of New Zealand archæologists, headed by Roger Duff, Director of Canterbury Museum, Christchurch, went to Rarotonga to begin a site survey and excavations in November 1962. The Bishop Museum provided the necessary funds from a National Science Foundation grant for Polynesian Archæology and expects to receive in due course a report from the team.

### *Hawaiian Islands*

In 1962 the field season in archæology began with a site survey of two large tracts of land in North Kona, Island of Hawaii. Lloyd Soehren, Bishop Museum, surveyed and recorded a number of surface remains, but found no significant stratified sites. Similar surveys made in other parts of the island by Mrs Violet Hansen, Bishop Museum Field Associate, has added extensively to the inventory of surface remains on the Island of Hawaii.

To evaluate and possibly salvage a much eroded shoreline site on State land at Puako, South Kohala, Island of Hawaii, Lloyd Soehren, Violet Hansen and Marion Kelly, spent about three days in June excavating two test pits, with the help of local residents. Field expenses were covered by a grant from the University of Hawaii Committee for the Preservation of Hawaiian Culture.

In July Soehren made a site survey in Kaupo on the southeastern part of the Island of Maui, as part of a contract with the National Park Service. Further surveys and several test excavations were made later in the year in the dormant crater of Haleakala, Maui. A final report will be submitted to the National Park Service in 1963.

In August, at City of Refuge National Historical Park, Honaunau, Kona, Hawaii, a salvage excavation of a stratified but shallow camp site on the beach was conducted

by Soehren, again under contract with the National Park Service. A qualitatively interesting collection of artifacts was recovered, but slight in quantity and antiquity. The final report was submitted in January 1963.

In October 1961, the Department of Anthropology of the University of Hawaii began a field survey at Hawaii Kai on the southeastern end of Oahu. Several small sites were located, including a small rock shelter, the outer side of which looked like a coloured layer cake from the alternating layers of shell, ash, and dirt mixed with charcoal which recent erosion had exposed. Excavation of the site was started in February 1963 as a part of a class on archaeological field method, under the direction of Wilhelm G. Solheim II. Once trenches had been cut across the face and to the back wall of the site excavation proceeded by following the natural layers. Extensive pitting was found in the top 30 to 50 cm., several times resulting in pits within pits. A charcoal sample, taken from the bottom of the third layer and submitted to Gakushuin University, gave a date of  $1,330 \pm 150$  A.D. Two more samples, one from the bottom layer and one from the second layer above the dated layer have been submitted. Numerous artifacts were recovered from the top levels but very few from the lowest five levels.

#### *American Samoa*

In October-November 1962, a preliminary archaeological site survey of Tutuila and Marua Islands, American Samoa, was undertaken by Y. H. Sinoto, Bishop Museum, and William Kikuchi, University of Hawaii graduate student. Earlier, Kikuchi as part of his graduate work spent nine months on a site survey of Tutuila. This visit of Sinoto and Kikuchi marked the beginning of the work in American Samoa under the three-year Polynesian Archaeological Research Programme supported by the National Science Foundation.

Limited by time and transportation, the survey was around the southwestern coast of Tutuila and on Tau Island, Manua Group. Dense vegetation covered the coastal area and hampered prospecting; it contrasts with the openness of the Western Samoan terrain. Tia, or earth mounds such as Golson excavated in Vaialele near Apia, Upolu, so far have not been found in American Samoa. Abandoned house platforms and cultural deposits with charcoal were tested in Leone village. Stone adzes and graters were discovered in some of the test pits, but post-European materials were also found throughout the deposits in all the test pits, except one house site, where the lower layer contained no post-European material. A test dig in the floor of Bat Cave near Pago-Pago showed two separate ash layers; this may prove a promising site for excavations. A charcoal sample was collected from the test pit for radiocarbon dating. A large cave behind Faleasao village, Tau Island, was used as refuge during a storm in historical times, but a test excavation, one metre deep, in the cave floor showed no evidence of human occupation, except on the surface. The ancient village of Fanga, now abandoned, was the first settlement in all Samoa, according to Samoan legends. Numerous house platforms and foundations are overgrown with bushes and trees. Many ancient Samoan sites probably lie under present villages; only where villages have been abandoned can extensive excavation be done.

Although stone artifacts were found in large numbers on the surface, not a shell or bone artifact was picked up. In two villages (Leone, Tutuila Island, and Fitiuta, Tau Island) alone, over 250 classifiable adzes, adze sections, and numerous adze fragments as well as 95 stone graters were found. Kikuchi had already found 50 adzes in Leone on his previous trip. All the artifacts were found on present house platforms of the villages or on the village roads. The types of adzes include all of Buck's 8 types (Buck 1930) and 7 adzes of the Tongan type. A triangular adze found in Fitiuta village has a distinct tang with sharp shoulders; similar to the type of the Cook Islands. Besides this tanged adze, there are several adzes which indicate incipient reduction by flaking off the sides of the butt near the poll. Tanged adzes all come from the surface and are few in number; future stratigraphic excavations in this area may reveal whether tanged adzes were developed in Western Polynesia or represent an intrusion from Eastern Polynesia in later contact times.

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## New Zealand

OWEN WILKES

### INTRODUCTION

The reports on New Zealand in previous issues of *Asian Perspectives* show that the study of its prehistory recently was pursued mainly through the discipline of archæological excavation, and this continues to be the case. Archæology at the present time shows two overlapping trends: (a) an emphasis on the excavation of structures, mainly pits; and (b) the development of new dating methods and setting up of chronological sequences based on traits other than the morphology of portable artifacts. These trends are evident in the two chief communication outlets provided by the New Zealand Archæological Association: the biennial conference and the *Newsletter*.

The 1962 conference, held in Christchurch from 10 to 17 August, in conjunction with the Royal Society of New Zealand Tenth Science Congress, included a lecture and two-day field trip to view rock drawings, symposia on cultural successions in the North and South Islands, on Holocene History (in conjunction with Geology, Geography and Soil Science sections) and on Oceanic prehistory, as well as papers on archæological field work and material culture.

