

Orang Asli (Indigenous Malaysian) Biomedical Bibliography

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Glossary/abbreviations

AIDS	Acquired immune deficiency syndrome
AJTMH	American Journal of Tropical Medicine and Hygiene
Anon.	anonymous
Bkt.	Bukit (hill)
Bull.	Bulletin
Dept.	Department
DNA	Deoxyribose nucleic acid; the genetic material
E.	East, or Escherichia in E. coli
Ed.	Editor, edition
e. g.	for example
et al.	and others; used in cases of more than three authors
G6PD	Glucose-6-phosphate dehydrogenase deficiency
Hb	Hemoglobin
HIV	Human immunodeficiency virus
HLA	Human leucocyte antigen
IMR	Institute for Medical Research, Kuala Lumpur
Internat.	International
J.	Journal
JHEOA	Jabatan Hal Ehwal Orang Asli (Dept. of Orang Asli Affairs), earlier JOA
Kg.	Kampung (village)
Med.	Medicine, medical
MJM	Medical Journal of Malaysia, or (earlier) Malaya
mtDNA	mitochondrial DNA
N.	North
no.	number
NY	New York
Orang Asli	the indigenous people of West Malaysia
p., pp.	page; pages
post or/pos	originally an inland military fort; now a core service area
SEAJTMPH	Southeast Asian Journal of Tropical Medicine and Public Health
S.	South
Sch.	School
Sci.	Science
SNP	single nucleotide polymorphism
Soc.	Society
SSM	Social Science and Medicine
TB	tuberculosis
TRSTMH	Transactions Royal Society of Tropical Medicine and Hygiene
Univ.	University
Vol.	Volume
W.	West
WHO	World Health Organization

Introduction

The Orang Asli are the first people of the Malayo-Thai Peninsula. The first edition of the Orang Asli biomedical bibliography was appended in a book; the second edition was part of a general bibliography on Orang Asli.¹ This third edition includes more recent studies but is also timely because Orang Asli healthcare has plummeted over recent decades. New revelations have made this situation widely known.² Some officials in West Malaysia have chosen to ignore the problem, others have denied it exists, and still others have said that Orang Asli are dirty or negligent and thus justify blaming them for their poor health.³ Officialdom takes a lordly stance with all policies and practices being “top down.” There is no attempt at “bottom up” solutions. The top-down measures include eviction of Orang Asli from their native lands to make way for golf courses, palm oil plantations, and cities. Orang Asli are moved into small quarters on bulldozed tracts with scant access to areas for foraging, fishing, or even gardening, but with promises of modern infrastructure. New-village medical clinics may indeed be built but too often no doctor or nurse is ever seen there.⁴ The Gombak hospital near Kuala Lumpur, once dedicated to Orang Asli healthcare, is now run largely by non-Orang Asli for non-Orang Asli. Doctors and nurses there can be prejudiced against Orang Asli, ignorant of their cultures and languages, and derelict in their duty to provide basic care to Orang Asli, both in hospital and in home villages. For example, when a British dentist who worked at the hospital in the 1960s revisited it decades later, he learned that Gombak dentists were primarily interested in the income level of dentists in England.

Another excuse for poor Orang Asli healthcare, besides invoking fault-finding, is that many of them live in remote areas. This excuse is belied by the situation in the Malaysian state of Sarawak, which is just as vast and has fewer roads but more mountainous terrain. There, rural health clinics are manned conscientiously and competently, and many distant villages have volunteer health promoters equipped with medical kits.⁵ When a Sarawak medical official was asked by a West Malaysian colleague how he got people to show up for work at rural clinics, the Sarawak man replied, “We don’t have that problem in Sarawak.” In West Malaysia, man’s inhumanity to man is complacently at home.

This bibliography contains over 500 entries on health issues, organized under 19 topical headings. It covers general topics plus individual diseases, demography, dentistry, ethnobotany, genetics, and on through to women’s health. Many of the entries are annotated to identify study locations, the ethnic groups investigated, and other data. A problem with some entries is that health information is sequestered in texts that are primarily on a non-health topic. Another problem is that reports such as theses and government documents are readily available only at the one institution where they were produced.

Many reports in the bibliography are now available on-line. While some are only available through library databases, a growing number are in the “open access” category on the internet. Readers are encouraged to navigate the net to obtain downloadable copies. The best general database for medical topics is Medline; while it does not provide full texts, it does provide abstracts, whenever available.

The entries in this bibliography stretch back more than 100 years, to a time when the British were consolidating their control over Malaya. The British, however, provided few health services to the people of the country and had little interest in doing so, despite epidemics of smallpox, cholera, and other plagues. The Orang Asli were the last to receive government

¹ Baer, 1999; Lye, 2001.

² Anon., *The Sun*, 2010a, b; Nicholas and Baer, 2007; Yip, 2010.

³ Anon., *The Star*, 1985; Anon., *The Sun*, 2000; Anon., *New Straits Times*, 2004; Anon, *The Star*, 2004).

⁴ Mohamed Idrus, 2000; Swainson and MacGregor, 2008).

⁵ Baer, 2006.

services. Modern health services were not continually available even to a minority of Orang Asli until several years after World War II ended. Since that time Malaysia has risen out of the ranks of poor countries, but Orang Asli healthcare, purportedly free to them by the government, has stagnated. The minority Orang Asli still are far behind other Malaysians in major measures of health status, including life expectancy, childhood nutrition, and other indicators of well-being.

The lack of parity for Orang Asli is based on intolerance of ethnic differences and on political ineptitude, ignorance, and abuse, problems also found in other countries. Given this situation, the health of Orang Asli cannot be expected to improve much in the near future. On the contrary, it might get worse. New menaces such as HIV/AIDS, drug-resistant infections, and widespread environmental destruction and pollution are among the woes that will increasingly plague the Orang Asli.

This bibliography, then, provides a basic outline of the health risks that Orang Asli face. Some reports in it also suggest ways to improve the situation, but too often such suggestions have not been provided, or when provided, not implemented.

In terms of research, the two major drawbacks to prioritizing Orang Asli health problems are the paucity of longitudinal studies and of large, randomized studies. Commonly, reports reveal only the health situation of one village at one point in time. Even then, for example, nutrition may be studied without any attention to dental problems or infectious disease. And nutrition may be studied only in one age group, not village-wide. This “hit or miss” approach multiplies authored publications nicely but is of scant value in the long run.

One final point: To encourage researchers in the social sciences and humanities to incorporate health issues in their studies, I have included index information on the ethnic groups studied and their locations. Such information may also encourage more biomedical writers to note such data in their reports. This is important because medical workers from other ethnic groups in Malaysia, who may know little about Orang Asli diversity, are routinely assigned to situations in which Orang Asli are clinic or hospital patients, and these workers need to know the problems particular to each ethnic sub-group. Ethnic and site information can also help in the planning of “follow-up” studies. Indeed, longitudinal studies on particular places and peoples often provide information not obtainable in other ways. Topical and author indices may also be found here.

In all, fuller information on people, their environments and cultures, and all other basic elements of existence and experience can only enrich our understanding of humanity now and into the future. Much of human life has changed radically over the past few centuries in Southeast Asia and elsewhere and has been lost to human memory, or is now vanishing during our lifetimes. The Orang Asli and other disadvantaged minorities of the world must adapt nimbly to many changes, both biologically and culturally, to avoid catastrophes such as pandemics, food shortages, and other lethal problems. The goal of biomedical research, then, is to foresee a myriad of problems and inform our fellow human beings as to possible ways to solve them. This challenge has yet to be met in any systematic way.

Topical Bibliographies

I. General bibliography

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2. Abdul Rashid, K. *Comparative study on selected aspects of health among a group of Malay and a group of Orang Asli in Mersing, Johor, West Malaysia*. M. Public Health thesis, Univ. Malaya, 1986.
3. Abdullah, S., et al. Cockroaches and house lizards trapped from Malay and Orang Asli villages in Endau, Johor, Malaysia. *Tropical Biomedicine* 12:177-178, 1995. (On Jakun; the cockroaches and lizards harbored pentastomes.)
4. Al-Mekhlafi, M., et al. Prevalence and distribution of soil-transmitted helminthiases among Orang Asli children living in peripheral Selangor, Malaysia. *SEAJTMPH* 37 (1):40-47, 2006. (All the children studied in 8 villages had helminths. Up to 26% had severe infections, which can lead to other health problems.)
5. Al-Mekhlafi, M., et al. An unceasing problem: soil-transmitted helminthiases in rural Malaysian communities. *SEAJTMPH* 38 (6):998-1007, 2007. (96% of Semai school children at Post Betau, Kuala Lipis, Pahang had one or more intestinal worm.)
6. Al-Mekhlafi, M., et al. Patterns and predictors of soil-transmitted helminth reinfection among aboriginal schoolchildren in rural Peninsular Malaysia. *Acta Tropica* 107 (2): 200-204, 2008. (Studied Post Betau, Kuala Lipis, Pahang; 66% of the Semai children studied had at least one intestinal helminth; after deworming, the reinfection rate 3 months later was 50%, thus frequent deworming is required. Al-Mekhlafi is listed as Hesham in some databases)
7. Ambu, S., et al. Helminth infections of rodents in Orang Asli settlements in Selangor, Malaysia—possible health risks. *Tropical Biomedicine* 13:123-127, 1996. (On Temuan at Bkt. Kemandul, Ulu Lui, Ulu Kuang, and Bkt. Tampoi, and Mah Meri of Sungei Judah and Sungei Bumbon.)
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10. Anisah, N., et al. Isolation of *Acanthamoeba* species from conjunctival sac of healthy individuals using swab. *Tropical Biomedicine* 22 (1):11-14, 2005. (286 healthy Orang Asli school children were studied, but no *Acanthamoeba* were found.)
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12. Anuar, H. et al. Detection of Malaysian schistosomiasis in Orang Asli of Peninsular Malaysia using serodiagnostic tests. *SEAJTMPH* 15 (4):479, 1984. (On Bkt. Lanjan Temuan, Post Iskandar Semelai, and Gombak hospital patients and visitors.)
13. Ariff, R. H. T., et al. Health status of aboriginal children in Post Brooke, Kelantan. *Malaysian J. Child Health* 9 (1): 60-64, 1997. (This and therein-cited studies showed that Temiar health problems occur in all age groups; government health services were far from comprehensive.)
14. Baer, A. *Health, Disease and Survival: A Biomedical and Genetic Analysis of the Orang Asli of Malaysia*. Center for Orang Asli Concerns, Subang Jaya, Malaysia, 1999. (Considers the health problems of Orang Asli ethno-linguistic groups individually; has separate chapters on malaria and nutrition.)
15. Baer, A. *Vital Signs, Health in Borneo's Sarawak*. Borneo Research Council, Phillips, Maine, 2006. (Some comparisons with the Orang Asli situation in W. Malaysia.)
16. Bedford, K. J. A. *Gombak and its patients: provision of healthcare to the Orang Asli (indigenous minority) of Peninsular Malaysia*. D. Phil. thesis, Univ. Oxford, England, 2007.
17. Bedford, K. J. A. Gombak hospital, the Orang Asli hospital. *Indonesia and the Malay World* 37 (107):23-44, 2009. (Discusses the misinformation and prejudices by the Malay elites about Orang Asli and the "institutionalized laziness" of the largely Malay staff at Gombak hospital; contrasts this with the much better healthcare available to indigenous peoples of Sarawak and Sabah.)
18. Bisseru, B. Skin test suggesting human toxocariasis in West Malaysia. *MJM* 23 (1):35-40, 1968. (In an unidentified Temuan village, dogs were a common reservoir of roundworm infections for humans; 11% of Gombak hospital Orang Asli patients had positive skin tests for toxicaria.)
19. Bisseru, B., and A. A. Aziz. Intestinal parasites, eosinophilia, hemoglobin and gamma globulin of Malay, Chinese, and Indian school children. *MJM* 25:29-33, 1970. (51% of Orang Asli children had hookworm; over 90% had some kind of parasitism.)
20. Bolton, J. Medical services to the aborigines in West Malaysia. *British Med. J.* 2:818-823, 1968. (Discusses the organization of services plus disease rates, immunizations, prematurity, infant mortality, and birth control.)
21. Bolton, J. Family-centered hospital treatment in the aboriginal people of West Malaysia. *Community Health* 5:70-74, 1973. (Reports on weekly distribution of anti-malarials, a semiannual dental cleaning for children, childhood vaccination, and a decline in TB and malaria.)
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23. Brearley, A. Serum proteins, hematocrits, heights, and weights of aborigine subjects in W. Malaysia. *MJM* 24:183-186, 1970. (Among 109 Orang Asli visitors to Gombak hospital aged 4 to 45 years, ethnicity unspecified, 21 were from deep forest; none were from uprooted sites. Serum protein levels were healthy, suggesting that nutrition was adequate.)

