

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/250005257>

# Terminal Pleistocene human skeleton from Hang Cho Cave, northern Vietnam: Implications for the biological affinities of...

Article in Anthropological Science · May 2008

DOI: 10.1537/ase.070416

---

CITATIONS

27

READS

152

12 authors, including:



Hirofumi Matsumura  
Sapporo Medical University  
56 PUBLICATIONS 787 CITATIONS

[SEE PROFILE](#)



Minoru Yoneda  
The University of Tokyo  
134 PUBLICATIONS 1,701 CITATIONS

[SEE PROFILE](#)



Marc Oxenham  
Australian National University  
97 PUBLICATIONS 787 CITATIONS

[SEE PROFILE](#)



Junmei Sawada  
St. Marianna University School of Medicine  
23 PUBLICATIONS 138 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



Early Rice Project [View project](#)



Maritime Migration and Adaptation by Modern Human in Northern Wallacea [View project](#)

# Terminal Pleistocene human skeleton from Hang Cho Cave, northern Vietnam: implications for the biological affinities of Hoabinhian people

Matsumura H., Yoneda M., Dodo Y., Oxenham M.F., Cuong N.L., Thuy N.K., Dung L.M., Long V.T., Yamagata M., Sawada J., Shinoda K., Takigawa W.

Department of Anatomy, Sapporo Medical University, Sapporo 060-8556, Japan; Department of Integrated Bioscience, Graduate School of Frontier Science, The University of Tokyo, Tokyo 277-8561, Japan; Department of Nursing, Faculty of Human Science, Hokkaido Bunkyo University, Eniwa 061-1408, Japan; School of Archaeology and Anthropology, Australian National University, Canberra ACT0200, Australia; Institute of Archeology, Hanoi, Viet Nam; The University Museum, Vietnam National University, Hanoi, Viet Nam; Faculty of Literature, Waseda University, Tokyo 162-8644, Japan; Department of Anatomy, School of Medicine, Saint Marianna University, Kawasaki 216-8511, Japan; Department of Anthropology, National Museum of Nature and Science, Tokyo 169-0073, Japan; Department of Anatomy and Anthropology, School of Medicine, Tohoku University, Sendai 162-8644, Japan

**Abstract:** An excavation at the cave site of Hang Cho in northern Vietnam resulted in the discovery of a terminal Pleistocene human skeleton in a relatively good state of preservation. The material culture from this site belongs to the pre-ceramic Hoabinhian period. An AMS radiocarbon date on a tooth sample extracted from this individual gives a calibrated age of  $10450 \pm 300$  years BP. In discussions of the population history of Southeast Asia, it has been repeatedly advocated that Southeast Asia was occupied by indigenous people akin to present-day Australo-Melanesians prior to the Neolithic expansion of migrants from Northeast Asia into the area. Cranial and dental metric analyses were undertaken in order to assess the biological affinity of early settlers in this region. The results suggest that the Hang Cho skeleton, as well as other early or pre-Holocene remains in Southeast Asia, represent descendants of colonizing populations of late Pleistocene Sundaland, who may share a common ancestry with present-day Australian Aboriginal and Melanesian people.

**Author Keywords:** AMS dating; biological affinity; Hang Cho; Hoabinhian; Skeleton; Southeast Asia; Vietnam

Year: 2008

Source title: Anthropological Science

Volume: 116

Issue: 3

Page : 201-217

Link: Scopus Link

Correspondence Address: Matsumura, H.; Department of Anatomy, Sapporo Medical University, South 1 West 17, Sapporo 060-8556, Japan; email: [hiromura@sapmed.ac.jp](mailto:hiromura@sapmed.ac.jp)

ISSN: 9187960

DOI: [10.1537/ase.070416](https://doi.org/10.1537/ase.070416)

Language of Original Document: English

Abbreviated Source Title: Anthropological Science

Document Type: Article

Source: Scopus

Authors with affiliations:

- Matsumura, H., Department of Anatomy, Sapporo Medical University, Sapporo 060-8556, Japan
- Yoneda, M., Department of Integrated Bioscience, Graduate School of Frontier Science, The University of Tokyo, Tokyo 277-8561, Japan
- Dodo, Y., Department of Nursing, Faculty of Human Science, Hokkaido Bunkyo University, Eniwa 061-1408, Japan
- Oxenham, M.F., School of Archaeology and Anthropology, Australian National University, Canberra ACT0200, Australia
- Cuong, N.L., Institute of Archeology, Hanoi, Viet Nam
- Thuy, N.K., Institute of Archeology, Hanoi, Viet Nam
- Dung, L.M., The University Museum, Vietnam National University, Hanoi, Viet Nam
- Long, V.T., Institute of Archeology, Hanoi, Viet Nam
- Yamagata, M., Faculty of Literature, Waseda University, Tokyo 162-8644, Japan
- Sawada, J., Department of Anatomy, School of Medicine, Saint Marianna University, Kawasaki 216-8511, Japan
- Shinoda, K., Department of Anthropology, National Museum of Nature and Science, Tokyo 169-0073, Japan
- Takigawa, W., Department of Anatomy and Anthropology, School of Medicine, Tohoku University, Sendai 162-8644, Japan

References:

- Akazawa, T., Aikens, C.M., (1986) Introduction, 27, pp. ix-x. , In: Akazawa T. and Aikens C.M. (eds.), Prehistoric Hunter-Gatherers in Japan: New Research Methods. University Museum, University of Tokyo, Bulletin
- Ambrose, S.H., Preparation and characterization of bone and tooth collagen for isotopic analysis (1990) Journal of Archaeological Science, 17, pp. 431-451
- Barnett, C.H., Squatting facets on the European talus (1954) Journal of Anatomy, 88, pp. 509-513
- Barker, G., Barton, H., Bird, M., Daly, P., Datan, I., Dykes, A., Farr, L., Turney, C., The 'human revolution' in lowland tropical Southeast Asia: the antiquity and behavior of anatomically modern humans at Niah Cave (Sarawak, Borneo) (2007) Journal of Human Evolution, 52, pp. 243-261
- Barth, F., The southern Mongoloid migration (1952) Man, 52, pp. 5-8
- Bellwood, P., The Austronesian dispersal and the origin of languages (1991) Scientific America, 265, pp. 88-93
- Bellwood, P., An archaeologist's view of language macrofamily relationships (1993) Bulletin of the Indo-Pacific Prehistory Association, 13, pp. 46-60
- Bellwood, P., (1996) Early agriculture and the dispersal of the southern Mongoloids, pp. 287-302. , In: Akazawa T. and Szathmáry E.J.E. (eds.), Prehistoric Mongoloid Dispersals. Oxford University Press, Oxford
- Bellwood, P., (1997) Prehistory of the Indo-Malaysian Archipelago, , Revised Edition. University of Hawai'i Press Honolulu
- Bellwood, P., New dates for prehistoric Asian rice (1992) Asian Perspectives, 31, pp. 161-170
- Bellwood, P., Renfrew, C., (2003) Examining the Farming/Language Dispersal Hypothesis, , McDonald Institute for Archaeological Research, Cambridge
- Blust, R.A., (1996) Beyond the Austronesian homeland: the Austric hypothesis and its implications for archaeology, pp. 117-140. , In: Goodenough W.H. (ed.), Prehistoric Settlement of the Pacific. American Philosophical Society, Philadelphia
- Bowdler, S., (1992) Homo sapiens in Southeast Asia and the antipodes: archaeological versus biological interpretations, pp. 559-590. , In: Akazawa T., Aoki K., and Kimura T. (eds.), The Evolution and Dispersal of Modern Humans in Asia. Hokuseisha, Tokyo