The *Newsletter*, in five years has grown from a modest sheet to four quarterly issues forming a 250-page volume of interim reports and extended summaries of field work. The number of persons and the strength of field groups whose reports appear in the *Newsletter* continue to increase. The bibliography of articles in my present report is largely taken from the *Newsletter*; it shows that current publication is rather unbalanced; detailed final reports are slow to appear, because few institutions are willing to support final, full publication.

### CULTURAL SUCCESSION AND CHRONOLOGY

A symposium was held on the subject of cultural change at the August conference. Partly in an attempt to meet Golson's demand (1959) for a more flexible nomenclature, Duff proposed (1962, 1963) a modification of his earlier bipolar scheme (1956) to allow between his Moa hunter and Classic phases, a Transitional phase divided into 'Residual' and 'Protoclassic'. This scheme, which continued to apply an economic term (Moa-hunter) to a cultural entity, was followed by Green's more specifically defined cultural sequence for the northern part of New Zealand, which is likely to become a model for successions elsewhere (Green and Shawcross 1962). The subdivisions are defined not by the durations of traits but by the incoming of traits, and ecological and economic traits are given prominence. A summary of this sequence is as follows:

1. *Early European Maori Phase; c. A.D. 1800-1850.* A fusion of Maori and European culture, settlements form the differentiated simple nuclear *pa*, often modified by new warfare methods.

2. *Classic Maori Phase; c. A.D. 1650-1800.* Culture as defined by Duff (1956) and Golson (1959). Intensive systematic agriculture. Differentiated simple nuclear *pa*.

3. *Village Maori Phase; c. A.D. 1450-1650.* A 'transitional' or 'proto' form of Maori culture. Systematic agriculture. Semi-permanent sedentary *pa*.

4. *Experimental Phase; A.D. 1350-1450.* A late stage in the development of New Zealand Eastern Polynesian Culture, experimental development of agriculture, the moa becoming scarcer.

5. *Developmental Phase; c. A.D. 1100-1350.* New Zealand Eastern Polynesian Culture (i.e. the 'Archaic' of Golson [1959] and 'Moa hunter' of Duff). Intensive exploitation of moa.

6. *Settlement Phase; c. A.D. 900-1100.* Initial adaptation of a tropical East Polynesian Culture to the New Zealand environment.

With a sizeable body of data on pit structures now available, R. H. Parker was able to present to the N.Z.A.A. conference a tentative sequence of Archaic pit types which have been excavated in two widely separated areas in the North Island. These types are summarized from Parker (1962) as follows:

*Archaic A:* (a) Deep pits with length: breadth ratio 3:2, sometimes with a single buttress on one long wall and/or a scoop hearth. Two post-holes well in from the end walls. (b) Flat roofed rectangular underground pits.

*Archaic B:* (a) Shallow pits with 2:1 length: breadth ratio and a central line of post-holes with end posts recessed into walls. (b) Small bin shape pits.

'Early Maori', 'Classic Maori' and 'Late Maori' periods complete Parker's Sequence.

A comparison between tree ring dating and  $C_{14}$  dating has shown recently an error probably in the latter method due to variations in  $C_{14}/C_{12}$  ratios in the atmosphere. The errors agree roughly with those given by similar work in the United States. The method used was to count rings on a section of a 1,000 year old kauri tree, and then carry out  $C_{14}/C_{12}$  determinations on 15 samples from the section. A table of ring dates,  $C_{14}$  dates and probable necessary corrections for the latter, after Jansen (1962) is as follows:

Ring Date A.D.	$C_{14}$ Date A.D.	Differences (correction for $C_{14}$ date)	Ring Date A.D.	$C_{14}$ Date A.D.	Differences (correction for $C_{14}$ date)
1031	691	340	1534	1414	120
1032	755	277	1570	1535	35
1091	783	308	1592	1583	9
1099	872	227	1595	1617	-22
1177	939	238	1696	1740	-44
1246	1039	207	1696	1738	-42
1390	1200	190	1786	1865	-79
1489	1349	140			

These corrections are not being applied in published  $C_{14}$  datings by the N.Z. Institute of Nuclear Sciences until the discrepancies are confirmed by further work.

Chronology by obsidian dating relies on measuring the thickness of the hydration layer of obsidian flakes, which is proportional to the lapse of time since the flake was knapped. Two recent articles (Ambrose and Green 1962, and Green 1962) describe the progress made with this method in New Zealand—local factors such as obsidian source and average soil temperature must be taken into consideration.

Field work data continue to set back, as might be expected, the date for the first human occupation of New Zealand. A summary of stratigraphic evidence for a considerable peopling of the North Island, at a much earlier date than was previously thought, was given in *AP* 5, 94. A full report, with further data and conclusions, has now appeared (Wellman 1962).

Wellman subdivides the Holocene Period and its deposits in the North Island as follows:

1. *Several thousand years B.C.* Last cool period. Sea level significantly lower, marked by drowned forests, etc.
2. *Several thousand years B.C. to A.D. 200.* Deposits beneath the Taupo pumice shower, including several ash showers.
3. *A.D. 200 to ? A.D. 550.* Deposits between the Taupo pumice and the lowest charcoal fragments.
4. *? A.D. 550–A.D. 700.* Oldest layers with evidence of human occupation—charcoal fragments.
5. *A.D. 700–A.D. 1300.* On the East Coast—lower occupation layers and lower part of overlying barren layers. In Coromandel—Northland—deposits with moderately abundant charcoal. Base defined by Loisel's pumice. (However, elsewhere in the Paper, Wellman admits that this method of 'stratigraphic' dating gives possible dates between A.D. 500 and A.D. 1000 for the Loisel's eruption.)
6. *A.D. 1300–? A.D. 1800.* Upper occupation layers, and on the East Coast, part of the relatively barren layers below. Base defined by a volcanic ash layer, probably Kaharoa Ash, carbon dating elsewhere as A.D. 1050 although the 'stratigraphic' date is 1350.
7. *A.D. 1800 to present.* Mainly windblown sand or soil and mud flows. Disproportionately rapid accumulation presumably due to destruction of plant cover.