24. Bulbeck, F. *Continuities in Southeast Asian evolution since the late Pleistocene*. M. S. thesis, Australian National Univ., Canberra, 1981. (Anthropometric measurements of skeletal remains and prehistory analysis.)
25. Burns-Cox, C., and J. MacLean. Splenomegaly and blood pressure in an Orang Asli community in West Malaysia. *American Heart J.* 80:718-719, 1970. (On 85 River Nenggiri Temiar, male and female; found little risk of coronary heart disease; today, with pressure to turn to store-bought food, this finding is no longer secure.)
26. Burns-Cox, C., Y. H. Chong, and R. Gilman. Risk factors and the absence of coronary heart disease in aborigines in West Malaysia. *British Heart J.* 34:953-958, 1972. (Studied 73 Orang Asli men visiting Gombak hospital; found 1 case of elephantiasis; 34% had enlarged spleens; all had adequate blood pressure and nutritional status.)
27. Candish, J., N. Saha, and J. W. Mak. Plasma lipids and apolipoproteins in a population of Orang Asli ('aborigines') from West Malaysia. *Atherosclerosis* 129 (1):49-51, 1997.
28. Carey, I. *Orang Asli*. Oxford Univ. Press, London, 1976. (Contains information and misinformation on health and health care.)
29. Chan, O. L., et al. The cardiorespiratory fitness and energy expenditure of the Temiars. *MJM* 28 (4):267-272, 1974. (On 35 boys and men in the Nenggiri area of the Kelantan River; no malnutrition or yaws found.)
30. Chen, P. C. Medical systems in Malaysia: cultural bases and differential use. *SSM* 9:171-180, 1975. (Reviews work on Semai and other E. and W. Malaysian groups; contrasts ethno- and scientific medicine.)
31. Chong, Y. H., and C. W. Pang. Blood lipids in the Malayan aborigines. In: *Food and Nutritional Biochemistry*. P. Kanagasuntheram, ed. Proceedings 2nd Symposium Federal Asian and Oceanian Biochemists, Kuala Lumpur, 1980. Pp. 165-168. (Found that peri-urban Semai adults had a higher risk of coronary heart disease than did forest Orang Asli.)
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33. Dissanaïke, A. S. Further studies on trypanosome infections in Orang Asli in West Malaysia. *TRSTMH* 70 (2):170-171, 1976.
34. Dissanaïke, A. S., H. T. Ong, and S. P. Kan. Trypanosome infections in Orang Asli (Aborigines) in West Malaysia. *TRSTMH* 68 (4):494-495, 1974. (2 Semelai cases were found, 1 at Post Iskandar, Pahang, and 1 at Kg. Guntor, Negri Sembilan.)
35. Dissanaïke, A. S., M. K. Kutty, and A. M. Das. Sarcocystic infection in an Orang Asli. *SEAJTMPH* 6 (3):400-401, 1975. (Infection found incidental to a lethal brain tumor.)
36. Dissanaïke, A. S., et al. Studies of parasitic infections in Orang Asli (Aborigines) in Peninsular Malaysia. *MJM* 32:48-55, 1977. (Studied unidentified hospital patients: 25% had amebic antibodies, 21% had *E. coli* infections, and over 90% had intestinal helminths; 11% had

falciparum malaria parasitemia and 89% were seropositive for falciparum; 14% had microfilariae; 16% were seropositive for toxoplasmosis.)

37. Dugdale, A., J. Bolton, and A. Ganendran. Respiratory function among Malaysian aborigines. *Thorax* 26 (6):740-743, 1971. (On Orang Asli at Gombak hospital; noted that gout and tuberculosis were common.)

38. Dunn, F. The current status of ethnographic, genetic, and other biomedical research among the primitive ethnic groups of Southeast Asia. In *The Biology of Human Adaptability*, P. Baker and J. Weiner, eds. Oxford Univ. Press, London, 1968. Pp. 533-563. (This chapter was not included in the first printing of the book.)

39. Dunn, F. Epidemiological factors: health and disease in hunter-gatherers. In *Man the Hunter*, R. Lee and I. DeVore, eds. Aldine, Chicago, 1968. Pp. 221-228. (Summarizes intestinal parasitism in Malaysian "Negritos," reports 22 species of such parasites, more than for desert dwellers.)

40. Dunn, F. The TIF direct smear as an epidemiological tool. *Bull. WHO* 39:439-449, 1968. (Laboratory evaluations, based on Orang Asli fieldwork.)

41. Dunn, F. Intestinal parasitism in Malayan aborigines (Orang Asli). *Bull. WHO* 46:99-113, 1972. (Found 92% of 1036 persons—"Negritos," Temiar, Jah Hut, Semai, Semelai, Temuan, and Jakun—had parasites.)

42. Dunn, F. Secular changes in Temuan (Malaysian Orang Asli) settlement patterns, subsistence, and health. *Malayan Nature J.* 31 (2):81-92, 1977. (Studied N. Selangor area, especially Bkt. Manchong; associated intestinal parasites with crowded conditions after 1945; reported improvement in malaria control in the 1960s.)

43. Dunn, F., and J. Bolton. The MIF direct smear (DS) method in the study of intestinal parasitism in Malayan aborigines. *Singapore Med. J.* 4:175-176, 1963.

44. Else, J., et al. Further studies on trypanosomiasis. *TRSTMH* 70 (2):170-171, 1976. (Among Post Iskandar Semelai, 1 of 55 had trypanosomes, 6 of 54 had filariae, 2 of 54 had malaria parasites.)

45. Ghani, M. K. A., S. Kasim, and K. P. Lai. Protozoan infection amongst the Orang Asli (aborigines) community in Pangsoon, Malaysia. *Internat. Med. J.* 8:15-18, 2002. (On Ulu Langat Temuan in Selangor.)

46. Gilman, R., C. Davis, and F. Fitzgerald. Heavy *Trichuris* infection and amoebic dysentery in Orang Asli children. *TRSTMH* 70:313-316, 1976. (On Gombak hospital patients and visitors.)

47. Gilman, R., and K. Prathap. Acute intestinal amoebiasis-proctoscopic appearances with histopathological correlation. *Annals Tropical Med. Parasitology* 65:359-365, 1971. (On Orang Asli.)

48. Gilman, R., et al. Seroepidemiology of amoebiasis in the Orang Asli (Western Malaysian aborigines) and other Malaysians. *AJTMH* 25:663-666, 1976. (On Satak, Pahang Semai and Belatim, Kelantan Temiar; Satak had high and Belatim low levels of amoebic antibodies.)

49. Gouldsbury, P. *Jungle Nurse*. Jarrolds, London, 1960. (Discusses collaboration with traditional healers, emphasizes nutrition; discusses conditions in the “Emergency era.”)
50. Greer, G., and H. Anuar. Serological evidence of schistosomiasis among Orang Asli from three areas of Peninsular Malaysia. *SEAJTMPH* 15:303-312, 1984. (On Temuan at Bkt. Lanjan, Selangor; Semelai at Post Iskandar and Batek at Kuala Tahan, both in Pahang; all three groups had a low but significant serological response to schistosomes.)
51. Greer, G., et al. Malaysian schistosomiasis: description of a population at risk. *J. Tropical Med. Hygiene* 92 (3):203-208, 1989. (79% of 56 Semai at Kuala Koyan, Lipis, Pahang had roundworms, 93% had whipworms, 84% had hookworm, and none had schistosomes; by serology less than 10% had anti-schistosome antibodies.)
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54. Hakim, S. L., et al. Parasitic infections among Orang Asli (aborigine) [sic] in the Cameron Highlands, Malaysia. *SEAJTMPH* 38 (3):415-419, 2007. An outbreak of acute diarrhea that claimed the lives of 4 young children was attributed to rotavirus(es), but high levels of parasitic infections may have worsened the problem; the outbreak started in Terisu Post and spread to Mensun and Lemoi Post, all Semai areas in the Cameron Highlands, Pahang, and to the Post Brooke Temiar in Kelantan. The communities were said to be at fault by being unsanitary.)
55. Haug, N., et al. Studies on bacterial disease in West Malaysian Orang Asli (Aborigines): an epidemic of whooping cough. *MJM* 23:192-198, 1969.
56. Haug, N., et al. Studies on bacterial disease in West Malaysian Orang Asli: distribution of bacterial enteropathogens. *MJM* 24:24-31, 1969. (Found deep-forest groups differed little from forest-fringe groups in diarrhea level; those under 12 years were most commonly affected.)
57. Haug, N., T. W. Lim, and J. Anandan. Studies on bacterial disease in West Malaysian Orang Asli: previously unrecorded *Salmonella* serotypes. *MJM* 23:269-271, 1969.
58. Hill, A. *Notes on traditional healing and modern medicine among the Orang Hulu (Jakun) of Johore*. Dept. Anthropology, Sydney Univ., Australia, 1974. (Johore Utara, Bekok, Segamat, Johore; note: in 1996 the Dept. in Sydney had no record of this report.)
59. Hirayama, K., et al. Molecular analysis of HLA-B in Malaysian aborigines. *Tissue Antigens* 48:692-697, 1996. (On Gapoi, Pahang, Temuan and a mixed sample of Temiar and Semai.)
60. Ho, L. M., I. Cheong, and H. A. Jalil. Rhabdomyolysis and acute renal failure following blowpipe dart poisoning. *Nephron* 72: 676-678, 1996. (On the death of an Orang Asli woman.)

61. Hoe Ban Seng. *Aboriginal Community at Tasek Bera, Southwest Pahang—A Study on the Structure of Semelai Society*. Report to Commissioner of Aborigines, Dept. of Aboriginal Affairs, Kuala Lumpur, 1964 (typescript). (Pp. 243-246 give a health overview.)
62. Hoe Ban Seng. *Semelai Communities at Tasek Bera*. A. Baer and R. Gianno, eds. Center for Orang Asli Concerns, Subang Jaya, Malaysia. (Revised ed. of the 1964 report; includes health beliefs, midwifery, and health services covering several kampungs.)
63. Hughes, D. *The physical anthropology of south-east Asia*. Univ. Cambridge, England, doctoral dissertation, 1965. (Contains morphological measurements.)
65. Ishida, T., et al. Preliminary report on the short stature of Southeast Asian forest dwellers, the Manni, in Southern Thailand. Lack of an adolescent spurt in plasma IGF-a concentration. *SEAJTMPH* 29 (1):62-65, 1998. (Neither nutrition nor child health status was studied.)
66. Jeyakumar Devaraj. *Between myth and reality: why are Orang Asli more prone to illness?* Paper presented at the World Conference on Primary Care Physicians, Kuching, Malaysia, March, 1999. <http://www.aliran.com/oldsite/monthly/2000/05f.html> (Perak Orang Asli had 4.4 times more TB than the state average; Orang Asli had over 70% of the recorded cases of malaria in W. Malaysia.)
67. Jinam, T. A., et al. An update of the general health status in the indigenous populations of Malaysia. *Ethnicity and Health* 13 (3):277-287, 2008. (Temuan and the Bidayuh of Sarawak had higher cholesterol levels than Kensiu or Jehai but had less evidence of immune response to infection or allergy than the latter two groups; the differences were attributed to greater urbanization for the Temuan and Bidayuh.)
68. Joysey, V., et al. Study of a Malay population. In *Histocompatibility Testing 1972*. J. Dausset and J. Colombani, eds. Munksgaard, Copenhagen, 1973. Pp. 251-260. (Includes HLA data on 38 Orang Asli patients from Gombak hospital: the HLA-A antigen called “Long Malay” in this report is Aw24, which is common in the Pacific.)
69. Kamath, S. Hepatitis B surface antigen subtypes in Malaysia. *American J. Epidemiology* 102 (2):191-195, 1975. (Senoi were like Sarawak “Dayaks,” but unlike other Malaysian groups studied, in having a certain antigen subtype in high frequency.)
70. Kandasamy, Y. Orang Asli revisited—An old problem in the new millennium. *Proceedings 7th National Pediatrician Congress*, Ministry of Health, Malaysia, 2003. Pp. 39-42.
71. Kandasamy, Y., and P. Somasundram. A review of Orang Asli newborns admitted to a neonatal unit in a Malaysian general hospital. *Singapore Med. J.* 48 (10):926-928, 2007. (In Temerloh hospital, Orang Asli average birth weight was 2.57 kilograms for those admitted to the neonatal unit, with 29% falling into the “low birth weight” category; jaundice secondary to G6PD deficiency was the usual basis for admission; Orang Asli newborns made up 4.2% of those in the unit, about 8 times the population frequency of Orang Asli in W. Malaysia; this is the first study on the health status of Orang Asli newborns.)
72. Kandisami, P., H. Harunarashid, and H. Kaur. Acute pancreatitis in a multi-ethnic population. *Singapore Med. J.* 43 (6):284-288, 2002. (Among 133 hospital patients in Perak with acute pancreatitis, one was an Orang Asli.)

73. Karim, R., et al. Parasitic infections in the aboriginal community at Temengor, Hulu Perak, Malaysia. *Malaysian Nature J.* 48:425-432, 1995. (73% of Temiar girls had intestinal worms versus 48% of the boys; pour-flush latrines and gravity-fed water supplies were advocated for the study sites of Sungei Samlor and Sungei Tekam, neither of which had piped water or toilet facilities; logging occurred near these sites)
74. Khoo, T. E. Health priorities in the resettlement of the Orang Asli. *Federation Museums J.* 24:177-184, 1979. (Lists 6 negative impacts of forced relocation and 1 potentially positive one.)
75. Khor, G. L., and M. S. Zalilah. The ecology of health and nutrition of "Orang Asli" (indigenous people) women and children in Peninsular Malaysia. *Tribes and Tribals* special vol. 2:67-77, 2008. (A wide-ranging review of sanitation facilities, education, nutrition, and general morbidity and mortality of Orang Asli.)
76. Kinzie, J., K. Kinzie, and J. Tyas. A comparative health survey among two groups of Malayan Aborigines. *MJM* 21:135-139, 1966. (Reports on weight, height, dental problems, goiter, malaria, filariasis, anemia, intestinal parasites, diabetes, respiratory infections, and pre-adult mortality in Temuan at Bkt. Cheeding, Selangor, and Jehai at Fort Banding, Upper Perak River. Found 26% Temuan and 54% Jehai pre-adult mortality and a 17% microfilarial rate for all adults; 1 of 53 Temuan and 4 of 43 Jehai had elephantiasis; hematocrit levels were normal in men, indicating little iron deficiency, but were lower in women.)
77. Kutty, M. K., A. M. Das, and A. S. Dissanaik. Sarcocytic infection in an Orang Asli: the second human case from Malaysia. *SEAJTMPH* 6:400 only, 1975.
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79. Lim, H. F. *Orang Asli, Forest and Development*. Forest Research Institute Malaysia, Kepong, 1997. (Some health information; reports that only 67 of 774 Orang Asli villages, or 9%, had a medical clinic in the 1990s.)
80. Lim, K. G. *A Review of Disease in Malaysia*. Pelanduk, Petaling Jaya, Malaysia, 1993. (Minor mention of Orang Asli.)
81. Lim, Y. A., and R. A. Ahmad. Occurrence of Giardia cysts and Cryptosporidium oocysts in the Temuan Orang Asli (aborigine) river system. *SEAJTMPH* 35 (4):801-810, 2004. (River water is a probable route for Giardia and Cryptosporidium transmission in the Temuan village studied; provision of toilets was recommended.)
82. Lim, Y. A., and R. A. Ahmad. Contamination of Temuan Orang Asli (Aborigine) household water with faecally-transmitted parasite [sic]. *Malaysian Applied Biology* 33:1-6, 2004.
83. Lim, Y. A., R. A. Ahmad, and A. Osman. Prevalence of Giardia and Cryptosporidium infections in a Temuan (Aborigine) village in Malaysia. *TRSTHH* 91:505-507, 1997.
84. Lim, Y. A., et al. Intestinal parasite infection amongst Orang Asli (indigenous) in Malaysia: Has socioeconomic development alleviated the problem? *Tropical Biomedicine* 26 (2):110-122, 2009. (Advocates collecting baseline data on 18 Orang Asli ethno-linguistic groups so as to evaluate progress in controlling intestinal parasitism in Orang Asli throughout W. Malaysia.)