- Bräuer, G., (1988) Osteometrie, pp. 160-232. , In: Martin R. and Knussmann K. (eds.), Anthropologie. Gustav Fisher, Stuttgart
- Brace, C.L., Tooth reduction in the Orient (1976) Asian Perspectives, 19, pp. 203-219
- Brace, C.L., Tracer, D.P., Hunt, K.D., Human craniofacial form and the evidence for the peopling of the Pacific (1991) Bulletin of the Indo-Pacific Prehistory Association, 12, pp. 247-269
- Brothwell, D.R., Upper Pleistocene human skull from Niah Caves (1960) Sarawak Museum Journal, 9, pp. 323-349
- Brown, P., (1989) Coobool Creek. A Morphological and Metrical Analysis of the Crania, Mandibles and Dentitions of a Prehistoric Australian Human Population, , Terra Australia 13, Department of Prehistory, Research School of Pacific Studies, Australian National University, Canberra
- Bulbeck, D., Dental morphology at Gua Cha, West Malaysia, and the implications for 'Sundadonty' (2000) Bulletin of the Indo-Pacific Prehistory Association, 19, pp. 17-41
- Callenfels, V.S., The Melanesoid civilizations of Eastern Asia (1936) Bulletin of the Raffles Museum, 1 (SERIES B), pp. 41-51
- Chang, K.C., (1986) The Archaeology of Ancient China, , 4th edition. Yale University Press, New Haven
- Coon, C.S., (1962) The Origin of Races, , Alfred A. Knopf, New York
- Cuong, N.L., Two early Hoabinhian crania from Thanh Hoa province (1986) Vietnam. Zeitschrift für Morphologie und Anthropologie, 77, pp. 11-17
- Cuong, N.L., (1996), Anthropological Characteristics of Dong Son Population in Vietnam. Social Sciences Publishing House, Hanoi (in Vietnamese with English title and summary)Cuong, N.L., About human remains at Man Bac site (2001) Khao Co Hoc (Archaeology), pp. 17-46. , (in Vietnamese with English summary). 2001-1
- DeNiro, M.J., Postmortem preservation and alteration of invivo bone-collagen isotope ratios in relation to paleodietary reconstruction (1985) Nature, 317, pp. 806-809
- Diamond, J., Bellwood, P., Farmers and their languages: the first expansions (2003) Science, 300, pp. 597-603
- Dizon, E., Detroit, F., Sémah, F., Falguères, C., Hameau, S., Ronquillo, W., Cabanis, E., Notes on the morphology and age of the Tabon Cave fossil Homo sapiens (2002) Current Anthropology, 43, pp. 660-666
- Dodo, Y., (2001), Affection on results of craniometric analysis using different measurement system of upper facial height. Anthropological Science, 108 (Japanese Series): 133-141 (in Japanese with English abstract)Dubois, E., The proto-Australian fossil man of Wadjak, Java. Koninklijke Akademie van Wetenschappen te Amsterdam (1922), B23, pp. 1013-1051Duckworth, W.L.H., Human remains from rock-shelters and caves in Perak, Pahang and Perlis and from Selinsing (1934) Journal of Malayan Branch of the Royal Asiatic Society, 12, pp. 149-167
- Evans, I.H.N., Preliminary report on cave exploration, near Lenggong, upper Perak (1918) Federation Museums Journal, 7, pp. 227-234
- Fox, R.B., (1970) The Tabon Caves: Archaeological Explorations and Excavations on Palawan Island, Philippines, , National Museum of Philippines, Manila
- Genet-Varcin, E., (1951) Les Négritos de l'Île de Luçon (Philippines), , Société d'Anthropologie de Paris, Paris
- Glover, I.C., Higham, C.F.W., (1996) New evidence for early rice cultivation in South, Southeast and East Asia, pp. 413-441. , In: Harris D.R. (ed.), The Origins and Spread of Agriculture and Pastoralism in Eurasia. UCL Press, London
- Gorman, C.F., Charoenwongsa, P., Ban Chiang: a mosaic of impressions from the first two years (1976) Expedition, 18, pp. 14-26
- Hanihara, K., (2002), ed. Metric Data for the Modern and Edo Era Japanese Crania. The University Museum, The University of Tokyo, Material Reports No. 47, TokyoHanihara, T., Negritos, Austrarian Aborigines, and the 'proto-sundadont' dental pattern: the basic populations in East Asia, V (1992) American Journal of Physical Anthropology, 88, pp. 183-196
- Hanihara, T., Population history of East Asia and the Pacific as viewed from craniofacial morphology: the basic populations in