Assuming a Maori population of 250,000 in 1780 (based on estimates by Captain Cook, etc.) Wellman compares 'intensities' of the two occupation layers and estimates a population of 150,000 for the A.D. 700–1300 layers. Between this and the post-1300 population, Wellman sees a reduced population due probably to scarcity of the moa and the unsuccessful cultivation of the kumara. If the population had doubled every 20 to 50 years, the first 100 or so people would have arrived between A.D. 200 and 500. Absence of any sign of occupation for a long interval above Taupo pumice makes it unlikely that North Island was inhabited in A.D. 200. Wellman points out that the traditional arrival of 9 fleet canoes in 1350 was unlikely to dominate a culture which already numbered 150,000 in A.D. 600.

Other workers, in the Waikato region and in Hawkes Bay, have produced uncertain evidence (as yet unpublished) for man's presence before the Taupo Pumice Shower (c. A.D. 150). More definitely, a post butt in Redcliffs Cave, South Island (see Bell, 1958) has been carbon dated at A.D.  $780 \pm 65$  (Duff 1963).

#### CLIMATE CHANGE AND THE KUMARA

The theory that the sweet potato or kumara was a late (1350- Fleet) introduction to New Zealand and that it was unknown in Moa-hunter (Duff 1956) times is now being carefully re-examined. It was originally put forward on the evidence of tradition, but is difficult to prove or disprove as wooden agricultural implements are unlikely to be preserved, and pollen is rarely if ever produced by New Zealand plants. Small bin-shaped pits, too small to be house pits, have been interpreted (Golson and Gathercole 1962) as storage pits for kumara. Several of these were excavated at three Development Phase sites (Green 1962) on the Coromandel Peninsula, two of which are carbon dated A.D. 1300-1350. On D'Urville Island a layer of pebbly soil associated with occupation layers containing midden moa bone and East Polynesian artifacts has been interpreted by Wellman (1962a) as a 'made' soil for kumara culture. (We know that in historic times Maoris added pebbly material to soil to improve its tillage, drainage and heat retention qualities.) The occupation is 'stratigraphically' dated at A.D. 1000. At a North Island site Wellman (1962b) has made an uncertain correlation of supposed 'made' soil with his A.D. 700-1300 occupation layer.

If we accept that the development of soil improvement techniques and storage methods (unnecessary in the rest of Polynesia where year-round cultivation was possible) took a considerable time, then the kumara might well have been introduced well before A.D. 1350.

Another well entrenched theory, which has been critically re-examined, is that of a climatic change from about A.D. 1200, to the present, with a drop in mean annual temperature of  $4-5^{\circ}$  F and concurrent dessication. It was based on numerous grounds, mainly non-archæological, such as anomalous distribution of mesophytic rain-forest and other forest types in Southern New Zealand (Holloway 1954). The idea of a warmer, moister climate 700 years ago has been adopted enthusiastically by archæologists to explain: (a) the ease with which ancestral Polynesian immigrants adapted themselves to New Zealand's high-latitude environment; (b) the selection of suitable kumara strains and the gradual invention of tuber storage and soil improvement techniques as climate deteriorated; (c) the probable cultivation of kumara south of its present limit; (d) the rapid extinction of the moa.

Cumberland (1962a), after examining all the data invoked to support climate change and rejecting some of it, re-interpreted much of the data to support the view that climate changes were very slight, with a slight cooling and increase in precipitation. Of this he gave additional evidence from overseas and from a general consideration of the physics of climate. Again following the lead of recent overseas studies (this time on the effectiveness of primitive cultures in changing their environment), he says that the changes of flora in the last 1,000 years are due not to climate change but to large scale burning of the vegetation by the moa-hunters,

perhaps to increase the area of grassland and thus attract more moas, or to round up and kill the moas. Robbins (1962) has shown by means of forest profile diagrams that recent climate change need not necessarily be invoked to explain forest patterns.

#### FIELD WORK

Field work which the N.Z. Archæological Association has been directing and co-ordinating in an informal way, is now divided into the extensive recordings and the surveying of surface evidence, which data is incorporated in the Associations' Site Record files, and the intensive excavation of selected sites. Numerous articles (see Smart, 1962*b* for a good example) in the *Newsletter* record the progress of site surveying and the results obtained by independent workers and groups in their own areas throughout the country. The Association's files are now becoming sufficiently complete to enable it to make recommendations for legislative protection and for the excavation (under control) of sites selected for reasons of expediency, of theoretical importance, or likelihood of destruction, etc.

Among the many current excavation projects, one is by Auckland University Archæological Society at Kauri Point in the Bay of Plenty. In an interim report, Ambrose (1962) describes the following sequence of deposits, structures and events:

1. Construction of three small isolated rectangular pits later sealed in by a mixed gritty and sandy layer which had accumulated through human agency.
2. On terraces cut on a slope adjacent to the *pa* site and on the flat above were several pits arranged in orderly pattern: 20 by 11 feet in size; some had scoop hearths, and all regular post-hole patterns. Defensive works with a 6 ft. wide flat-bottomed ditch were backed by a 9 ft. high bank with massive post-holes. Probably formed in the same period was a shell midden 6 ft. thick.
3. Accumulation of a burnt, broken shelly formation.
4. Construction of a new ditch and bank defence system, similar to the earlier one.
5. Construction of a new ditch third-defence system with a double ditch and bank unit, the inner ditch was similar to that of period 3; the outer was an innovation and of different shape. No evident palisade post-holes. It was also characterized by over pits, small irregular pits, some containing human remains, and large numbers of post-holes.