85. Lokman, A. R. *Masalah kesihatan masyarakat Orang Asli di Malaysia* [Health problems of Orang Asli societies in Malaysia]. M. Public Health thesis, Univ. Malaya, Kuala Lumpur, 1995.
86. Lonergan, S., and R. Vansickle. Relationship between water quality and human health: a case study of the Linggi River basin in Malaysia. *SSM* 33:937-946, 1991. (50% of Negri Sembilan Orang Asli had diarrhea over a 4-month period in 1986.)
87. Lono, A., G. S. Kumar, and T. T. Chye. Prevalence of microsporidia in an indigenous Orang Asli community in Pahang, Malaysia. *TRSTMH* 104 (3):214-218, 2010. (32% of 151 Orang Asli stool samples were positive for microsporidia.)
88. Looi, L. M., and K. Prathap. Amyloidosis in Malayan aborigines (Orang Asli). *Pathology* 11 (4):575-582, 1979. (9 of 334 autopsied Orang Asli had amyloidosis.)
89. Lye, T-P, ed. *Orang Asli of Peninsular Malaysia: A Comprehensive and Annotated Bibliography*. Center for Southeast Asian Studies, Kyoto Univ., Japan, 2001. (Includes health references.)
90. MacLean, J., and K. R. Kamath. Infantile scurvy in Malaysia. *MJM* 24:200-207, 1970. (On 4 Orang Asli children at Gombak.)
91. Mohammed Mahdy, A. K., et al. Current situation of Giardia and Cryptosporidium among Orang Asli (aboriginal) communities in Pahang, Malaysia. *SEAJTMPH* (suppl. 1):27-31, 2007. (Studied Post Betau Semai; children had the highest infection rate; the author is listed as Mahdy, A. K. in some databases.)
92. Mohammed Mahdy, A. K., et al. Risk factors for endemic giardiasis: highlighting the possible association of contaminated water and food. *TRSTMH* 102 (5): 465-470, 2008. (Of 321 Post Betau, Pahang, Semai studied, 96% had at least one intestinal parasite; 24% had giardiasis infections, which cause gastroenteritis, with children having the highest frequency.)
93. Mohammed Mahdy, A. K., et al. Giardia intestinalis genotypes: risk factors and correlation with clinical symptoms. *Acta Tropica* 112 (1):67-70, 2009. (Based on fecal samples from 321 Pahang Semai, 26% were positive for Giardia; contaminated raw food, such as fruit, is the likely method of transmission, especially in children.)
94. Mohammed Mahdy, A. K., et al. Molecular characterization of Giardia duodenalis isolated from Semai Pahang Orang Asli (Peninsular Malaysian aborigines). *Parasitology* 136 (11):1237-1241, 2009. (On Post Betau Semai.)
95. Mohamed Kamel, A., Mohamed Sham Kasim, and K. P. Lai. Parasitic infections among Orang Asli community [sic] in Pangsun, Hulu Langat. In *Annual Report*, IMR, Kuala Lumpur, 1994. Pp. 46-47. (82% of the Temuan studied had helminthic or protozoan infections.)
96. Mohd Tap b. Salleh. *An examination of development planning among the rural Orang Asli of West Malaysia*. PhD thesis, Univ. Bath, England, 1990. (The author, a former senior officer, acknowledged accusations of corruption in the JHEOA.)

97. Morley, D. C. Some notes on the health of the Semelai in southern Pahang. *Bull. Raffles Museum Series B*, no. 4 (H. D. Collings, ed.):133-134, 1949. (Some 200 people were studied after a food shortage occurred.)
98. Murugasu, R., F. Wang, and A. S. Dissanaiké. Schistosoma japonicum-type infection in Malaysia—report of the first living case. *TRSTMH* 72:389-391, 1978. (On an Orang Asli tuberculosis patient who had a rare form of schistosomiasis.)
99. Nevin, H. *Annual report of the Institute of Medical Research, Federated Malay States, for the year 1937*. IMR, Kuala Lumpur, 1938. Pp. 145-147. (A health survey on Semai at Kuala Denak, Perak, revealed 85% of those under 10 years of age, but only 6% of adults, had malaria parasitemia; after 2 years of anti-malarials, only 5% of all ages had parasitemia; over 10%, all ages, had filarial infections and 74% had intestinal helminths.)
100. Nicholas, C., and A. Baer. Health care for the Orang Asli: consequences of paternalism and non-recognition. In *Health Care in Malaysia, The dynamics of provision, financing and access*. H. L. Chee and S. Barraclough, eds. Routledge, London, 2007. Pp.119-136. (An assessment of many serious problems, including leprosy; reports 31 cases of HIV/AIDS were known in Orang Asli in 2003.)
101. Noone, H. D. Report on the settlements and welfare of the Ple-Temiar Senoi of the Perak-Kelantan watershed. *J. Federated Malay States Museums* 19:1-85, 1936. (Describes physical stereotypes of Orang Asli groups and of Malays; in the appendices, mentions yaws but lack of goiter in the Temiar and skin diseases common in nomadic “Negritos;” mentions malaria in Ulu Plus; estimates infant mortality rates at 29-45% and provides other demographic data.)
102. Nor Aini, U., et al. Iron deficiency anaemia as an adjunct to soil-transmitted helminthiasis among Orang Asli children in Selangor, Malaysia. *Asia Pacific J. Clinical Nutrition* 13 (suppl):S124, 2004. (The author is listed as Aini, N. U. in some databases.)
103. Nor Aini, U., et al. Serum iron status in Orang Asli children living in endemic areas of soil-transmitted helminths. *Asia Pacific J. Clinical Nutrition* 16 (4):724-730, 2007. (On Selangor children; all had at least one intestinal worm, 25% had giardiasis, 42% were anemic; stunting and wasting were associated findings.)
104. Norazah, A., et al. Streptococcal impetigo among aboriginal children in Malaysia. *SEAJTMPH* 26 (4):803-804, 1995.
105. Norhayati, M., et al. The prevalence of Trichuris, Ascaris and hookworm infection in Orang Asli children. *SEAJTMPH* 28:161-168, 1997.
106. Norhayati, M., P. Oothuman, and M. S. Fatmah. Some risk factors of Ascaris and Trichuris infection in Malaysian aborigine (Orang Asli) children. *MJM* 53:401-407, 1998.
107. Norhayati, M., et al. Hookworm infection and reinfection following treatment among Orang Asli children. *MJM* 50 (4):314-319, 1995. (Among 193 Temuan children, 31% had hookworm; only 8% did so after 4 months of treatment, but reinfection rates were high.)
108. Norhayati, M., et al. Efficacy of single dose albendazole on the prevalence and intensity of infection of soil-transmitted helminths in Orang Asli children in Malaysia. *SEAJTMPH* 28 (3):563-569, 1997.

109. Norhayati, M., et al. Health status of Orang Asli (Aborigine) community in Pos Piah, Sungai Siput, Perak, Malaysia. *SEAJTMPH* 29 (1):58-61, 1998. (38% of Temiar children had vitamin A deficiency, 19% had dental caries.)
110. Norhayati, M., et al. Intestinal microsporidial infections among Orang Asli (aborigine) children from Malaysia. *Annals Tropical Med. Parasitology* 101 (6):547-550, 2007.
111. Normaznah, Y., et al. Seroprevalence of *Sarcoptes scabiei* var. *canis* antibodies among aborigines in Peninsular Malaysia. *SEAJTMPH* 27 (1):53-56, 1996. (On Orang Asli at Gombak hospital.)
112. Ogilve, C. Che Wong word list and notes. *Bull. Raffles Museum*, Series B, No. 1, p. 11, 1949. (Notes two-thirds of the Chewong died as a result of the 1918 influenza pandemic.)
113. Ong, H. T. Medical services for the Orang Asli (Aborigines) of West Malaysia. *MJM* 30:30-37, 1975. (Includes information on the "Emergency" era origins of government medical services for Orang Asli and the founding of the Gombak hospital.)
114. Ong, H. T. *Total health care for the Orang Asli (Aborigines) of Malaysia*. JHEOA, Kuala Lumpur, 1976. (A rather optimistic report.)
115. Osman, A., et al. Promoting community participation in determining prevalence of malnutrition, goiter, and diabetes mellitus: Malaysia's experience. *J. Perubatan UKM (Malaysia)* 15 (2):105-115, 1993. (Studied Semai at Betau and Lanai, Pahang, and Temuan at Bkt. Lanjan, Selangor; overall, 72% of the 2-6 year olds were stunted, indicating chronic malnutrition; among 675 over the age of 2 years, 38% were goiterous.)
116. Osman, A., et al. Prevalence of NIDDM and impaired glucose tolerance in aborigines and Malays in Malaysia and their relationship to sociodemographic, health, and nutritional factors. *Diabetes Care* 16 (1):68-75, 1993. (On Bkt. Lanjan Temuan in Selangor and Lanai and Betau Semai in Pahang; only 1 of 321 people tested had diabetes.)
117. Osman, A., et al. Blood glucose and glycosylated hemoglobin in Malays and aborigines in Malaysia. *MJM* 51 (2):179-187, 1996. (On Semai of Betau and Lanai and Temuan of Bkt. Lanjan.)
118. Pike, D. Gombak Hospital. *Nursing Times* 64 (45):1519-1521, 1968. (The photographs in this article show the magnitude of Orang Asli employment in medical services for them in the 1960s, unlike the situation today.)
119. Polunin, I. *Tinea imbricate* in Malaya. *British J. Dermatology* 64: 378-384, 1952. (On Semai, Lanoh, and Orang Seletar.)
120. Polunin, I. Epidemiology of hypertension. *British Med. J.* 1:1190-1191, 1952. (62 Semai men were not hypertensive.)
121. Polunin, I. Anthropological problems encountered during a disease survey of Malaysian Aborigines. *Man* 52:70-71, 1952.

122. Polunin, I. The medical natural history of Malayan Aborigines. *MJM* 8:55-174, 1953. (A doctoral dissertation; has genetic, infectious-disease, and nutritional data; reports resettled Semai had a death rate 3.9 times that of the birth rate; gives some age-sex data and data on Orang Seletar in Johore and on Lanoh; reports over 70% of one lowland Semai group had malaria, as judged by enlarged spleens.)
123. Polunin, I. Culture and disease among the Malayan and Borneo Aborigines. Abstract. *10th Pacific Sci. Congress*, 1961.
124. Polunin, I. Health and disease in contemporary primitive societies. In *Diseases in Antiquity*, D. Brothwell and A. Sandison, eds. Thomas, Springfield, Illinois, 1967. Pp. 69-97. (A review, based in part on Polunin's work with Jah Hut, Semai, and Lanoh.)
125. Polunin, I. Some characteristics of tribal peoples. *Ciba Foundation Symposium* 49:5-20, 1997. (Generally on health.)
126. Prathap, K. Liver fluke in a Malaysian Orang Asli (Aborigine.) *TRSTMH* 67:881-882, 1973. (Showed the fluke to be endemic in Pahang.)
127. Prathap, K., and R. Gilman. The histopathology of acute intestinal amebiasis. *American J. Pathology* 60:229-246, 1970. (On 51 Orang Asli colitis patients at Gombak hospital.)
128. Prathap, K., N. Haug, and C. P. Ramachandran. Hepatic and pulmonary Porocephaliosis in Malaysian Orang Asli. *MJM* 23:92-95, 1968. (Autopsy study on an adult Semai from Pahang revealed incidental pentastomid infection in the liver; pentastomes are wormlike arthropods.)
129. Prathap, K., K. S. Lau, and J. Bolton. Pentastomiasis: a common finding at autopsy among Malaysian aborigines. *AJTMH* 18 (1):20-27, 1969.
130. Prathap, K., and G. Montgomery. Aortic and coronary atherosclerosis in the Malaysian Orang Asli. *Pathology* 6:255-261, 1974. (76% of hospital-located Orang Asli deaths were due to TB and other infections, 9% to cancer, and virtually none to heart disease: atherosclerotic lesions in aortas and coronary arteries, postmortem, were rarer than in other global populations.)
131. Rajeswari, B., B. Sinniah, and H. Hussein. Socioeconomic factors associated with intestinal parasites among children living in Gombak, Malaysia. *Asia Pacific J. Public Health* 7 (1):21-25, 1994. (89% of Orang Asli school children had intestinal parasites.)
132. Ramah, N., et al. Parasitic infections among aborigine children at Post Brooke, Kelantan, Malaysia. *MJM* 52:412-414, 1997. (On Temiar; 60% had *Ascaris*, 35% had dental caries, 45% showed signs of anemia, and 50% of families reported that at least one of their children had died. Med. teams visited 4 times/year and there was a small clinic with a medical aide. The authors urged that a larger clinic be established there.)
133. Rohela, M., et al. A case of auricular myiasis in Malaysia. *SEAJTMPH* 37 (suppl. 3):91-94, 2006. (A mentally retarded Orang Asli man had maggots in his right ear.)
134. Roslan Ismail. Current status of other infectious diseases in the Orang Asli. In *Second National Conference on Infection and Infection Control*, March 1997, Ipoh, Malaysia. Postgraduate Med. Education Soc., 1997. Pp. 60-63. (The author, Gombak hospital director, discussed malaria, cholera, and HIV/AIDS, in particular.)