- East Asia IV (1993) American Journal of Physical Anthropology, 91, pp. 173-187
- Hanihara, T., Craniofacial continuity and discontinuity of Far Easterners in the late Pleistocene and Holocene (1994) Journal of Human Evolution, 27, pp. 417-441
  - Hiep, T.H., Phung, H.V., Man Bac location and its relationship through ceramic data (2004) Khao Co Hoc (Archaeology), pp. 13-48. , (in Vietnamese with English summary). 2004-6
  - Higham, C.F.W., (1998) Archaeology, linguistics and the expansion of the East and Southeast Asian Neolithic, pp. 103-114. , In: Blench R. and Spriggs M. (eds.), Archaeology and Language II: Archaeological Data and Linguistic Hypotheses. Routledge, London
  - Higham, C.F.W., (2001) Prehistory, language and human biology: is there a consensus in East and Southeast Asia?, pp. 3-16. , In: Jin L., Seielstad M., and Xiao C.J. (eds.), Genetic, Linguistic and Archaeological Perspectives on Human Diversity in Southeast Asia. World Scientific, Singapore
  - Howells, W.W., Physical variation and history in Melanesia and Australia (1976) American Journal of Physical Anthropology, 45, pp. 641-650
  - Howells, W.W., (1989) Skull Shapes and the Map: Craniometric Analysis in the Dispersion of Modern Homo, , Papers of the Peabody Museum of Archaeology and Ethnology, Harvard University Press, Cambridge
  - Hudson, M.J., (1990) From Toro to Yoshinogari: changing perspectives on Yayoi period archeology, pp. 63-111. , In: Barnes G.L. (ed.), Hoabinhian, Jomon, Yayoi, Early Korean States: Bibliographic Reviews of Far Eastern Archaeology. Oxbow, Oxford
  - Hudson, M.J., The linguistic prehistory of Japan: some archaeological speculations (1994) Anthropological Science, 102, pp. 231-255
  - Hudson, M.J., (1999) Japanese and Austronesian: an archeological perspective on the proposed linguistic links, pp. 267-279. , In: Omoto K. (ed.), Interdisciplinary Perspectives on the Origins of the Japanese. International Research Center for Japanese Studies, Kyoto
  - Jacob, T., (1967), Some Problems Pertaining to the Racial History of the Indonesian Region. Ph.D. Dissertation, University of UtrechtJacob, T., (1975) Morphology and paleontology of early man in Java, pp. 311-324. , In: Tuttle R.H. (ed.), Paleoanthropology, Morphology, and Paleoenvironment. Mouton, The Hague, Paris
  - Jacob, T., Soepriyo, A., (1994) A preliminary palaeoanthropological study of the Gua Gunung Runtuh human skeleton, pp. 48-69. , In: Zuraina M. (ed.), The Excavation of Gua Gunung Runtuh and the Discovery of the Perak Man in Malaysia. Department of Museums and Antiquities, Malaysia, Kuala Lumpur
  - Kanaseki, T., Nagai, M., Sano, H., Craniological studies of the Yayoi-period ancients excavated at the Doigahama site, Yamaguchi prefecture (1960) Quarterly Journal of Anthropology, , VII (3-4) Supplement: 1-35 (in Japanese with English summary)
  - Kennedy, K.A.R., The deep skull of Niah: an assessment of twenty years of speculation concerning its evolutionary significance (1977) Asian Perspectives, 20, pp. 32-50
  - Kitagawa, H., Masuzawa, T., Nakamura, T., Matsumoto, E., A batch preparation method for graphite targets with low-background for AMS C-14 measurements (1993) Radiocarbon, 35, pp. 295-300
  - Lauer, A.J., (2002) Craniometric measurements and tooth morphology of archaeologically derived skeletal remains from the Malay Peninsula, , MA dissertation, Australian National University, Canberra
  - Macintosh, N.W.G., The Tabon Cave mandible (1978) Archaeological and Physical Anthropology in Oceania, 13, pp. 143-159
  - Matsumura, H., Geographical variation of dental measurements in the Jomon population (1989) Journal of the Anthropological Society of Nippon, 97, pp. 493-512