Due to the paucity of artifactual material and the lack of comparable data from other sites, Ambrose does not attempt an outside correlation of his periods, for he says, 'ascription of titles such as Archaic and Classic Maori is bound to be a hazardous enterprise'. Since Ambrose's report, further excavation has been carried out on the *pa*, in the adjacent swamp and at a nearby village site.

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- 1962b A Maori shark-tooth implement, *JPS*, 71(2): 254-255.

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## BUIST, A. G.

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- 1962b Excavation of a house-floor at Waimate Pa, *NZAA Newsletter*, 5(3): 184-187. ~ Description of a late Maori house-floor compared to a temporary description of habitations on the site in A.D. 1834.

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- 1962b Man in nature in New Zealand, *NZ Geographer*, 17(2): 137-154. ~ Describes man's influence on the landscape and biota, with emphasis on change due to Polynesian occupation.

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- 1962b Excavations on Mt. Roskill, *NZAA Newsletter*, 5(1): 81-83. ~ Brief description of 16 pit structures, showing 4 basic post-hole patterns.

## SMART, C. D.

- 1962a Midden recording and sampling in the Waikanae region, *NZAA Newsletter*, 5(3): 160-169. ~ Methods used in a recent survey of predominantly molluscan middens and applicable elsewhere are described. They are designed for subsequent punch-card analysis.
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## Melanesia

RICHARD SHUTLER JR

*Received 1 April 1963*

The information on Melanesia was gathered from various sources covering the general period from June 1961 through December 1961.

### FIELD WORK

Richard F. Salisbury, University of California, Berkeley, returned in January 1962, from a field trip to the Siane in the eastern Highlands, New Guinea. He also studied processes of economic change among the Tolai people of the Gazelle Peninsula.

Ann Chowning (Barnard College, Columbia University) and Jane C. Goodale (Bryn Mawr College) will be doing ethnographic field work in the interior of southwest New Britain, working respectively with the SENG SENG and KAULONG linguistic groups. The work will be carried out between June 1963 and September 1964: following up a preliminary survey in July–September 1962. They will be doing general ethnography, with particular attention to social organization, religion, and subsistence. (The groups are pacified but the interior villages have not come under intensive mission influence.)

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1962 was a year of notable expansion in archæological field work in Australia, due mainly to the Australian Institute of Aboriginal Studies. This Institute granted funds to R. Wright and V. Megaw, University of Sydney, to excavate sites in the Sydney-Hawkesbury district; to Miss I. McBryde, University of New England, for archæological work in northeastern New South Wales; to J. Golson, Australian National University, for survey and excavation work in southern New South Wales; to I. Crawford, Western Australian Museum, to excavate the Wilgi-Mia red ochre quarry; to R. Wright, University of Sydney, for reconnaissance and excavation work in northern Cape York; to C. P. Mountford to study art designs in Northwestern Australia; and to Mrs T. Kemp to study Tasmanian stone implement typology. The Nuffield Foundation granted D. J. Mulvaney, University of Melbourne, funds to carry out a comprehensive survey in Arnhem Land. Dr D. J. Tugby, University of Queensland, is planning a survey of sites in southeastern Queensland. All the above field work will make significant contributions to the archæology of the east coast of Australia. The areas which remain to be investigated are the central and north coast of Queensland, the lower north coast of New South Wales, and the eastern Victorian coast. We hope that Mulvaney's survey will give us radiocarbon dates of sites excavated by the American-Australian Expedition to Arnhem Land in 1948.

### ROCK ART

The most important series of papers published on Australian archæology during the year dealt with rock paintings and engravings. Arndt described six caves of paintings in the Sickness Country of the Djauan tribe in southern Arnhem Land. They illustrate the mythology and laws of the cult hero Nagorkun, and the annual initiation ceremonies associated with the sites. The author pointed out that although the cult is probably very old, the paintings do not go back more than 90 years. Arndt, in another important paper, gave a new interpretation of the Lightning Brothers painting at Delamere, Northern Territory. The recording of cave paintings and their interpretation, with the associated mythology, is a most urgent field of investigation in Australian archæology, and a great deal of such work remains to be done in northern Australia where informants are still available.

McCarthy's description and analysis of the enormous range of motifs in the rock engravings decorating some eight miles of sandy limestone ridges at Port Hedland in northwestern Australia revealed the presence of three techniques—abrading, conjoined punctures and pecking—and a sequence of three phases of engraving—in outline identical with the Sydney-Hawkesbury and Burra engravings

in southeastern Australia; the linear design, and the pecked intaglios. Both of the latter phases are known from over a vast region of the interior of the continent from northwestern Australia to western New South Wales and the Flinders Ranges in South Australia. This sequence of phases will have an important bearing in interpreting all future sites; it has already shown that the linear-design ritual art of living tribes in central Australia is a survival from prehistoric times. McCarthy and Macintosh made a similar analysis of the Mootwingee site in western New South Wales, where the pecked intaglios are predominant and illustrate hunting, ritual and fighting themes. Information from an old full-blood aboriginal, George Dutton, links the site with the Eaglehawk and Crow myth and with rainmaking. Macintosh in this study analysed in detail one of the most interesting engraved rock surfaces yet recorded in Australia. Typical Tula culture implements were found in two floors excavated in a number of rock shelters containing stencils and simple silhouette paintings. Superimpositions at both Mootwingee and Sturt's Meadows of pecked intaglios over linear designs corroborate the Port Hedland sequence of changes in rock engravings during prehistoric times in Australia.