135. Saleha, A. Observations on some epidemiological aspects of toxoplasmosis in Malaysia. *Internat. J. Zoonoses* 11 (1):75-83, 1984. (Review of Orang Asli rates of infection.)
136. Sandosham, A. A. Worm infections of some Malayan aborigines. In *Malaysian Parasites I-XV*. Studies of the IMR, Kuala Lumpur, No. 26, 1954. Pp. 210-211. (Among Aboriginal Malays of the Lower Pahang River, 49% had hookworm, 89% *Ascaris*, and 24% *Trichuris* infections.)
137. Self, J. Seeds for survival. *Bios* 41:154-161, 1970. (On Bkt. Legong Temuan food preparation and pentastomiasis.)
138. Senan, C. P. New strategies in infection disease control in Orang Asli population [sic]. *Second National Conference on Infection and Infection Control*, March, 1997, Ipoh, Malaysia. Postgraduate Med. Education Soc., 1997. Pp. 64-65.
139. Seow, H-F., et al. Seroprevalence of antibodies to hepatitis E virus in the normal blood donor population and two aboriginal communities in Malaysia. *J. Med. Virology* 59:164-168, 1999. (Compared Semai in Betau and Parit Tanjong with an outside group; Semai were at much higher risk of exposure to the virus.)
140. Shekhar, K. C., and R. Pathmanathan. Schistosomiasis in Malaysia. *Reviews of Infectious Disease* 9 (5):1026-1037, 1978. [Schistosomiasis is endemic in Orang Asli areas. Pahang study sites for non-human hosts: Post Iskandar (Semelai), Kuala Tahan (Batek), Betau and Kuala Koyan (Semai), and Penderas (Jah Hut). Perak sites: Kuah, Legap (Temiar) and Jalang Tinggi. Selangor site: Bkt. Lanjan (Temuan)].
141. Sinniah, B., V. Thomas, and P. L. Yap. Toxoplasmosis in [the] West Malaysian Population. *Tropical Biomedicine* 1:81-83, 1984. (Serologically 18% of Orang Asli showed evidence of exposure to *Toxoplasma*.)
142. Sjaifiroeddin, M. Nursing among aborigines in Malaysia's jungles. *Alumnae Magazine*, Columbia Univ. Presbyterian Hospital School of Nursing Alumnae Association 63 (1):39-44, 1968. (On Jahai and Temiar.)
143. Skeat, W., and C. Blagden. *Pagan Races of the Malay Peninsula*. 2 vols. Macmillan, London, 1906. Reprinted by Frank Cass, London, 1966. (Incidental remarks on smallpox, skin infections, and other problems.)
144. Soong, F-S. Some beliefs and practices affecting the health of the aborigines (Orang Asli) of Bukit Lanjan, West Malaysia. *SEAJTMPH* 3 (2):267-276, 1972. (On Temuan, but excludes midwifery; Temuan beliefs about health devalued.)
145. Strauss, J., et al. Melioidosis in Malaysia (III): antibodies to *Pseudomonas pseudomallei* in the human population. *AJTMH* 18 (5):703-707, 1969. (On "forest aborigines.")
146. Strauss, J., et al. Melioidosis in Malaysia (IV): Intensive ecological study of Carey Island, Selangor, for *Pseudomonas pseudomallei*. *MJM* 24 (2):94-100, 1969. (On Mah Meri; results were negative.)
147. Sua, G. K. *Penggunaan perkhidmatan kesihatan di kalangan komuniti Orang Asli (Semai) Rancangan Pengumpulan Semula Betau, Pahang*. B. S. thesis, Faculty of Human Ecology, Univ.

Pertanian Malaysia, Serdang, 1992. (Found 42% of adults had chronic illnesses and 63% had had an acute illness, on 2-week recall.)

148. Sulaiman, S., A. R. Sohadi, and J. Jeffrey. Human helminth parasite burdens on cyclorrhaphan flies trapped at an aboriginal settlement in Malaysia. *Bull. Entomological Research* 79:625-629, 1989. (On Bkt. Lanjan rainfall, sanitation, and disease; Temuan.)

149. Sulaiman, S., et al. The role of some cyclorrhaphan flies as carriers of human helminths in Malaysia. *Med. Veterinary Entomology* 3 (1):1-6, 1988. (On Bkt. Lanjan Temuan.)

150. Swainson, L., and A. McGregor. Compensating for development: Orang Asli experiences of Malaysia's Sungai Selangor dam. *Asia Pacific Viewpoint* 49 (2):155-167, 2008. (Two Temuan communities in northern Selangor, Gerachi and Pertak, were forcibly dispossessed to make way for this dam. As has been recorded in other Orang Asli areas, the medical buildings later provided had no nurses or doctors or medical supplies in them; the dispossession led to an increase in male alcohol consumption.)

151. Tan, D. S. K. Leptospirosis in rural West Malaysia *MJM* 24 (4):261-266, 1970. (This zoonotic disease was found in Orang Asli and others.)

152. Tesh, R. B., et al. The distribution and prevalence of group A arbovirus neutralizing antibodies among human populations in Southeast Asia and the Pacific Islands. *AJTMH* 24 (4):664-675, 1975. (On Senoi of Upper Perak.)

153. Thomas, V., and B. Sinniah. Seroepidemiology of amoebiasis in Peninsular Malaysia. *Annals Tropical Med. Parasitology* 76 (2):602-606, 1977. (Among 84 Temuan at Bkt. Lanjan, Entamoeba infection had an 8.3% prevalence overall but increased with age. No sex difference or acute amoebic dysentery was found.)

154. Thomas, V., B. Sinniah, and P. L. Yap. Prevalence of antibodies including IgM to toxoplasma gondii in Malaysia. *SEAJTMPH* 11 (1):119-125, 1980. (Of the 268 Orang Asli blood samples tested, 19% had significant levels of Toxoplasma antibodies, as compared to 34% for Malays.)

155. Umar, N. A., et al. Iron deficiency anaemia as an adjunct to soil-transmitted helminthiasis among Orang Asli children of Selangor, Malaysia. *Asia Pacific J. Clinical Nutrition* (suppl.) 13:S124, 2004. (Over 40% of 281 children tested had low hemoglobin concentrations, possibly associated with helminthiasis.)

156. Veeman, V. *The delivery of primary health care: a case study of the Aborigines of Peninsular Malaysia*. Thesis, Diploma of Royal College Nursing, Institute of Advanced Nursing, London, 1986-87. (Describes serious problems in health-care delivery at the JHEOA-run Gombak hospital and in Orang Asli village settings.)

157. Venugopalam, B., et al. Hepatitis A outbreak in Hulu Langat District, Selangor State, Malaysia. *MJM* 59 (5):670-673, 2004. (Both Malays and Orang Asli were victims of this April-October, 2002, outbreak; the upriver Orang Asli were blamed for the river contamination, citing their lack of toilet facilities or adequate water supply.)

158. Vythilingam, I., et al. Prevalence of head lice infestation among Orang Asli in Pos Betau using permethrin-impregnated bednets. *Malaysian J. Med. Laboratory Sci.* 10 (2):51-53, 1998.

(Head lice, previously found in over 60% of Semai in Kuala Milot, disappeared 9 months after the nets were distributed there, a benefit additional to protection against disease-carrying mosquitoes.)

159. Weerekoorn, L. Ocular conditions among the Orang Asli, the jungle aborigines of West Malaysia. *Transactions Ophthalmological Soc. New Zealand* 25:30-35, 1973.

160. Williams-Hunt, P. *An Introduction to the Malayan Aborigines*. Government Press, Kuala Lumpur, 1952. (Chapter 7 is on health.)

161. Wisseman, C., et al. Leptospirosis of man and animals in urban, rural, and jungle areas of Southeast Asia. *AJTMH* 4 (1):29-40, 1955. (4 of 8 Orang Asli were seropositive, indicating prior exposure.)

162. Yadav, M., and F. H. Shah. Serum immunoglobulin A, G, and M levels in blood donors of four racial groups in Malaysia. *Tropical Geographical Med.* 29 (3):245-250, 1977.

163. Yadav, M., and F. H. Shah. Variation in serum immunoglobulin G, A, and M levels in Malaysia blood donors. *MJM* 33:57-71, 1978. (Gombak hospital visitors had high levels, attributed to chronic infections.)

164. Yadav, M., and F. H. Shah. Normal serum immunoglobulin G, A and M levels in full term Malaysian newborns. *MJM* 33 (3):247-251, 1979. (On Gombak hospital patients and visitors.)

165. Yadav, M., F. H. Shah, and S. S. Dhaliwal. Serum immunoglobulin levels in the Malaysian Orang Asli. *SEAJTMPH* 9 (4):501-509, 1978. (On Orang Asli at Gombak hospital combined with "Negritos" at Kg. Lallang, Kedah.)

166. Yadav, M., S. Umamaheswari, and D. Ablashi. Antibody reactivity with two strains of human herpesvirus-6 in Malaysians. *J. Med. Virology* 33:236-239, 1991. (On Orang Asli plus East Malaysians: this mixed group had low HHV-6 antibody levels.)

167. Yahaya, N. Review of toxoplasmosis in Malaysia. *SEAJTMPH* 22 (suppl.):102-106, 1991. (Rural Malaysians, including Orang Asli, were commonly seropositive.)

168. Yusof, H. M., et al. Anthropometric indices and life style practices of the indigenous Orang Asli adults in Lembah Belum, Grik, of Peninsular Malaysia. *Asia Pacific J. Clinical Nutrition* 16 (1):49-55, 2007. (In this Jehai-Temiar community, 27% were underweight.)

169. Zulkifli, A., et al. The prevalence and intensity of soil-transmitted helminthiasis among preschool children in Orang Asli resettlement villages in Kelantan. *MJM* 54:453-458, 1999.

II. Cancer

170. Sumithran, E. Rarity of cancer of the cervix in the Malaysian Orang Asli despite the presence of known risk factors. *Cancer* 39 (4):1570-1572, 1977. (Over a 13-year period, only 3 out of 81 Orang Asli women diagnosed with cancer had cervical cancer.)

171. Sumithran, E., and L. M. Looi. Race-related morphologic variations in hepatocellular carcinoma. *Cancer* 56 (5):1124-1127, 1985. (Found liver cancer to be quite common in "Senoi," especially in men.)

172. Sumithran, E., and K. Prathap. Rarity of cervical cancer in Malaysian Orang Asli. *Lancet* 1 (7920):1349-1350, 1975.

173. Sumithran, E., and K. Prathap. Hepatocellular carcinoma in the Malaysian Orang Asli. *Cancer* 37:2263-2266, 1976. (Senoi are more prone to liver cancer than are "aboriginal Malays.")

174. Sumithran, E., and K. Prathap. HBsAg-positive chronic liver disease associated with cirrhosis and hepatocellular carcinoma in the Senoi. *Cancer* 40 (4):1618-1620, 1977. (Senoi liver cancer is associated with hepatitis B infection.)

III. Cholera

175. Morris, K. Forest utilization: commodity and subsistence among the Semaq Beri of Peninsular Malaysia. *Civilisations* 44:194-219, 1997. (Mentions that in the 1960s half the Semaq Beri in a resettlement center died of cholera; studied Semaq Beri in the Ulu Tembling, Pahang.)

IV. Demography

176. Abdullah, Ramie b. *Semaq Beri*. Kolej Agama Sultan Zainal Abidin, Kuala Trengganu, Malaysia, 1991. (Pp. 11-15 are on demography; a deficit of men aged 20-39 years is notable, as is the sex ratio of 2 males:1 female for those over 39 years. Note: the author has also been cited in database as Ramie b. Abdullah.)

177. Department of Statistics. *Profile of the Orang Asli in Peninsular Malaysia*. Population Census Monograph Series No.3. Department of Statistics, Kuala Lumpur, 1997.

178. Dobbins, J. Life expectancy in an aboriginal Malaysian population. *SEAJTMPH* 10 (1):106-114, 1979. (Gives Semelai life tables, infant mortality, and life expectancy.)

179. Endicott, K. M. The effects of slave raiding on the aborigines of the Malay Peninsula. In *Slavery, Bondage, and Dependency in Southeast Asia*. A. Reid and J. Brewster, eds. Univ. Queensland Press, Brisbane, 1983. Pp. 216-245. (Discusses demographic and other effects of pre-1920 slave raiding.)

180. Endicott, K. M. Batek history, interethnic relations, and subgroup dynamics. In *Indigenous Peoples and the State*. R. Winzeler, ed. Yale Univ. Southeast Asian Studies Monograph 46, New Haven, Conn., 1997. Pp. 30-50.

181. Fix, A. *Semai Senoi population structure and genetic microdifferentiation*. PhD dissertation, Univ. Michigan, Ann Arbor, 1971.

182. Fix, A. Neighborhood knowledge and marriage distance: the Semai case. *Annals Human Genetics* 37:327-332, 1974. (Uses Semai data to test a general model.)

183. Fix, A. Fission-fusion and lineal effect: aspects of the population structure of the Semai Senoi of Malaysia. *American J. Physical Anthropology* 43:295-302, 1975.

184. Fix, A. *The Demography of the Semai Senoi*. Univ. Michigan Museum of Anthropology, Paper No. 62, Ann Arbor, 1977.
185. Fix, A. The role of kin-structured migration in genetic microdifferentiation. *Annals Human Genetics* 41:329-339, 1978. (On Semai.)
186. Fix, A. Endogamy and settlement populations of Semai Senoi: potential mate pool analysis and simulation. *Social Biology* 28:62-74, 1982.
187. Fix, A. Kin groups and trait groups: population structure and epidemic disease selection. *American J. Physical Anthropology* 65:201-212, 1984. (Uses Semai data to test models of variant-gene selection, driven by malaria.)
188. Fix, A. Semai Senoi fertility and population dynamics: two-census method. *American J. Human Biology* 1:462-469, 1989. (Reports a 2% growth rate at Satak, Pahang, with a lower rate before 1969.)
189. Fix, A. Semai Senoi mortality: two-census method. *American J. Human Biology* 1:471-477, 1989. (Reports that lower mortality accords with health-care improvement.)
190. Fix, A. Changing sex ratio of mortality in the Semai Senoi. *Human Biology* 63:211-220, 1991. (Reports that prior to 1969 Semai women at Satak had higher mortality than men.)
191. Gianno, R. *Semelai Culture and Resin Technology*. Memoirs Conn. Academy Arts and Sciences, Vol. 22, New Haven, 1990. (Includes demography.)
192. Gomes, A. G. *A social demography of Jahai Negritos at Rual Post, Kelantan*. B. A. thesis, Univ. Malaya, Kuala Lumpur, 1977.
193. Gomes, A. G. Orang Asli demography. *Federation Museums J.* 24:75-92, 1979.
194. Gomes, A. G. *The Paya Lebar Temuans: A social demographic study*. Dept. Anthropology and Sociology, Working Paper No. 3, Univ. Malaya, Kuala Lumpur, 1979. (On Selangor Temuans.)
195. Gomes, A. G. *Ecological Adaptation and Population Change: Semang Foragers and Temuan Horticulturalists in West Malaysia*. East-West Environment and Policy Institute, Research Report No. 12, East-West Center, Honolulu, 1982. ((Study of Jahai at Sungai Rual, Kelantan, and Temuan at Paya Lebar, Selangor.)
196. Gomes, A. G. Demography and environmental adaptation: a comparative study of two aboriginal populations in West Malaysia. In *Population Change in Southeast Asia*, W. Acre and G. Alvarez, eds. Institute of Southeast Asian Studies, Singapore, 1983. Pp. 391-477. (Study of Jahai and Temuan.)
197. Gomes, A. G. Demographic implications of villagisation among the Semang of Malaysia. In *Hunter-Gatherer Demography: Past and Present*, B. Meehan and N. White, eds. Oceania Publications, Sydney, 1990. Pp. 126-138. (On governmental forced resettlement at Sungai Rual, Kelantan, for Jahai.)