- Matsumura, H., A microevolutional history of the Japanese people from a dental characteristics perspective (1994) *Anthropological Science*, 102, pp. 93-118
- Matsumura, H., Dental characteristics affinities of the prehistoric to modern Japanese with the East Asians, American natives and AustraloMelanesians (1995) *Anthropological Science*, 103, pp. 235-261
- Matsumura, H., (2002) The possible origin of the Yayoi migrants based on the analysis of the dental characteristics, pp. 61-72. , In: Nakahashi T. and Li M. (eds.), *Ancient People in the Jiangnan Region, China*. Kyushu University Press, Fukuoka
- Matsumura, H., Hudson, M.J., Dental Perspectives on the population history of Southeast Asia (2005) *American Journal of Physical Anthropology*, 127, pp. 182-209
- Matsumura, H., Pookajorn, S., Morphometric analysis of the Late Pleistocene human remains from Moh Khiew Cave in Thailand (2005) *Journal of Comparative Human Biology Homo*, 56, pp. 93-118
- Matsumura, H., Zuraina, M., Metrical analysis of the dentition of Perak man from Gua Gunung Runtuh in Malaysia (1995) *Bulletin of the National Science Museum*, Tokyo, Series D, 21, pp. 1-10
- Matsumura, H., Zuraina, M., Metric analyses of the early Holocene human skeleton from Gua Gunung Runtuh in Malaysia (1999) *American Journal of Physical Anthropology*, 109, pp. 327-340
- Matsumura, H., Cuong, N.L., Thuy, N.K., Anezaki, T., Dental morphology of the early Hoabinhian, the Neolithic Da But and the Metal Age Dong Son Cultural people in Vietnam (2001) *Zeitschrift für Morphologie und Anthropologie*, 83, pp. 59-73
- Matsumura, H., Oxenham, M.F., Dodo, Y., Domett, K., Cuong, N.L., Thuy, N.K., Dung, K., Yamagata, M., Morphometric affinity of the late Neolithic human remains from Man Bac, Ninh Binh Province, Vietnam: Key skeletons with which to debate the 'Two layer' hypothesis (2008) *Anthropological Science*, 116, pp. 135-148
- Mijsberg, W.A., (1940) On a Neolithic Paleo-Melanesian lower jaw found in kitchen midden at Guar Kepah, Province Wellesley, Straits Settlements, pp. 100-118. , Proceedings of 3rd Congress of Prehistorians of the Far East, Singapore
- Nakahashi, T., (1989) The Yayoi people, pp. 23-51. , In: Nagai M., Nasu T., Kanaseki Y., and Sahara M. (eds.), *Yayoi Bunka no Kenkyu [Research on Yayoi Culture]*. Yuzankaku, Tokyo, (in Japanese)
- Nakahashi, T., Li, M., Yamaguchi, B., (2002) Anthropological study on the cranial measurements of the human remains from Jiangnan region, China, pp. 17-33. , In: Nakahashi T. and Li M. (eds.), *Ancient People in the Jiangnan Region, China*. Kyushu University Press, Fukuoka
- Ogata, T., (1981) Geographical variation of the human skeletal morphology of the late Jomon period, 5, pp. 46-47. , In: Ogata T. (ed.), *The Japanese 1, Anthropology (Jinruigaku-Kouza)* Yuzankaku, Tokyo, (in Japanese)
- Oxenham, M.F., Tayles, N., (2006) Synthesising Southeast Asian Population History and Palaeohealth, pp. 335-349. , In: Oxenham M. and Tayles N. (eds.), *Bioarchaeology of Southeast Asia*. Cambridge University Press, Cambridge
- Phung, H.V., Man Bac site-data and perception (2001) *Khao Co Hoc (Archaeology)*, pp. 17-46. , (in Vietnamese with English summary). 2001-1
- Pietruszewsky, M., (1992) Japan, Asia and the Pacific: a multivariate craniometric investigation, pp. 9-52. , In: Hanihara K. (ed.), *Japanese as a Member of the Asian and Pacific Populations*. International Research Center for Japanese Studies, Kyoto
- Pietruszewsky, M., Pacific-Asian relationships: a physical anthropological perspective (1994) *Oceanic Linguistics*, 33, pp. 407-429
- Pietruszewsky, M., A multivariate craniometric study of the inhabitants of the Ryukyu Islands and comparison with cranial series from Japan, Asia and the Pacific (1999) *Anthropological Science*, 107, pp. 255-281
- Pietruszewsky, M., Douglas, M.T., (2002) Ban Chiang, a Prehistoric Village Site in Northeast Thailand I: The Human Skeletal Remains, , University of Pennsylvania, Museum of Archaeology and Anthropology, Philadelphia
- Pookajorn, S., (1991) Preliminary Report of Excavations at Moh Khiew Cave, Krabi Province, Sakai Cave, Tran Province and