Mountford and Edwards described three engravings—the famous 'Crocodile' head, barred fish and pecked intaglio turtle (sic)—as examples of extinct creatures which must have been engraved when the sea was much closer to the Flinders Ranges than at present. It is also claimed that the pecked engravings were done before the dingo reached Australia because we have no engravings of them in South Australia or western New South Wales. Such assumptions demand careful analysis before we can accept them. It is not uncommon for marine subjects to be engraved or painted far inland, as Macintosh has shown for Tandandjal in southwestern Arnhem Land and myself for the Sydney-Hawkesbury district; engravings of sting-rays and turtles occur on Gallery Hill, 100 miles inland from Port Hedland. Pecked intaglios of dingoes occur on Depuch island, at Port Hedland and Mootwingee, and probably elsewhere, and make it unlikely that pecking ceased at a time so far back as these authors claim. Superimpositions reveal that pecking was the latest technique employed in rock engraving in Australia. The following points should be taken into consideration: the changes in rock engraving art noted above; the differential diffusion of techniques and motifs, which were passed over by Mountford and Edwards; and the identification of the pecked intaglio figure, which to me appears to be a typical portrayal of one of the bigger species of long-necked freshwater tortoises so widely distributed in Australia.

Barnett and Brazenor made an interesting identification of the internal and external parts of various animals featured in X-ray art in Arnhem Land. Lommel published two distributional studies of art motifs: one dealt with the northern and southeastern Australian distribution of anthropomorphs, and the western and central distribution of linear designs, in Australia. But from information published elsewhere linear designs extend into the northwest as far as Port Hedland and sporadically into central and southeastern Queensland. Lommel's other publication is a comparative study which shows the distribution of the X-ray, spiral and hocker in circum-Pacific countries. Sim continued to publish his recordings of outline engravings in the Sydney-Hawkesbury district; while McCarthy and Berndt published summaries of aboriginal art. The records, including unpublished ones,

made by the artist Westall on the Flinders expedition of 1801-02 of Groote Eylandt paintings, were reissued in a handsome volume.

#### EXCAVATIONS AND STONE IMPLEMENTS

Miss McBryde's preliminary review of her survey of the archæology of north-eastern New South Wales revealed important differences between the motifs in the cave paintings and rock engravings in the Clarence valley on the one hand, and the northern Tableland on the other. Her excavation of the Seelands rock shelter in the Clarence valley yielded a surprising result: a ground edge axe underlying an industry of flaked choppers and uniface pebble implements, in turn overlain by microlithic lunate scrapers and points. The radiocarbon dates of  $1040 \pm 80$  B.C. for the microlithic industry, and  $1920 \pm 120$  B.C., for the uniface pebbles, are also surprisingly recent. Bondi points came from the lower levels. It is possible that the inconsistencies in prehistoric industries excavated in Australia will be explained, in many instances, by differential diffusion in time over the vast continent of Australia.

The controversy on the nomenclature of the lower Murray and eastern New South Wales cultures and their phases remains unsolved. While Tindale continues to classify industries from all over the continent by his lower Murray sequence, McCarthy rejects this and has named the whole series the Tula culture, from which he exclude all industries lacking the worn out Tula and Burren adze slugs. A protest on ethical grounds by McCarthy followed the excavation and description of the Noola site by Tindale in an area in which the former had been carrying out an archæological survey for two years. The pros and cons of the case were subsequently discussed in a prominent non-scientific journal which comments on topical matters. The Committee for the Investigation of Quaternary Strand Changes of the Australian and New Zealand Association for the Advancement of Science summarized the work going on in this field in each State; some of the work has an important bearing on archæological work in coastal areas, and included a review of the 1960-62 literature on Quaternary Strand Changes in Australia.

Massola continued to describe aboriginal relics and culture in Victoria in papers about Nargun's cave at Lake Tyers, axe grinding grooves at Gellibrand, some remarkable fish traps at Toolondo, a *pur-rut-thri* type grooved axe with an iron halt, weapons of the Taunturong tribe, and a summary of the social and material culture of the Yaitmathang tribe. Mitchell described implements from fourteen camp sites in southeastern Australia, and a number of unusual and unique implements from various localities. Mrs Amey described a stone arrangement at Mullaley, New South Wales.

#### ETHNOLOGY

Captain Cook's journal, which has been reissued, includes the ethnography of Botany Bay and the Endeavour River; it was about the latter area that his work has most to do. Rose has some interesting views on the people of Groote Eylandt some 200 years ago; he has estimated the population at about 350, or from  $2-2\frac{1}{2}$  to the square mile then on this island with limited animal resources. Marlow summarized

our knowledge of the dingo and thinks its most likely ancestor is the plains wolf of India.

Pilling surveyed the work done in the fields of ethnology, linguistics, archæology, physical anthropology, non-human fauna, and history of the Aborigines both in field and laboratory research in the museums and universities, and by laymen, for the period 1954 to 1957. While he ferreted out most obscure notes in newspapers and non-scientific journals, he has missed some of the scientific papers. The review gives the main points of each paper (a list of these is given), a glossary of terms and an index. The volume covers Australia (each State), Torres Strait islands, and Australian New Guinea.

#### TASMANIA

Reid described two sites of rock markings from Remarkable cave and the Broad river; both sites resemble the markings at Blue Tiers now considered to be tree-root grooves. These and other sites in Tasmania have to be reconsidered to decide whether the markings are man made or of natural origin. Plomley, in two important papers, examined the collections of Tasmanian skeletal material, material culture and archæological specimens in European collections, and also the portraits of Tasmanian aborigines, and assessed their documentation and archival value.

#### PRESERVATION OF ABORIGINAL RELICS

Although single sites here and there are protected thanks to the efforts of organizations and individuals, nothing constructive or comprehensive in the way of legislation has yet been enacted in Australia. The growing interest in Australian archæology, the tremendous activity in field work, and the wide appeal of aboriginal art, call for protective action. The Australian Institute of Aboriginal Studies is inquiring into the situation in each State, and is initiating the compilation of a central catalogue of aboriginal relics *in situ* all over the continent.

The late Mr Balfour's collection of stone implements was bequeathed to the National Museum of Victoria, and Mr Gresser presented his collection to the Australian Museum. Both collections contain many thousands of implements.