198. Ng, M. S., K. Van, and J. Pala. Demographic situation of the aborigines in Malaysia. Dept. of Statistics, Kuala Lumpur, 1987, and *Quarterly Review of Malaysian Population Statistics*, No. 18, pp. 9-18, 1992. (Cited on p. 13 in *Indigenous Minorities of Peninsular Malaysia*, Razha Rashid, ed., Intersocietal and Scientific, Kuala Lumpur, 1995. The crude death rate median values for 1984-1987 were 10.4 for Orang Asli versus 5.2 for all Malaysians; synchronic infant mortality rates were 51.7 versus 16.3, respectively.)
199. Noone, H. D. Some vital statistics of the Lowland Senoi of Perak. *J. Federated Malay States Museums* 15:195-217, 1939. (Sparse demographic data.)
200. Noone, H. D. Vital statistics of a primitive people. *Nature* 145:97-98, 1940.
201. Siti Noor. *Pembangunan dan perubahan social: kajian kes di kalangan komuniti Jakun di Kampung Langkap dan Kampung Batu Tiga, Rompin, Pahang*. M. Sci. thesis, Univ. Malaya, Kuala Lumpur, 1996. (Some basic demographic and health information.)
202. Tan, C. B. Kampong Ulu Grik: A Senoi-Negrito resettlement community in Perak. In *Three Studies on the Orang Asli in Ulu Grik*, by M. Razha, S. Jamal, and Tan Chee Beng. Univ. Sains Malaysia, Penang, 1973. Pp. 72-146. (Pp. 85-88 are on demography; this small Temiar-Lanoh community had a 40% childhood mortality rate.)

V. Dengue

203. Rudnick, A., T. W. Lim, and J. Ireland, eds. *Dengue fever studies in Malaysia*. Bull. No. 23, IMR, Kuala Lumpur, 1986. (Studied Kg. Tanjong Rabok, Selangor, Temuan and other Orang Asli elsewhere; found 73% of 636 serum samples were antibody-positive for dengue and related viruses; those lacking such antibodies were mainly children, as detailed on pp. 67-73 and 114-119; dengue antibodies were rarer in non-Orang Asli.)
204. Smith, C. E. G. The history of dengue in tropical Asia and its probable relationship to the mosquito *Aedes aegypti*. *J. Tropical Med. Hygiene* 59:3-11, 1956. (On Temuan in Ulu Langat, Selangor, and Semai in Cameron Highlands, Pahang; virtually all adults over 30 years of age had anti-dengue antibodies.)

VI. Dentistry

205. Abdul-Kadir, R., and N. Adnan. Dental caries experience of 7 to 12 year old West Malaysian aborigines (Temuan tribe). *Odontostomatologie Tropicale* 12 (1):7-11, 1989. (Reports few caries in 69 Bkt. Lanjan children; water supply was low in fluorides.)
206. Abdul-Kadir, R., and A. Yassin. Periodontal status (CPITN) of six-to-fifteen year old West Malaysian aborigines (Proto-Malays). *J. Nihon Univ. Sch. Dentistry* 31 (4):612-618, 1989. (On rural Temuan children; found few periodontal problems but 47% school absenteeism.)
207. Abdul-Kadir, R., and A. Yassin. Prevalence of dental caries in the Selangor Orang Asli children. *J. Nihon Univ. Sch. Dentistry* 32:275-280, 1990. (On Temuan.)
208. Abdul-Kadir, R., and A. Yassin. Dental health beliefs and attitudes of a group of rehabilitated Selangor Proto-Malays (Temuan tribe) in Malaysia. *Kajian Malaysia*, 11 (2):74-84, 1993. (The term rehabilitated seems to refer to forced resettlement, with success being measured as "only semi-isolated with access to outside stores.")

209. Mummery, C. F. The teeth of the Che Wong. *British Dental J.* 84:69-72, 1948. (Caries increased with age; fever was common; 2 of 51 persons had yaws.)

210. Saub, R., and N. Jaafar. A dental-anthropological study of health and illness behavior among Orang Asli of the Semai tribe: the perspective of traditional healers. *MJM* 56 (4):401-407, 2001. (If a Semai healer, a hala, thinks "germs" are causing a tooth problem, he immediately sends the patient to a doctor, otherwise he attempts traditional treatment; if that doesn't work, he reverts to sending the patient to a doctor; urges that efforts to promote oral health seek the cooperation of traditional healers).

VII. Ethnomedicine and ethnobotany

211. Anbu Jeba Sunilson et al. Ethnomedical survey of plants used by the Orang Asli in Kampung Bawong, Perak, West Malaysia. *J. Ethnobiology and Ethnomedicine* (an e-journal) 6:5, 2010. (The authors wrote that they worked with "Semang" informants but Kg. Bawong is Temiar; Medline lists the first author as A. J. Samuel.)

212. Azisah Kassim. Some aspects of Temuan belief. *Federation Museums J.* 21:53-67, 1976.

213. Azriani Ab. Rahman, et al. The use of herbal medicines during pregnancy and perinatal mortality in Tumpat District, Kelantan, Malaysia. *SEAJTMPH* 38:1150-1157, 2007. (Reported that the use of unidentified herbs collected by Orang Asli plus coconut oil in late pregnancy were negatively associated with perinatal mortality, suggesting that these two factors favor infant viability.)

214. Christensen, H. *Ethnobotany of the Orang Asli of Krau Wildlife Reserve*. Report submitted to DANCED/Perhilitan, August 2000. (On Chewong.)

215. Chooi, O. H. The ethnobotany of Citrus and their relatives. *Korean J. Plant Taxonomy* 24 (3):157-171, 1994. (On Orang Asli traditional medical uses; the author has also been cited in databases as Ong Hean Chooi.)

216. Dentan, R. Ambiguity, synecdoche and affect in Semai medicine. *SSM* 27 (8):857-877, 1988.

217. Dunn, F. *Rain-forest Collectors and Traders*. Monograph of the Royal Asiatic Society, Malaysian Branch, No. 5, Kuala Lumpur, 1975. Ed. 2, 1982. (Lists some medicinal plants used by Temuan in northern Selangor.)

218. Hood, M. S. *Semelai Rituals in Curing*. PhD thesis, Oxford Univ., 1978.

219. Islam, M. N., et al. Effects of an indigenous contraceptive herbal formulation on gonadotrophs of the pituitary gland of the rat. *Malaysian J. Med. Sci.* 14 (1):23-27, 2007. (A mixture of three plants used by Temuan as a contraceptive was found to inhibit ovulation and other reproductive processes in laboratory rats.)

220. Kamarulzaman Yahya. Perubatan tradisi di kalangan masyarakat Orang Asli [Traditional medicines in Orang Asli communities]. *Proceedings of the Seminar on Malaysian Traditional Medicine*, E. Soepadmo et al., eds. Univ. Malaya, Kuala Lumpur, 1989. Pp. 226-228.

221. Lim, H. F., and Ramli Baki. *Penggunaan sumber-sumber hutan sebagai ubatan tradisional di kalangan masyarakat Orang Asli*. Paper for the National Workshop to integrate traditional medicine with primary health care, Institut Penyelidikan Perubatan [IMR], Kuala Lumpur, 1990. (On Orang Asli traditional medicines.)
222. Lim, K. W. Ethnobotanical study of medicinal plants used by the Jah Hut people of Malaysia. *Indian J. Med. Sci.* 59 (4):156-161, 2005. (At Kg. Keboi, Pahang, 16 species and their traditional uses were recorded via interviews with traditional healers.)
223. Nitta, A. On “tepas terbang,” a folk medicine used by Orang Asli. *Yakugaku Zasshi* 104 (3):256-260, 1984 [Japanese with English abstract]. (On a rhizome of the ginger family.)
224. Polunin, I. The magical medical system of the Jah Hut tribe of Central West Malaysia. *Proceedings 8th Internat. Congress Anthropological and Ethnological Sci.* 1:243-244, 1968. (Describes this system of the Pahang Jah Hut and stresses the beneficial effect of suggestive psychotherapy.)
225. Polunin, I. *Magic in the Hills*. 16 mm. film produced by BBC TV, distributed by Time-Life Films, Inc., 1973. (On Jah Hut, Pahang, curing practices.)
226. Robarchek, C. A. Mothers, ghosts and shamans: Semai world view and ethnomedicine. In *Health, Food and Nutrition in Malaysia*. Consumers Associations of Malaysia, Penang, 1980.
227. Siti Masturah b. Ismail. *The politics of indigenous knowledge and intellectual property rights: Batek challenges to Western epistemologies*. B. A. thesis, Middlebury College, Vermont. (Discusses Batek forest products and ideas of health; near Kuala Tahan, Pahang, Batek sell medicinal plants cheaply to outsiders as a favor to them to improve their health, disregarding the possible misuse of Batek intellectual property rights by others to gain high profits via “biopiracy.”)
228. Taylor, C. E., and K. M. Wong. Some aspects of herbal medicine among the Orang Hulu community of Kampung Peta, Johore, Malaysia. *Malayan Nature J.* 41:317-328, 1987. (Many of the plants documented in this Endau area are used as prophylactics or in relation to pregnancy and childbirth by the Jakun.)
229. Teh, K. H. *Tradition and medicine in Malaysia: a bibliography of popular folk beliefs, superstitions, and indigenous practices pertaining to health, diseases, nutrition and related medical subjects*. Univ. Malaya Library, Kuala Lumpur, 1983.
230. Werner, R. Can the medicine-man be substituted—medical services for the aborigines (Orang Asli) in West Malaysia. *Öffentliche Gesundheitswesen* 41 (1):17-28, 1979. [In German.]

VIII. Filariasis

231. Abdullah, W. O., P. Oothuman, and Hashim Yunis. Detection of circulating antigens and parasite-specific antibodies in filariasis. *SEAJTMPH* 24 (suppl. 2):31-36, 1993. (Studied 6 Orang Asli in Gombak hospital who had acute lymphatic filariasis. Abdullah has also been cited in databases as Wan Omar, A., or Wan., O. A.)
232. Hakim, S. L., et al. Single-dose diethylcarbamazine in the control of periodic Brugian filariasis in Peninsular Malaysia. *TRSTMH* 89 (6):686-689, 1995. (In 1992 Jahai of Banum and

Temiar/Lanoh of Dala, both in Perak, had 25% and 23% microfilaremia, respectively, indicating deficits in the provision of government health care.)

233. Laing, A., and R. Wharton. Filariasis investigation. In *Annual Report, 1960*. IMR, Kuala Lumpur, 1961. Pp. 114-131. (First report of filariasis foci in Orang Asli.)

234. Mak, J. W. *Studies on filariasis amongst Orang Asli in Peninsular Malaysia with special reference to chemotherapy*. M. D. thesis, Univ. Singapore, 1978. (Studied 2645 Orang Asli at Gombak hospital; found a microfilarial rate of 6.3% with no sex difference, but the rate increased with age, to late teens, then stabilized; only 27 "Negritos" were tested; 6% of the 2645 had malarial parasites.)

235. Mak, J. W. *Filariasis*. Bull. No. 19, IMR, Kuala Lumpur, 1983. (On Orang Asli and others; map of filariasis on p. 83 updates that published by Wharton et al. in 1963).

236. Mak, J. W. Problems in filariasis control and the need for human behavior and socioeconomic research. *SEAJTMPH* 17 (3):479-485, 1986.

237. Mak, J. W. Medical research in Malaysia: Parasitic diseases. In *Proceedings 90th Anniversary Scientific Seminar: Health Research*, IMR, Kuala Lumpur, 1992. Pp. 29-69. (On malaria and filariasis; concludes that while med. research on Orang Asli has been diligent, it has not translated well into government health services. On Temuan, Temiar, Jahai, Batek, Semai, Semelai, and unidentified groups from Johor.)

238. Mak, J. W., et al. Studies on the epidemiology of subperiodic *Brugia malayi* in Malaysia. *Acta Tropica* 39:237-245, 1982. (On Sungai Lui, Selangor, Temuan.)

239. Marzhuki, M., A. Tham, and S. Poovaneswari. Current state of filariasis in Malaysia. *SEAJTMPH* 24 (suppl. 2):10-14, 1993. (Includes surveys of Orang Asli areas, as shown in maps, but no discussion of ethnic groups.)

240. Onyah b. Itam. Filariasis among Malayan aborigines examined at the Gombak Hospital during the period 1961-1967. *MJM* 21:384-385, 1967. (Found 11% filariasis among 1964 Orang Asli tested; this is the first biomedical report published by an Orang Asli. Note: the correct spelling of the author's name is Unyah.)

241. Polunin, I. Observations on the distribution of filariasis in the interior of the Malay Peninsula. *MJM* 5:320-327, 1951. (On Pahang, Perak, Selangor, Johore: 9 of 2200 Ulu Jelai Semai moved involuntarily in 1949 to Bkt. Bentong had elephantiasis; Grik area Lanoh at Kg. Ulu Kendrong, Perak, were another filariasis focus, with 66% showing microfilaremia; 2 of 70 Temuan at Ulu Beranang, Negri Sembilan, had elephantiasis; 100 Temuan at Ulu Langat, Selangor, had no elephantiasis and 18 tested had no microfilariae; 18% of Jakun at Lenek, Johore had microfilaria; the foci were mainly up-river and high altitude.)

242. Poynton, J., and E. Hodgkin. *Endemic filariasis in the Federated Malay States*. Bull. No. 1, IMR, Kuala Lumpur, Federated Malay States, 1938. (Cited in Mak, 1978, as reporting some filarial observations on Orang Asli.)