- Ethnoarchaeological Research of Hunter-Gatherer Group, so-called 'Sakai' or 'Semang' at Trang Provine, , Silpakorn University Press, Bangkok
- Pookajorn, S., (1994) Final Report of Excavations at Moh Khiew Cave, Krabi Province
  - Sakai Cave Trang Province and Ethnoarcheological Research of Hunter-Gatherer Group, so called 'Sakai' or 'Semang' at Trang Province, , Silpakorn University Press, Bangkok
  - Ramsey, C.B., Radiocarbon calibration and analysis of stratigraphy: the OxCal Program (1995) Radiocarbon, 37, pp. 425-430
  - Reimer, P.J., Baillie, M.G.L., Bard, E., Bayliss, A., Beck, J.W., Bertrand, C.J.H., Blackwell, P.G., Weyhenmeyer, C.E., IntCal04 Terrestrial Radiocarbon Age Calibration 0-26 Cal Kyr BP (2004) Radiocarbon, 46, pp. 1029-1058
  - Renfrew, C., Models of change in language and archaeology (1989) Transactions of the Philological Society, 87, pp. 103-155
  - Renfrew, C., (1992) World languages and human dispersals: a minimalist view, pp. 11-68. , In: Hall J.A. and Jarvie I.C. (eds.), Transition to Modernity: Essays on Power, Wealth and Belief. Cambridge University Press, Cambridge
  - Seonbok, Y., June-Jeong, L., Dung, L.M., Vu The Long, V.T., Thuy, N.K., AMS dating of a number of archaeological sites in Vietnam (2004), pp. 161-174. , Archaeology Journal No. 2, Social Sciences Publishing House, Hanoi
  - Sjovold, T., Estimation of stature from long bones utilizing the line of organic correlation (1990) Human Evolution, 5, pp. 431-447
  - Smith, B.H., patterns of molar wear in hunter gatherers and agriculturalists (1984) American Journal of Physical Anthropology, 63, pp. 39-56
  - Sneath, P.H., Sokal, R.R., (1973) Numerical Taxonomy, , W.H. Freeman, San Francisco
  - Storm, P., (1995) The Evolutionary Significance of the Wajak Skulls, , Scripta Geologica, No. 110. National Natuurhistorisch Museum, Netherlands
  - Tan, H.V., (1980) The Hoabinhian in the Context of Vietnam, , Vietnamese Studies, Hanoi
  - Tan, H.V., The Hoabinhian and before (1997) Bulletin of the Indo-Pacific Prehistory Association, 16, pp. 35-41
  - Tanaka, A., Yoneda, M., Uchida, M., Uehiro, T., Shibata, Y., Morita, M., Recent advances in C-14 measurement at NIES-TERRA (2000) Nuclear Instruments and Methods in Physics Research Section B-Beam Interactions with Materials and Atoms, 172, pp. 107-111
  - Tayles, N., Oxenham, M.F., (2006) Southeast Asian bioarchaeology: past and present, pp. 1-30. , In: Oxenham M. and Tayles N. (eds.), Bioarchaeology of Southeast Asia. Cambridge University Press, Cambridge
  - Thuy, N.K., Ancient skulls at Minh Duc (1993) Khao Co Hoc (Archaeology), pp. 1-8. , (in Vietnamese with English summary), 1993-3
  - Thuy, N.K., Doi, N.G., (1998) Surveying Again Cho Cave (Luong Son, Hoa Binh Province), 1997, , Social Sciences Publishing House, Hanoi
  - Turner C.G. II, Late Pleistocene and Holocene population history of East Asia based on dental variation (1987) American Journal of Physical Anthropology, 73, pp. 305-321
  - Turner C.G. II, Teeth and prehistory in Asia (1989) Scientific American, 260, pp. 70-77
  - Turner C.G. II, Major features of Sundadonty and Sinodonty, including suggestions about East Asian microevolution, population history and late Pleistocene relationships with Australian Aborigines (1990) American Journal of Physical Anthropology, 82, pp. 295-317
  - Turner C.G. II, (1992) Microevolution of East Asian and European populations: a dental perspective, pp. 415-438. , In: Akazawa T., Aoki K., and Kimura T. (eds.), The Evolution and Dispersal of Modern Humans in Asia. Hokusensha, Tokyo
  - Trevor, J.C., Brothwell, D.R., The human remains of Mesolithic and Neolithic date from Gua Cha, Kelantan (1962) Federation Museums Journal, 7, pp. 6-22
  - Uchida, M., Shibata, Y., Minoura, K., Kawamura, K., Yoneda, M., Mukai, H., Tanaka, A., Morita, M., Preparation for