#### BIBLIOGRAPHY

##### *Books and Papers*

##### ANONYMOUS

- 1962 Arbeit und Werkzeug, *Mus. f. Volk. Leipzig*, 39 pp. A description of hafted stone implements and methods of use from Australia and other countries.

##### AMEY, MRS T. H.

- 1962 Aboriginal relics at Mullaley, N. S. Wales, *Mankind*, 5: 494. Describes cairns, semi-circles and circles of stones, trees with sheets of bark removed for canoes and containers, and some grindstones and axes.

##### ARNDT, W.

- 1962a The interpretation of the Delemere Lightning painting and rock engravings, *O*, 32: 163-77.

The author compares Davidson's, Harney's and his own accounts of the interpretation of the Lightning Brothers painting; he points out that the tableau has been added to since Davidson's visit in 1930, that the object under the smaller figure's arm is an axe and not his wife, and that an aboriginal named Emu Jack did the paintings. His informants said that the smaller figure, Tcabuinji, was a

man who had to defend his wife against the taller figure, Yagchadbullu, and the main function of the paintings is to illustrate the moral injustice of Yagchadbullu courting another man's wife. The brothers were not involved in rain making. A comparison is also made with similar figures in other galleries in northern Australia and their interpretation.

1962b The Nagorkun-Narlinji cult, *O*, **32**: 298-318.

Descriptions of the paintings in six rock shelters, with which are associated a rock path and mound of bones in an area 30 by 10 miles in extent in Djauan tribal country in southern Arnhem Land. They illustrate the mythological saga of a cult hero named Nagorkun and his wives, the Narlinji women who live with Nagorkun and had enormous powers of procreation. They also illustrate the laws of Nagorkun, and the punishment for disobeying them in any way. Annual initiation ceremonies are held at the sites. The author points out that although the cult may be very old the paintings are probably not much more than 90 years old.

A.N.Z.A.A.S. COMMITTEE FOR THE INVESTIGATION OF QUATERNARY STRANDLINE CHANGES

1962 A summary of the work being carried out in this field in the various Australian States, some of which has a bearing on archaeological research in coastal areas. Report printed in *AJS*, **25**: 202-5. A rounded circular (No. 15) reviews the literature on the subject published between 1960 and 1962.

BARNETT, C. H. and BARZENOR, C. W.

1962 The Australian aboriginal as biological illustrator. *Medical and Biol. Illus.* **12**: 4-11.

Illustrations of X-ray bark paintings from western Arnhem Land (collected by Sir W. Baldwin Spencer in 1912), with line drawings identifying the internal organs and external parts shown in the barramundi, crocodile, native companion, echidna, wallabies, kangaroo and a goat.

BERNDT, C. H.

1962 The arts of life: an Australian aboriginal perspective, *Westerly*, **2-3**: 82-8. Not read.

GRESSER, P. J.

1962 New distributional records of stone implements in New South Wales and Queensland, *Mankind*, **5**: 522-33. Describes camp sites in this region and the types of country in which they occur, with general observations on implements and their uses.

DAVIES, E. M.

1962 Cape Nelson—its camp and cave, *Vict. Nat.* **79**: 23-6. Mentions an old midden site on Cape Nelson, now obliterated, and illustrates a hammerstone, axes and axe sharpening stone from Cape Schanck.

KABO, B. P.

1957 A. L. Yschenko and his trip to Australia, *Academy of Science, Soviet Ethnography*, **6**: 59-61.

1961 Collection from Groot Island (North Australia), *Collected Essays from the Museum of Anthropology and Ethnography*, **20**: 154-172.

KENNEDY, K.

1962 The crab's eye seed, *Aust. Mus. Mag.* **14**: 68. A bright red and black seed commonly used for decoration by the aborigines.

LOMMEL, A.

1961 Stilische Vergleiche an Australien Felsbildern, *Verof. Mus. f. Volk.* (Leipzig), **11**: 19.

A discussion of the distributions of the anthropomorphs (in northern and southeastern Australia) and of the linear figures (in central and southwestern Australia), with map.

1962 *Motiv und Variation in der Kunst des Zirkumpazifische Raumes*. Staatliches Museum für Völkerkunde, München. 109 pp.

A handsomely produced study of the similarities and variations of the X-ray art style, and of the spiral and hooker in circum-Pacific countries. Elaborately illustrated, with an excellent series of distribution maps.

MCBRYDE, ISABEL

1962 Archaeological field survey work in northern New South Wales, *O*, **33**: 12-17.

The survey is aimed at recording all archaeological relics *in situ* including cave paintings, rock engravings, stone arrangements, carved trees, axe grooves, and midden deposits. Work has been concentrated on excavations in the Clarence river valley and the northern Tableland as contrasting areas east and west of the Great Dividing Range. Tally grooves and crown-like markings, stencils and silhouettes in Clarence valley, naturalistic motifs on Tableland. Seelands rock shelter excavation has yielded microlithic lunate scrapers and points, with bone artifacts, in top levels with a date of 1040 ± 80 B.C., and below this a single ground edge axe. Bondi points came from the lower levels. Other sites excavated at Chambigne and Jacky's Creek.



McCARTHY, F. D.

1962a The rock engravings of Port Hedland, North-western Australia, *Pap. Kroeber Anthropol. Soc.* 26: 1-73.

Describes sites and environment, historical background of white contact with Kariera tribe in the area, and summarizes the economic life and technology of the local tribes. A total of eight miles of rock engravings, in four localities, decorate sandy limestone ridges. The author reproduces a scale chart of a 120-foot strip, all of the groupings distinguished, and the full variety of each separate motif. Three techniques of engraving were employed—abrading, conjoined puncture and abrading. Superimpositions revealed three phases of engraving, the outline developing into figures with interior line designs, followed by the linear designs with a wide range of motifs, and the pecked intaglios poorly represented. A human spirit figure, the Minjiburu, was important from outline to pecked phases. Hunting compositions were found to be important in the linear design phase. Frequencies of motifs, artistic styles, function, antiquity and conservation also dealt with, and a comparison made between the motifs in the engravings and on wooden objects.