243. Ramachandran, C. P., C. C. Hoo, and Abu Hasan b. Omar. Filariasis among aborigines and Malays living near Kuala Lumpur. *MJM* 18:193-200, 1964. (Reports a 2% microfilarial rate in

110 Malays, a 17% rate in 167 adult and pre-adult Bkt. Lanjan Temuan; no elephantiasis was found. "Temiar" in this report=Temuan.)

244. Vythilingam, I., et al. *Anopheles donaldi* incriminated as a vector of periodic *Brugia malayi* in Grik, Perak, Malaysia. *SEAJTMPH* 27 (3):637-641, 1996. (Filariasis-carrying mosquitoes were studied in Banum, a Jahai community, and at Dala, a Temiar/Lanoh community.)

245. Wharton, R., A. Laing, and W. Cheong. Studies on the distribution and transmission of malaria and filariasis among aborigines in Malaya. *Annals Tropical Med. Parasitology* 57:235-254, 1963. [Has map of filariasis in Malaya; malaria parasitemia varied by locale from 0 to 86% and the microfilarial rate from 0 to 78%. Studied Temuan at Bkt. Kemandul/Mandol, Bkt. Tampoi, Pulas, Ulu Kuang, Bkt. Manchong, Ulu Lui, "Ponsom" (Pangsoon), Lalang, Bkt. Legong, and Bkt. Lanjan in Selangor; Mah Meri at Sungai Judah, Selangor; Semelai at Tasek Bera, Pahang; Temuan at Janda Baik, Pahang; Jakun (?) at Peramu, Pahang; and Temiar at Chabai and Betis, Nenggiri River, and at Perias River, Kelantan.]

IX. Genetics

246. Adrian, T. J. J. *Human leukocyte antigens and genomic diversity in indigenous populations of Malaysia*. M. Med. Sci. thesis, Univ. Malaya, 2007. (Studied Jehai, Kensiu, Temuan, and Bidayuh for HLA and other blood traits.)

247. Baer, A. The genetics of human populations in Southeast Asia. *Malayan Scientist* 4:17-22, 1967/68. (A review of earlier work.)

248. Baer, A. Bibliography of enzyme (and some other) genetic polymorphisms in Southeast Asia. *California Association of Criminalists Newsletter* (June):7-12, 1982.

249. Baer, A. Elliptocytosis, malaria, and fertility in Malaysia. *Human Biology* 60:909-915, 1988. (On Temuan in Ulu Serendah, Bukit Legong, and Ulu Kuang in Selangor and Tekir Labu in Negri Sembilan; suggestive fertility advantage found for the ovalocytosis phenotype in a malarial environment.)

250. Baer, A. Human genes and biocultural history in Southeast Asia. *Asian Perspectives* 34:21-35, 1995. (On Aslian and Austronesian language speakers.)

251. Baer, A. The Malayo-Bornean arc: malaria vs. human genes. *Borneo Research Bull.* 29:128-142, 1998. (Contrasts West Malaysian and Borneo genetic traits as to malaria resistance and discusses possible reasons for the differences.)

253. Baer, A. The genetic history of the Orang Asli: uniting patchwork data. *Bull. Indo-Pacific Prehistory Association* 19:3-10, 2000. (Suggested too little was then known about Orang Asli genes to support any currently popular or political scenarios of prehistory.)

254. Baer, A. Genetic studies on the Orang Asli. In *Minority Cultures of Peninsular Malaysia*. R. Razha and J. K. Wazir, eds. Academy of Social Sciences, Penang, 2001. Pp. 27-32. (A review.)

255. Baer, A., et al. Genetic factors and malaria in the Temuan. *American J. Human Genetics* 28:179-188, 1976. (On Bkt. Legong, Ulu Kuang, and Ulu Serendah in Selangor and Air Baniang

and Tekir Labu in Negri Sembilan; 29% of 404 Temuan had malaria parasitemia, but those with ovalocytosis showed resistance to high levels of parasitemia.)

256. Ballinger, S., et al. Southeast Asian mitochondrial DNA analysis reveals genetic continuity of ancient Mongoloid migration. *Genetics* 130:139-152, 1992. (Corrections appear in *Genetics* 130:957, 1992; misidentifications and “extrapolations” of Orang Asli groups plague this paper; reportedly studied a few Temiar, Semai, Jakun, “Jeni,” and “unidentified” Orang Asli.)

257. Bekaert, B., et al. A comparison of mtDNA and Y chromosome diversity in Malay populations. *Internat. Congress Series* 1288:252-255, 2006. (Jahai and Kensiu Y chromosomes were different from those of Malays.)

258. Bolton, J., and L. E. Lie-Injo. Hb E-beta thalassemia in West Malaysian Orang Asli (aborigines). *MJM* 24:36-40, 1969.

259. Cavalli-Sforza, L., P. Menozzi, and A. Piazza. *The History and Geogoraphy of Human Genes*. Princeton Univ. Press, New Jersey, 1994. (A few Southeast Asian data are omitted, in error, or mislabeled.)

260. Chen, H., R. Sokal, and M. Ruhlen. Worldwide analysis of genetic and linguistic relationships of human populations. *Human Biology* 67:595-612, 1995. (Includes “Kensiu” data but this may be a mislabeling of older “Negrito” data; suggests Kensiu are quite unrelated to Malays.)

261. Chin, J. Absence of Di^{a+} in Malayan aborigines. *Nature* 201:1039, 1964. (A study of 270 “Aboriginal Malays” and Senoi for the Diego antigen.)

262. Corbo, R. M., and R. Scacchi. Apolipoprotein E (APOE) allele distribution in the world. Is APOE*4 a ‘thrifty’ allele? *Annals Human Genetics*. 63:301-310, 1999. (Orang Asli and some other traditionally foraging groups have a high percentage of the APOE*4 allele, thought to be the ancestral type.)

263. Endom Ismail et al. Dermatoglyphics: comparison between Negrito Orang Asli and the Malays, Chinese, and Indians. *Sains Malaysiana* 38 (6):947-952, 2009. (On Batek at Post Lebir, Gua Musang, Kelantan; Jahai at Post Sungei Rual, Jeli, Kelantan; Kensiu at Kg. Lubok Legong, Baling, Kedah; Kintak at Kg. Bukit Asu, Grik, Perak; Lanoh at Kg. Air Bah, Grik, Perak; finger and palm dermatoglyphics were studied but the findings have no strong basis in genetics.)

264. Fix, A. Anthropological genetics of small populations. *Annual Review Anthropology* 8:207-230, 1979.

265. Fix, A. Kin-structured migration and the rate of advance of an advantageous gene. *American J. Physical Anthropology* 55:433-442, 1981.

266. Fix, A. Genetic structure of the Semai. In *Current Developments in Anthropological Genetics: Vol. 2. Ecology and Population Structure*. M. Crawford and J. Mielke, eds. Plenum, NY, 1982. Pp. 179-204.

267. Fix, A. Evolution of altruism in kin-structured and random subdivided populations. *Evolution* 39 (4):928-939, 1985. (Uses a Semai model for theory testing.)

268. Fix, A. Malayan paleosociology: implications for patterns of genetic variation among the Orang Asli. *American Anthropologist* 97 (2):313-323, 1995. (A review and analysis.)
269. Fix, A. *Migration and Colonization in Human Microevolution*. Cambridge Univ. Press, Cambridge, England, 1999. (Overview that uses Orang Asli data.)
270. Fix, A. Foragers, farmers, and traders in the Malayan Peninsula: origins of cultural and biological diversity. In *Forager-Traders in South and Southeast Asia*. K. Morrison and L. Junker, eds. Cambridge Univ. Press, Cambridge, England, 2002. Pp. 185-202.
271. Fix, A., and L. E. Lie-Injo. Genetic microdifferentiation in the Semai Senoi of Malaysia. *American J. Physical Anthropology* 43:47-55, 1975.
272. Fix, A., A. Baer, and L. E. Lie-Injo. The mode of inheritance of ovalocytosis/elliptocytosis in Malaysian Orang Asli families. *Human Genetics* 61:250-253, 1982. (Contains Temuan and Semai data.)
273. Foo, L. C., et al. Ovalocytosis protects against severe malaria parasitemia in the Malayan aborigines. *AJTMH* 47(3):271-275, 1992. (Studied Betau, Pahang, Semai; 25% of the population per month was positive for parasitemia.)
274. Fucharoen, G., et al. Beta-globin gene haplotypes in some minor ethnic groups in Thailand. *SEAJTMPH* 28 (suppl. 3):115-119, 1997. (Over 30 Thai "Sakai" were studied.)
275. Gajra, B., et al. Effect of apolipoprotein E variants on plasma lipids and apolipoproteins in the Orang Asli ("aborigines") of Malaysia. *Human Heredity* 44:209-213, 1994. (Reports low cholesterol levels in Semai.)
276. Gajra, B., et al. Genotype associations among seven apolipoprotein B polymorphisms in a population of Orang Asli of western Malaysia. *Human Biology* 69 (5):629-640, 1997.
277. Green, R. Anthropological blood grouping among the "Sakai." *Bull. Raffles Museum*, Series B, No. 4, pp. 130-132, 1949.
278. Hill, C., et al. Phylogeography and ethnogenesis of aboriginal Southeast Asia. *Molecular Biological Evolution* 23:2480-2491, 2006. (Contains Orang Asli data.)
279. Hill, C., et al. A mitochondrial stratigraphy for island Southeast Asia. *American J. Human Genetics* 80:29-43, 2007. (On mtDNA; has Orang Asli data.)
280. Hong Lih Chun. *Biomedical parameters of an Orang Asli group in West Malaysia*. B. Biomedical Sci. thesis, Dept. Molecular Med., Univ. Malaya, 2004/2005. (Studied Temuan at Parit Gong, Jelebu, Negri Sembilan; found no malaria but 45% were hypertensive; HLA diversity found but no indication of ovalocytosis.)
281. Hughes, D. Senoi Temiar: dermatoglyphic data. *Man* 63:74 only, 1963. (On Pasir Riang and Gemalah, Kelantan.)
282. Hughes, D. Kensiu Negritos: dermatoglyphic data with comparative notes. *Man* 64:82-85, 1964.

283. HUGO Pan-Asian SNP consortium. Mapping human genetic diversity in Asia. *Science* 326:1541-1545, 2009. (Contains autosomal DNA information showing ancient lineages of Temuan, Kensi, and Jahai; concludes that Southeast Asia was a major source of East Asia populations; HUGO stands for the Human Genome Organization.)
284. Iwai, K., et al. Distribution of glucose-6-phosphate dehydrogenase mutations in Southeast Asia. *Human Genetics* 108 (6):445-449, 2001. (Notably, Orang Asli had G6PD Coimbra, a missense mutation.)
285. Jarolim, P., et al. Deletion of erythrocyte band 3 gene in malaria-resistant Southeast Asian ovalocytosis. *Proceedings National Academy Sci. USA* 88:11022-11026, 1991. (Includes data relevant to ovalocytosis based on one Orang Asli family.)
287. Kimura, M., et al. Twenty-seven base pair deletion in erythrocyte band 3 protein gene responsible for SE Asian ovalocytosis. *Human Biology* 70 (6):993-1000, 1998.
288. Kirk, R. Genetic differentiation in Australia and the Western Pacific. In *The First Americans*, A. Harper and W. Laughlin, eds. G. Fischer, New York, 1979. Pp. 211-237. (Presents a genetic distance analysis showing Senoi outside of the Western Malayo-Polynesian cluster.)
289. Kirk, R., and L. Lai. The distribution of haptoglobin and transferrin groups in South and Southeast Asia. *Acta Genetica* 11:97-105, 1961. (On "Proto-Malays.")
290. Lewis, G., et al. Duffy phenotypes in Malaysian populations: correction of previous unusual findings. *TRSTMH* 82:509-510, 1988. (Reports on Semai, Temiar, Jah Hut, Semaq Beri, Semelai, Mah Meri, Temuan, and Jakun; no Duffy-negative phenotypes were found, correcting the report by Ooi, 1979.)
291. Lian, L. H., and K. C. Lek. Genetic polymorphisms in mitochondrial DNA hypervariable regions I, II, and III of the Malaysian population. *Pacific J. Molecular Biology Biotechnology* 13 (2):79-85, 2005. (Includes unspecified Orang Asli.)
292. Lie-Injo, L. E. Hereditary ovalocytosis and hemoglobin E-ovalocytosis in Malayan aborigines. *Nature* 208:1329, 1965. (Subjects unspecified but mostly Semai.)
293. Lie-Injo, L. E. Distribution of genetic red cell defects in Southeast Asia. *TRSTMH* 63:664-674, 1969. (Discusses genetic red-cell variants and malarial history in W. Malaysians.)
294. Lie-Injo, L. E. Genetic relationships of several aboriginal groups in South East Asia. In *The Origin of the Australians*, R. Kirk and A. Thorne, eds. Australian Institute of Aboriginal Studies, Canberra, 1976. Pp. 277-306. (Contains some data not available elsewhere, including monomorphisms of lactate dehydrogenase, phosphohexose isomerase, catalase, and carbonic anhydrase in Orang Asli.)
295. Lie-Injo, L. E., and J. Chin. Abnormal hemoglobins and glucose-6-phosphate dehydrogenase deficiency in Malayan aborigines. *Nature* 204:291-292, 1964. (On Semai, Temiar, Semelai, Temuan, and Jakun for Hb and G6PD and on Lanoh for Hb and Jah Hut for G6PD; samples ranged from 1 to 181.)