- radiocarbon analysis of individual organic compounds from sediments using preparative capillary gas chromatography (PCGC) at NIES-TERRA (2000) Nuclear Instruments and Methods in Physics Research, B172, pp. 583-588
- Uchida, M., Shibata, Y., Yoneda, M., Kobayashi, T., Morita, M., Technical progress in AMS microscale radiocarbon analysis (2004) Nuclear Instruments and Methods in Physics Research Section, B 223-224, pp. 313-317
  - Van Klinken, G.J., Bone collagen quality indicators for palaeodietary and radiocarbon measurements (1999) Journal of Archaeological Science, 26, pp. 687-695
  - Von Koenigswald, G.H.R., Evidence of a prehistoric Australo-Melanesoid population in Malaya and Indonesia (1952) Southwest Journal of Anthropology, 8, pp. 92-96
  - Weidenreich, F., (1945) Giant Early Man from Java and South China, , Anthropological Paper of the American Museum of Natural History, 40, New York
  - Wolpoff, M.H., (1999) Paleoanthropology, , 2nd edition. McGraw-Hill, Boston
  - Wolpoff, M.H., Wu, X., Thorne, A.G., (1984) Modern homo sapiens origins: a general theory of hominid evolution involving the fossil evidence from east Asia, pp. 411-484. , In: Smith F.H. and Spencer F. (eds.), The Origins of Modern Humans. Alan R. Liss, New York
  - Woo, J., Human fossils found in Liukiang, Kwangsi, China (1959) Vertebrata Palasiatica, 3, pp. 108-118
  - Wu, X., Poirier, F.E., (1995) Human Evolution in China, A Metric Description of the Fossils and a Review of the Sites, , Oxford University Press, New York
  - Yamaguchi, B., Facial flatness measurements of the Ainu and Japanese crania (1973) Bulletin of the National Science Museum, Tokyo, 16, pp. 161-171
  - Yoneda, M., Tanaka, A., Shibata, Y., Morita, M., Uzawa, K., Hirota, M., Uchida, M., Radiocarbon marine reservoir effect in human remains from the Kitakogane site, Hokkaido, Japan (2002) Journal of Archaeological Science, 29, pp. 529-536
  - Yoneda, M., Shibata, Y., Tanaka, A., Uehiro, T., Morita, M., Uchida, M., Kobayashi, T., Edmonds, J.S., AMS 14C measurement and preparative techniques at NIES-TERRA (2004) Nuclear Instruments and Methods in Physics Research, Section B, 223-224, pp. 116-123
  - Yokoo, Y., Dayak kokkaku no jinruigaku-teki kenkyu (1931) Journal of the Anthropological Society of Nippon, 46, pp. 339-703. , (in Japanese)
  - Zuraina, M., (1994) The excavation of Perak Man, an Epi-Palaeolithic burial at Gua Gunung Runtuh, pp. 23-47. , In: Zuraina M. (ed.), The Excavation of Gua Gunung Runtuh and the Discovery of the Perak Man in Malaysia. Department of Museums and Antiquities, Malaysia, Kuala Lumpur
  - Zuraina, M., (2005), (ed.) The Perak Man and Other Prehistoric Skeletons of Malaysia. Penerbit Universiti Sains Malaysia, Penang