1962b Current research in Pacific Islands archæology. A. Report on Australia and Melanesia, *AP*, 5: 141-155, 1 plate.

Summarizes the excavations completed and prehistoric cultures established in Australia, and proposes the name Tula Culture for the lower Murray sequence at Tartanga and Devon Downs; describes the superimpositions revealed in rock paintings and engravings; Indonesian pottery; lists radio-carbon dates established; discusses a preliminary historical reconstruction of Australian prehistory and the main problems needing attention; outlines the paucity of work done in Melanesia; suggests that consideration be given to a comprehensive system of classification of Oceanian stone implements to incorporate the Melanesian and Polynesian systems, and that a special study of Melanesian pottery and its prehistory be made.

1962c Aboriginal relics *in situ*, *Rept. Aust. Acad. Sci. N.S.W. Nat. Parks Sub-Comm.*, App. B, 131-9.

A summary of the types and range of relics *in situ*, the literature about them, the sites reserved, and a discussion of the problem of their conservation.

1962d Some comments on the progress of archæology in Australia, *Mankind*, 5: 479-84.

The author's main point is to protest, on ethical grounds, against the uninvited intrusion of another archæologist, who excavated the Noola site, in an area where he had been carrying out an archæological survey for two years. He rejects Tindale's terms of Mudukian and Tartangan for the two Noola culture phases in favour of Bondaian and Capertian, proposes the name Tula culture for the Devon Downs and Tartangan sequence on the lower Murray river; he suggests that the Hood's Drift, Cape Martin and other site industries in South Australia belong to the Gambieran and not to the Tartangan culture.

1962e Regional reports: Australia, *AP*, 5: 98-104.

A review of field work, literature, conferences and other aspects of Australian archæology and ethnography for the latter half of 1961, with a list (and abstracts) of the papers published during this period.

1962f Cave paintings of Chasm Islands in *Drawings* (pp. 19-20) by Wm. Westall. Edited by T. M. Perry and D. W. Simpson, Royal Commonwealth Society, London.

Note on the significance and motifs of the cave paintings on Groote Eylandt, and on the importance of the original recordings made by Westall in 1801-2.

1962g Aboriginal relics of the Hawkesbury Sandstone, *The Natural History of Sydney*, Aust. Mus. Hdbk, 23-7.

A brief description of the rock engravings, cave paintings, stone arrangements, axe grooves, trees with foot grips, shell and ashy-soil middens, protection and conservation of the relics *in situ*.

1962h The Australian aborigines and their art, *The Bridge*, 5: 40-8.

A description of the economic life of the aborigines, and of the many forms of their art, with particular reference to the bark paintings.

McCARTHY, F. D. and MACINTOSH, N. W. G.

1962 The archæology of Mootwingee, Western New South Wales, *Rec. Aust. Mus.*, 25: 249-98.

The authors give an account of the history, aboriginal population and their economic life, and the topography of the area. They analyse in detail the range of motifs in the rock engravings, among which linear designs are in the minority and pecked intaglios in the great majority; they point out that the major subjects illustrated are hunting emus and kangaroos, fighting, and ritual scenes. Specific subjects were found to be limited to one rock surface in some instances. Human figures are associated with dingoes in one series of compositions. Information from an old full-blood aboriginal, George Dutton, links the site with the Eaglehawk and Crow myth, and with rain making, and suggests that it has not been in use for two hundred years or more. The stencils and silhouettes painted in 23

caves are analysed; relationships of paintings and engravings discussed; a series of stone mound described; and implements, of Tula culture facies, from two excavated deposits described.

MARLOW, B. J.

1962 Dingoes, *Aust. Mus. Mag.* **14**: 61-3.

The author describes the habits and characteristics of the dingo and thinks that it was brought into Australia by the aborigines and that its most probable ancestor is the plains wolf of India. He also deals with its biology, distribution and control methods.

MASSOLA, A.

1962a Central Victorian aboriginal weapons, *Aust. Mus. Mag.* **14**: 47-50.

The description is based on a set of models of the weapons of the Taungurong tribe in the Goulburn river valley.

1962b The grinding rocks at Gellibrand, *Vict. Nat.* **79**: 66-9.

Two rock surfaces bearing axe grooves are described, and also an engraving of a kangaroo track which is the first record of a rock engraving in Victoria.

1962c The Nargun's cave at Lake Tyers, Victoria, *Vict. Nat.* **79**: 128-32.

Describes a hole, 6 ft. wide and 5 ft. deep, on the eastern side of Nowa Nowa Arm of Lake Tyers; it is said to lead to a tunnel, the abode of spirits called Baginis, Dulagars (women who entice men), and Narguns (half human and half animal).

1962d The native fish traps at Toolondo, in the Wimmera, *Vict. Nat.* **79**: 162-6.

The surviving portion of the fish (eels mainly) trap channel over 1000 yards long, 12 ft. wide and 2½ ft. deep, connecting two swamps. Channel traps of this kind were known previously from an 1841 description only.

1962e The aborigines of the Victorian High Plains, *Pr. Roy. Soc. Vict.* **75**: 319-25.

A summary of the life and culture of the Yaitmathang tribe, taken from original sources; it includes the social life, initiation, camp life and food, material culture, sickness and death, and cave paintings.

1962f A grooved axe with iron haft, *Mankind*, **5**: 463-5.

A *Pur-rut-thri* type axe, grooved with mortar depression, with an iron handle found on Portland beach in 1887, is described and the uses of this type of axe are discussed. The use is queried of diminutive sandstone and indurated mudstone implements from the Darling river, with cutting edge and hammered butt, as *Kodja* tools.

MITCHELL, S. R.

1962a Some ethnological notes, *Vict. Nat.* **78**: 361-3.