296. Lie-Injo, L. E., and J. Ganesan. Biochemical genetic characteristics of Malaysians. *Malaysian Nature J.* 35:165-171, 1977. (Each group studied, including Temuan, had its own signature for the distribution of biochemical traits.)
297. Lie-Injo, L. E., and Q. Welch. Electrophoretic variants of 6-phosphogluconate dehydrogenase (6PGD) and phosphohexose isomerase (PHI) in different racial groups in Malaysia. *Human Heredity* 22:338-343, 1972. (On Temuan, Semai, and others.)
298. Lie-Injo, L. E., J. Bolton, and H. Fudenberg. Haptoglobins, transferrins and serum gamma-globulin types in Malayan aborigines. *Nature* 215:777 only, 1967.
299. Lie-Injo, L. E., J. Ganesan, and C. Lopez. The clinical, hematological, and biochemical expression of Hemoglobin Constant Spring and its distribution. In *Abnormal Hemoglobins and Thalassemia-Diagnostic Aspects*. Academic Press, New York, 1975. Pp. 275-291. (On Semai, Temiar, Temuan, Jakun.)
300. Lie-Injo, L. E., et al. Unusual albumin variants in Indonesians and Malayan aborigines. *Human Heredity* 21:376-383, 1971. (Two "Gombak" variants were found in a sample of 165 Orang Asli, but Baer et al., 1976, found none in 189 Temuan.)
301. Lie-Injo, L. E., et al. Hemoglobin E-hereditary elliptocytosis in Malayan aborigines. *Acta Haematologica* 47:210-216, 1972. (Mainly on Semai.)
302. Lie-Injo, L. E., et al. Hemoglobin constant spring (slow-moving hemoglobin X components) and hemoglobin E in Malayan aborigines. *American J. Human Genetics* 25:382-387, 1973. (On Temuan and Jakun.)
303. Livingstone, F. *Frequencies of Hemoglobin Variants: Thalassemia, the Glucose-6-Phosphate Dehydrogenase Deficiency, G6PD variants, and Ovalocytosis in Human Populations*. Oxford Univ. Press, New York, 1985. (A thorough review of red-cell variants relevant to malaria resistance, including all Orang Asli groups studied before 1985.)
304. Lugg, J. Taste thresholds for phenylthiocarbamide of some populations. *Annals Human Genetics* 21:244-253, 1957. (Reports 18% of 50 Kintak Bong and 4% of 50 Semai were nontasters; see also PTC data in Baer et al., 1976.)
305. Melton, T., et al. Polynesian genetic affinities with Southeast Asian populations as identified by mtDNA analysis. *American J. Human Genetics* 57:403-414, 1995. (On Semai.)
306. Macaulay, V., et al. Single, rapid coastal settlement of Asia revealed by analysis of complete mitochondrial genomes. *Science* 308:1034-1036, 2005. (Found Semang to have a high frequency of unique types of mtDNA.)
307. Mohandes, H., et al. Rigid membranes of Malayan ovalocytes: a likely genetic barrier against malaria. *Blood* 63:1385-1392, 1984.
308. Mourant, A., A. Kopec, and K. Domaniewska-Sobczak. *The Distribution of the Human Blood Groups and Other Polymorphisms*. Ed. 2. Oxford Univ. Press, New York, 1976. (A world survey with pre-1976 data on Orang Asli groups; see also Tills et al., 1983.)

309. Nei, M. Evolution of human races at the gene level. In *Human Genetics, Part A: The Unfolding Genome*. B. Bonne-Tamir, ed. Alan Liss, New York, 1982. Pp. 167-181. (Includes data on Malayan “Negritos” and “aboriginal Malays.”)
310. Ooi, W. L. *Red cell polymorphisms and malaria in Malaysia*. Masters Public Health thesis, Yale Univ., New Haven, Conn., 1979. (On Duffy blood group and Hb E in Orang Asli and others; results inconclusive; see Lewis et al., 1988, for correction about the “finding” of Duffy-negative phenotypes.)
311. Parra, E., et al. Analysis of five Y-specific microsatellite loci in Asian and Pacific populations. *American J. Physical Anthropology* 110:1-16, 1999. (Unlike an earlier report on Semai DNA, this one shows as much, or more, genetic diversity within Semai as within larger groups, such as Cambodians and Malays.)
312. Parra, E., et al. Genetic variation at nine autosomal microsatellite loci in Asian and Pacific populations. *Human Biology* 71 (5):757-779, 1999. (Semai were found to be most unlike the other Asian populations studied.)
313. Petrakis, N., et al. Evidence for a genetic cline in earwax types in the Middle East and Southeast Asia. *American J. Physical Anthropology* 35:141-144, 1971. (Reports 7% of Orang Asli had dry ear wax; see also Baer et al., 1976.)
314. Polunin, I., and P. Sneath. Studies of blood groups in South-East Asia. *J. Royal Anthropological Institute Great Britain and Ireland* 83:215-251, 1953. (On Semai, Temiar, Temuan, Jakun, Mah Meri, Lanoh, Seletar, Kensiu, Kinta Bong, and Jehai.)
315. Roychoudhury, A., and M. Nei. *Human Polymorphic Genes*. Oxford Univ. Press, New York, 1988. (Fairly thorough reporting on “Negritos” and “Senoi,” but no coverage of Temuan or other Orang Asli groups.)
316. Saha, N., et al. Population genetic study among the Orang Asli (Semai Senoi) of Malaysia: Malayan aborigines. *Human Biology* 67 (1):37-57, 1995. (Associates the Semai with the Khmer, rather than with Malays or some other non-Malaysian groups; on p. 42 Temiar are mislabeled as Temuan.)
317. Schurr, T. G., and A. G. Wallace. Mitochondrial DNA diversity in Southeast Asian populations. *Human Biology* 74 (3):431-452, 2002. (Orang Asli had a high frequency of haplogroup F.)
318. Steinberg, A., and L. E. Lie-Injo. Immunoglobulin G allotypes in Malayan aborigines. *Human Heredity* 22:254-258, 1972. (On Temuan, Temiar, Jakun, Semelai, Semai, and “Negritos.”)
319. Stoneking, M., and F. Delfin. The human genetic history of East Asia: weaving a complex tapestry. *Current Biology* 20 (4):R188-R193, 2010. (Reviews earlier data, including those on Jehai and Kensiu; notes that the usual method used to date DNA findings is unreliable and thus groups like the Orang Asli may have originated less than 50,000 years ago; the distinctiveness of Orang Asli, however, from hunter-gatherer groups in the Philippines or from other ethnic groups, is not in question; discusses the impact of social practices on genetic variation.)

320. Tan, S. G., and Y. S. Teng. Saliva acid phosphatases and amylase in Senoi and aboriginal Malays and superoxide dismutase in various racial groups of Peninsular Malaysia. *Japanese J. Human Genetics* 23:133-138, 1978. (Studied staff and patients at Gombak hospital.)
321. Tills, D., A. Kopec, and R. Tills. *The Distribution of the Human Blood Groups and other Polymorphisms*. Suppl. 1. Oxford Univ. Press, New York, 1983.
322. Valente, F. P., et al. The evolution and diversity of TNF block haplotypes in Europeans, Asians, and Australian aborigines. *Genes and Immunity* 10 (7):607-615, 2009. (Studied the tumor necrosis factor region of DNA in Temuan, Jehai, Bidayuh, and others.)
323. Vella, F. Abnormal hemoglobins, thalassemia, and erythrocyte glucose-6-phosphate dehydrogenase deficiency in Singapore and Malaya. *10th Pacific Sci. Congress, Honolulu*, 1961. Abstracts of Symposium Papers, pp. 421-422, 1961, but cited in Livingstone, 1985 as *Oceania* 32:219-225, 1962. (Reports a Hb E allele frequency of 0.17 for 41 Semelai.)
324. Vos, G. and R. Kirk. Di^a, Js^a and V blood groups in South and Southeast Asia. *Nature* 189:321-322, 1961. (Reports data on "Senoi," some of which are mislabeled in Cavalli-Sforza et al., 1994.)
325. Wang, J., et al. Nine different glucose-6-phosphate dehydrogenase (G6PD) variants in the Malaysian population with Malay, Chinese, Indian and Orang Asli (Aboriginal Malaysian) backgrounds. *Acta Medica Okayama* 62 (5):327-332, 2008. (Studied blood samples from 2 Selangor hospitals.)
326. Welch, Q. In *1971 Annual Report, Univ. California Internat. Center for Med. Research*, San Francisco. (Reports Orang Asli dermatoglyphics are quite different from those of Europeans; Semai and Temuan are alike.)
327. Welch, Q. Peptidase B variants among the Semai, Temuan, Semelai, and Jakun groups of the West Malaysian Orang Asli. *Human Heredity* 23:482-486, 1973.
328. Welch, Q. Hand dermatoglyphics: some methodology results. (Abstract) *Australian-New Zealand Association for Advancement of Sci. symposium on Human Variation in Southeast Asia*. Perth, August, 1973.
329. Welch, Q., L. E. Lie-Injo, and J. Bolton. Adenylate kinase and malate dehydrogenase in four Malaysian racial groups. *Humangenetik* 14:61-63, 1971. (Studied Semai, Temuan, Semelai, and Jakun at Gombak hospital.)
330. Welch, Q., L. E. Lie-Injo, and J. Bolton. Phosphoglucomutase and carbonic anhydrase in West Malaysian aborigines. *Human Heredity* 22:28-37, 1972. (Studied Perak Semai, Kelantan Temiar, and miscellaneous Orang Asli.)
331. Welch, Q., et al. Adenosine deaminase polymorphism among the Semai, Temuan, Semelai, and Jakun groups of West Malaysia Orang Asli. *Human Heredity* 28:62-65, 1978.
332. Zainuddin, Z. and W. Goodwin. Mitochondrial DNA profiling of modern Malay and Orang Asli populations in peninsular Malaysia. *Internat. Congress Series* 1261:428-430, 2004. (Malays were found to differ from Jehai and Kensiu in mtDNA.)

X. Goiter

333. Osman, A., et al. Protein energy malnutrition, thyroid hormones and goiter among Malaysian Aborigines and Malays. *Asia Pacific J. Clinical Nutrition* 1:13-20, 1992. (On Pangsoon Temuan in Selangor.)
334. Osman, A., et al. Serum thyroid stimulating hormone (TSH) in malnutrition: preliminary results. *Singapore Med. J.* 34:225-228, 1993. (On 26 Temuan children in the Pangsoon area of Selangor.)
335. Osman, A., et al. The effect of cassava leaf uptake on thyroid hormone and urinary iodine. *E. African Med. J.* 70:314-315, 1993. (Experimentally, Orang Asli showed a decrease in thyroid function after 12 days on a diet rich in cassava leaves.)
336. Osman, A., et al. Iodine content in drinking water not an important determinant of endemic goiter. *Asia Pacific J. Clinical Nutrition* 2:115-118, 1993.
337. Osman, A., et al. (published as O. Ali et al.) Thyroid function and pubertal development in malnutrition. *Annals Academy Med. Singapore* 23 (6):852-855, 1994. (207 Orang Asli were studied; poor nutrition was found to affect thyroid function, including goiter formation, as well as growth hormone levels in children.)
338. Osman, A., Khalida Muda, and B. A. K. Khalid. Iodine content in urine samples among Malays and aborigines. *Acta Med. Okayama* 48 (6):289-292, 1994. (On Post Lanai and Post Buntu, Pahang, Semai; they had lower iodine levels than did nearby Malays.)
339. Osman, A., et al. The prevalence of goiter in remote inland versus coastal areas. *MJM* 50 (3):256-262, 1995. (Mah Meri on Carey Island, Selangor, and Kensiu, perhaps with Kintak, at Kg. Lubok Legong, Baling District, Kedah, were studied; 6% of Mah Meri and 30% of Lubok Legong people had goiters, despite the fact that the iodine level in drinking water in the Kedah area was "surprisingly high.")
340. Osman, A., et al. Endemic goiter and hypothyroidism in Orang Asli and Malays in Peninsular Malaysia. *Med. J. Islamic Republic Iran* 9 (1):19-25, 1995. (On Lanai and Batau, Pahang, Semai, and Bkt. Lanjan, Selangor, Temuan.)
341. Osman, A., et al. Levels of thyroxine, TSH, thyroid volume and mental performance among Orang Asli in selected settlements in Malaysia. *E. African Med. J.* 73 (4):259-263, 1996. (Mental performance was statistically the same in all locations.)
342. Polunin, I. Endemic goiter in Malaya. *MJM* 5:302-319, 1951. (53% of 45 female and 14% of 63 male Temuan, all ages, at Ulu Lui and Ulu Langat, Selangor, and Ulu Berenang, Negri Sembilan, had enlarged thyroids/goiters; the frequency was highest for inland, upland peoples, such as the Semai, Temiar, and Lanoh; adults were most affected; the coastal Orang Selatar, in Johore, had far fewer goiters.)
343. Polunin, I. *Goiter control: West and East Malaysia*. Assignment report, Malaysia 5602-E (0081), WHO, Regional Office of the Western Pacific, 1971. 57 pp.
344. Wan Nazaimoon, W., et al. Effects of iodine deficiency on insulin-like growth factor-1, insulin-like growth factor binding protein-3 levels and height attainment in malnourished

children. *Clinical Endocrinology* 45:79-83, 1996. (On Sinderut and Lanai Semai in Pahang and Orang Asli at Gombak hospital; for ages 4-15 years, 79%, 78%, and 31%, respectively, were malnourished.)

345. Zaleha, M. I., A. Osman, and A. K. Khalid. Knowledge of goiter: a comparison between remote inland and coastal areas. *Akademika* 47:49-55, 1995.

346. Zaleha, M. I., A. R. Noor Hayati, and A. Osman. Knowledge of goiter among Orang Asli in the urban fringe area of Hulu Selangor District. *MJM* 57 (Suppl. D.):96, 2002. (On Temuan in Kuala Kubu Bharu district at Bkt. Manchong, Kuala Kerling, Gerachi, and Pertak. Goiter prevalence in these villages ranged from 48% to 86% in people 15 years or older. Most of those questioned did not believe that goiter is due to lack of good nutrition, that certain foods can cause goiter, that it can impact mental development, or that it can be prevented. Less than 1% had heard of iodine. Health education was recommended.)

XI. Leprosy

347. Fadzillah Kamaludin. Strategies to overcome infectious diseases among the Orang Asli—leprosy and tuberculosis. *Second National Conference on Infection and Infection Control*, March 1997, Ipoh, Malaysia. Pp. 57-59. Postgraduate Med. Education Soc., 1997. (The leprosy rate for Orang Asli was 23 times higher than for other W. Malaysians in 1994; the Orang Asli leprosy rate more than doubled by 2002, see Nicholas and Baer, 2007.)

XII. Malaria

348. Amal, N. M., and S. Yussof. The effectiveness of permethrin-impregnated bed nets for malaria control in Kg. Ganoh, an Orang Asli area of Rompin district, Pahang, Malaysia. *MJM* 51 (4):491-493, 1996. (This Jakun kg. had 63 malaria cases before nets were given and 3 cases a year later; a long-term study with proper research controls would have been useful.)