Describes an elongated oblong of stones at Beswick, Northern Territory; a biconical stone from the Adelaide River, N.T.; a canoe anchor stone from Clybucca creek, N.S.W.; two biface spear points mounted butt to butt in gum from the Kimberleys; a small ground edge axe of limestone from Bream creek, Victoria; and a hoard of scraping tools from Wilcannia, N.S.W.

1962b Analysis of some Australian aboriginal surface sites, *Mankind*, **5**: 466-70.

Tables of implement types collected on 14 camp sites in Victoria, 5 in South Australia and 6 in New South Wales. He claims that geometrical microliths derive their shape from use as scrapers hafted on a handle.

MOUNTFORD, C. P. and EDWARDS, R.

1962 Aboriginal rock engravings of extinct creatures in South Australia, *M*, **62**: 174.

The authors describe three figures (crocodile head, fish and turtle) at Panarammittee North with which, they claim, the aborigines could only have become acquainted when the sea coast was much closer to the area than it is today. They discuss evidence which indicates that the rock engravings are ancient in South Australia, and support Basedow's claim that man and the *Diprotodon* lived in the Flinders Ranges in the same period, and also at Menindee in N. S. Wales. As no engravings of dingo tracks have been found by the authors, they claim that the dingo reached Australia after the pecked engravings were done.

PILLING, A. R.

1962 *Aborigine Culture History: A Survey of Publications 1954-57*. Detroit.

The main points of each paper, book, newspaper and magazine article mentioning the natives, and their culture, of Australia, Torres Strait islands, Papua and Australian New Guinea, are summarized under the headings of ethnology, linguistics, archaeology, physical anthropology, non-human fauna and history. The second main section is a catalogue of the literature for the period, followed by a glossary of technical terms, and an index.

PLOMLEY, N. J. B.

1961 Tasmanian aboriginal material in collections in Europe, *JRAI*, 91: 221-7.

The author lists the collections of morphological material, portraits, stone implements, material culture, and relics of the dead in the collections; examines their documentation and archive value; and lists the institutions where they may be examined.

1962 A list of Tasmanian aboriginal material in collections in Europe, *Rec. Q. Vic. Mus.*, NS, 15: 1-18. ~ A slightly fuller account of the subject than that given in his 1961 paper.

REID, Q. W.

1962 Further discoveries of aboriginal rock carvings in Tasmania, *Pap. Pr. Roy. Soc. Tasm.* 96m 87-9.

The markings vary from scratches to grooves 3 in. wide, and from slight depressions to 2 in. deep, and consist of indeterminate straight and curved markings similar to those at the Blue Tiers. Two sites are described, at Remarkable Cave and near the Broad river.

ROSE, F.

1961 The Indonesians and the genesis of the Groote Eylandt Society, Northern Australia, *Verof. Mus. f. Volk. Leipzig*, 11: 524-30.

Groote Eylandt was occupied by the Nungubuyu tribe, who had previously visited it intermittently, about 200 years ago when the Indonesians introduced the dugout canoe. The population of the island, which has limited animal resources, was not more than 350 with a density of 2 to 2½ per square mile.

SIM, I. M.

1962 Records of the rock engravings of the Sydney District, Nos. 103-110, *Mankind*, 5: 485-90.

Describes groups at Woronora, Darke's Forest, Waterfall, Wattamolla, National Park and Lucas Heights. Several groups of men, and a group of mythical animals, are unusual for this area.

TINDALE, N. B.

1962 The progress of archæology in Australia: a rejoinder, *Mankind*, 5: 540-44.

A reply to McCarthy's paper of the same title, concerning the excavation of the Noola site and the naming of the two cultures revealed.

### Reviews

BURKITT, M. C.: Rock shelter art in North Western Australia, *Nature* 1962, 193(4812): 221. ~ Note on F. D. McCarthy's paper, Rock Engravings of Depuch Island in *Rec. Aust. Mus.*, 1961, 25: 121-4.

DIGBY, A.: *Records of the American-Australian Scientific Expedition to Arnhem Land*, 1948, 2, 1960, reviewed in *M*, 1962, 62: 285.

The reviewer stresses the importance of the Nutrition Unit's report, and of the papers on Food by Miss McArthur, and on the Food Quest by McCarthy and McArthur. In the two latter papers, he said, the method points the way to future studies which will link technological and social studies and give added meaning to both; they are both, he continued, particularly important from the point of view of applied anthropology, and of great theoretical importance.

ELKIN, A. P.: *Captain Cook's Journal*, Vol. II: a review, *O*, 32: 191-7.

The re-issue of these important journals was edited by Professor J. C. Beaglehole. The review is an appraisal of Cook's contact with various native peoples and his descriptions of their customs.

KOOIJMAN, S.: *Die Kunst des funften Erdteils Australien*. *Munchen* (1962), reviewed in *M*, 1962, 62: 193.

The reviewer compliments the author or his very useful source of reference information on aboriginal art, and his excellent illustrations, among which the beautiful reproductions of designs by Mrs Lommel are notable. After summarizing the scope of the book, Dr Kooijman takes issue with the author on the *Kulturhistorische* approach, more particularly on his claims that the 'elegant' style of depicting human figures followed the diffusion route of the boomerang and spear thrower from Europe to Australia.

BIRDELL, J. B.: *Records of the American-Australian Scientific Expedition to Arnhem Land*, 1948, 2, 1960, reviewed in *AA*, 64: 410-12.

The reviewer emphasizes the importance of the Nutrition Unit's report on the present mission diet, and the health, of the natives. He considers the paper by Miss McArthur on the Food of the bush and coastal natives to be a classic in its field, and likewise, the paper by McCarthy and McArthur on the Economic Life to be a highly original contribution to our understanding of the time uses and demands upon hunting and collecting peoples. Papers by McCarthy on cave paintings and archæology are summarized, and the same author's paper on string figures is regarded as a study that will put an end to the use of string figures in diffusionist studies.