349. Andre, R., et al. In vivo and in vitro studies of chloroquine-resistant malaria in West Malaysia. *TRSTMH* 66:644-652, 1972. (Studied chloroquine resistance in 33 Semai school children near Tapah, Perak who had malaria parasites; found 51% of 126 Orang Asli children in the study area had parasitemia, much higher than the 20% prevalence found overall for West Malaysia.)

350. Arasu, G. D. Risk behavior and malaria in Malaysia. *SEAJTMPH* 23 (suppl. 1):51-56, 1992. (On Johore Orang Asli; recommended “settlement” of them to correct their faulty behavior.)

351. Archibald, C., et al. Antibodies to Plasmodium falciparum in an indigenous population from a malaria endemic area. *Acta Tropica* 48:149-157, 1991. (In 1985-87 Batau, Pahang, Semai were receiving no malaria control services although malaria was known to exist there.)

352. Baer, A. Rainforest malaria, mosquitoes, and people. *Malaysian Nature J.* 53 (4):299-305, 1999. (Discusses a number of conditions that may explain why Orang Asli continue to suffer from relatively more malaria than other Malaysians, such as inadequate control programs following forced displacement, the influx of non-immunes into Orang Asli areas, and large-scale land clearance leading to the loss of a subsistence base.)

353. Bolton, J. The control of malaria among the Orang Asli in West Malaysia. *MJM* 27 (1):10-19, 1972. (Reviews earlier malaria surveys on Semai in the 1930s and 60s, Temuan in the 60s, and Temiar with Jahai in the 60s; discusses malarial control measures at the time.)
354. Chiang, G. L., et al. Effectiveness of repellent/insecticidal bars against malaria and filariasis vectors in Peninsular Malaysia. *SEAJTMPH* 21 (3):412-417, 1990. (On Semai of Betau; the interesting findings by this team did not lead to including the bars in anti-malarial programs.)
355. Collins, W., et al. Studies on the relationship between fluorescent antibody response and ecology of malaria in Malaysia. *Bull. WHO* 39:451-463, 1968. (Studied Batu 55 Jeruntut Road displacement village in Pahang and 9 sites in Upper Perak/Upper Kelantan: Fort Kemar, Banding, Kuah, Sira, Peltu, Fort Betau, Fort Chabai, Kuala Yai, and Gamala; Batu 55 is Semaq Beri; Banding, Perak, is Jahai; Betau, Pahang, is Semai; Kemar in Perak and Chabai, Yai, and Gamala in Kelantan are Temiar.)
356. Delorme, D., et al. Identification of sporozoites in *Anopheles maculates* from Malaysia by enzyme-linked immunosorbent assays. *Tropical Biomedicine* 6:21-26, 1989. (On Post Legap Temiar.)
357. Gordon, D., et al. Significance of circumsporozoite-specific antibody in the natural transmission of *Plasmodium falciparum*, *Plasmodium vivax*, and *Plasmodium malariae* in an aboriginal (Orang Asli) population of central Peninsular Malaysia. *AJTMH* 45 (1):49-56, 1991. (Studied 275 Temiar; 56% of the 0-4 year age group had malarial parasitemia, but the over-40 group had 0%; the study focused on acquired immunity and ignored genetic resistance to malaria.)
358. Hakim, S. L., et al. *Plasmodium falciparum*: increased proportion of severe resistance (RII and RIII) to chloroquine and high rate of resistance to sulfadoxine-pyrimethamine in Peninsular Malaysia after two decades. *TRSTMH* 90:294-297, 1996. (Studied Gombak hospital patients and others.)
359. Ho Keong Bin. Current status of malaria and anti-malaria programme in Malaysia. In *Proceedings Asia Pacific Conference on Malaria*, W. Siddiqui, ed. Dept.. Tropical Med., Univ. Hawaii, Honolulu, 1985. Pp. 63-74.
360. Huehne, W. H., et al. A comprehensive account of the malaria eradication pilot project in Malaya. *MJM* 21:3-25, 1966. (A few Selangor Temuan areas were studied: Bkt. Manchong, Bkt. Kelubi, Bkt, Legong, Rantau Panjang, Sungai Choh Estate, Jinjang, Ulu Kuang, and Ulu Serendah; Orang Asli were not included in the project until 3 years after it was started.)
361. Huehne, W. H., M D. Ahmad, and D. S. Ling. Malaria, a primary health problem in rural West Malaysia. *MJM* 22:60-71, 1967. (Few Orang Asli areas studied; data analyzed at state level; cited in Lie-injo, 1969, as showing an erroneously low malaria rate.)
362. Institute for Medical Research, Kuala Lumpur. *Annual Report, 1987*. (Pp. 181-182 record a 37-40% prevalence of malarial parasitemia in Post Legap Temiar, with nearly 60% in children less than 10 years of age, according to Lambros et al., 1989.)
363. Jamaiah, I., et al. A retrospective prevalence study of malaria in an aborigine hospital in Gombak, Selangor, Malaysia. *SEAJTMPH* 37 (suppl.3):1-4, 2008. Studied malaria records at Gombak hospital for 1999-2004; few cases were recorded, the majority of them in Semai and

Temiar children from Pahang, especially girls; *Plasmodium falciparum* was the most common parasite.)

364. Kaur, G. Malaria endemicity in an Orang Asli community in Pahang, Malaysia. *Tropical Biomedicine* 26 (1):57-66, 2009. (Studied 520 Raub Orang Asli; found 24% malarial prevalence, with *Plasmodium falciparum* being the commonest species. Children less than 12 years of age were at least 3.7 times more likely to be parasitemic than older persons. Malarial prevalence for those 2 up to 10 years of age was 38%. Suggested control work should focus on protecting children and that longitudinal studies are necessary to assess if control work is effective. Note: the author is listed as K. Gurpreet in some databases.)

365. Kaur, G. Predictors of malaria among the Malaysian aborigines. *Asian Pacific J. Public Health* 21 (2):205-215, 2009. (Malaria is most common in W. Malaysia among the Orang Asli; Orang Asli in Raub District, Pahang, were most susceptible to malaria if they were outside at night, were children, and did not wear protective clothing.)

366. Kaur, G. Prevalence of clinical malaria among an Orang Asli community in Malaysia. *SEAJTMPH* 40 (4):665-673, 2009. (On 520 Orang Asli in Raub; 24% had parasitemia, mainly children.)

367. Khoo, A., et al. Nested polymerase chain reaction for detection of *Plasmodium falciparum* infection in Malaysia. *TRSTMH* 90:40-41, 1996. (On Betau, Pahang, Semai; 12% of supposedly malaria-negative people were in fact infected, as shown by this methodology.)

368. Lambros, C., D. Davis, and G. Lewis. Antimalarial drug susceptibility of *Plasmodium falciparum* isolates from forest fringe dwelling aborigines (Orang Asli) of Peninsular Malaysia. *AJTMH* 41 (1):3-8, 1989. (Parasites from Temiar at Post Legap, Perak, and from Pahang and Selangor patients at Gombak hospital were studied; 93% of *falciparum* isolates were susceptible to chloroquine; found that anti-malaria prophylaxis and medicines were rarely available to Orang Asli in their villages.)

369. Lee, M., et al. Interaction of Malaysian sera with *Plasmodium vivax* sporozoite antigen. *AJTMH* 39 (6):535-539, 1988. (49% of Post Legap, Perak, Temiar had malarial parasites; 76% of 0.5-4 year olds had parasitemia, but adults had about 40%, attributed to high acquired immunity; human genetic resistance variation was not studied.)

370. Lewis, A., T. Dondero, and J. T. Ponnampalam. *Falciparum* malaria resistant to chloroquine suppression but sensitive to chloroquine treatment in West Malaysia. *TRSTMH* 67:310-312, 1973. (Found a monthly rate of 6% for new *falciparum* and 5.7% for new *vivax* parasitemia in Negri Sembilan Temuan.)

371. Lewis, A., and J. T. Ponnampalam. Suppression of malaria with monthly administration of combined sulphadoxine and pyrimethamine. *Annals Tropical Med. Parasitology* 69:1-12, 1975. (On Negri Sembilan Temuan: pre-treatment parasitemia rates were 25% for Senebai children and 32% for all ages at Tekir Labu.)

372. Lim, E. S. Current status of malaria in Malaysia. *SEAJTMPH* 23 (suppl. 4):43-49, 1992. (Reports on Orang Asli in general.)

373. Mak, J. W. Review of seroepidemiological tools for control program of parasitic diseases in Malaysia. *Tropical Biomedicine* 5 (suppl. 1):28-32, 1988. (On Ulu Jelai, Perak, and Betau,

Pahang, Semai; malarial parasitemia rates were high, higher at Betau, with a 62% rate in the 0-9 year group there.)

374. Mak, J. W. Current malaria research activities in Malaysia. *J. Bioscience* (Malaysia) 5 (1 and 2):73-79, 1994. (Half the reported malarial infections in W. Malaysia were in Orang Asli in 1991-92; gives parasitemia data for Betau, Pahang, Semai.)

375. Mak, J. W., et al. Parasitological and serological surveys for malaria among the inhabitants of an aborigine village and an adjacent Malay village. *Acta Tropica* 44:83-89, 1987. (On Sungai Lui Temuan; the authors considered some genetic resistance to malaria later: see Foo et al., 1992.)

376. Mak, J. W., et al. Epidemiology and control of malaria in Malaysia. *SEAJTMPH* 23 (4):572-577, 1992. (A review.)

377. Moorhouse, D. Some entomological aspects of the malaria eradication pilot project in Malaya. *J. Med. Entomology* 2 (2):109-119, 1965. (On Selangor Temuan at Bkt. Klubi, Bkt. Legong, Bkt. Manchong, Bkt. Mandol, and Ulu Lui.)

378. Nicholas, C. Medicines are for curing, not killing. *Aliran Monthly* 17 (3):7-8, 1997. (Criticizes the malaria-control program for Orang Asli, following the deaths of Jah Hut children at Seboi, Kuala Krau, Pahang, in February, 1997, following administration of faulty anti-malarial drugs.)

379. Norhayati, M., et al. Clinical features of malaria in Orang Asli population [sic] in Pos Piah, Malaysia. *MJM* 56 (3):271-274, 2001. (Found 11% infection rate in Perak Temiar; anemia was associated with malaria parasitemia.)

381. Pillay, M. R., H. Frank, and J. T. Ponnampalam. Malaria antibody titres as measured by the indirect fluorescent antibody test in relation to parasitemia and treatment. *SEAJTMPH* 12 (1):111-113, 1981. (Studied 39 "deep jungle" Orang Asli patients at Gombak hospital.)

382. Ponnampalam, J. T. Deoxycycline in the treatment of falciparum malaria among aborigine children in West Malaysia. *TRSTMH* 75: 372-377, 1981. (Tested parasitemics at Gombak hospital; monitored G6PD deficiency because primaquine is then a danger.)

383. Rohani, A., et al. Susceptibility status of *Anopheles maculates* Theobald (Diptera: Culicidae) towards DDT, malathion, and permethrin in peninsular Malaysia. *Tropical Biomedicine* 12 (1):39-44, 1995. (Different Orang Asli areas showed different levels of resistance to various insecticides.)

384. Rohani, A., et al. Comparative field evaluation of residual-sprayed deltamethrin WG and deltamethrin WP for the control of malaria in Pahang. *SEAJTMPH* 37 (6):1139-1148, 2006. (On Orang Asli areas in Kuala Lipis where *Anopheles maculates* is the malaria vector; deltamethrin WG was found to be effective against the vector for up to 9 months.)

385. Sandosham, A. A. *Malariology, with special reference to Malaya*. Univ. Malaya Press, Singapore, 1965. (Reprint, distributed by Oxford Univ. Press, London.) (Orang Asli are referenced in the index as "Sakai;" surveys found malaria parasite rates ranging from 1 to 49% and spleen rates from 1 to 40% "among the Sakais.")

386. Sandosham, A. A. Malaria in rural Malaya. *MJM* 24 (3):221-226, 1970. (A review that deplors the use of primaquine in malaria treatment for Orang Asli, given that they have a high frequency of G6PD deficiency, an inherited condition that can produce acute hemolysis upon ingestion of primaquine or related compounds.)
387. Thomas, V. Longitudinal seroepidemiological study of malaria at Bukit Lanjan, Malaysia. *5th Internat. Congress Parasitology: Molecular Biochemical Parasitology*. Toronto, Canada, 1982. Pp. 274-275. (On Temuan.)
388. Thomas, V., and A. S. Dissanaik. Malaria endemicity among Orang Asli (Malaysian aborigines) as determined by indirect fluorescent antibody tests. *AJTMH* 26 (4):602-606, 1977. (Studied 288 Gombak hospital patients and visitors; 89% showed past exposure to malaria; immunity increased with age.)
389. Thomas, V., S. K. Hock, and Y. P. Leng. Seroepidemiology of malaria: age-specific pattern of Plasmodium falciparum antibody, parasite and spleen rates among children in an endemic area in peninsular Malaysia. *Tropical Doctor* 11:149-154, 1981. (On 10 villages in Post Brooke, Kelantan, with 15% Semang and 85% Temiar in the study sample.)
390. Vythilingam, I., et al. Seroepidemiology of malaria. *Tropical Doctor* 2:149-154, 1981. (On "Negrito" and "Senoi," the latter meaning Temiar, in Brooke, Kelantan.)
391. Vythilingam, I., et al. The impact of permethrin-impregnated bednets on the malaria vector Anopheles maculates (Diptera: Culicidae) in aboriginal villages of Pos Betau, Pahang, Malaysia. *SEAJTMPH* 26 (2):354-358, 1995. (Treated bednets reduced the frequency of Semai being bitten by vector mosquitoes.)

XIII. Mental health

392. Armstrong, H., and E. K. Tan. Body-image perceptions as a function of assimilation within the Malaysian aborigines. *J. Soc. Psychology* 105:165-173, 1978. (Studied "Senoi" at Gombak hospital and in home villages about indulgent child care and other issues.)
394. Dentan, R. The response to intellectual impairment among the Semai. *American J. Mental Deficiency* 71 (5):764-766, 1967. (Discusses epilepsy and impairment-mutism following high fever; on Batu Berangkai and Kuala Jintar.)
395. Dentan, R. The Semai response to mental aberration. *Bijdragen tot de Taal-, Land- en Volkenkunde* 124:135-158, 1968. (On Batu Berangkai and Kuala Jintar)
396. Dentan, R., and B. Nowak. Problems and tactics in the transcultural study of mental retardation: an archival report. *Behavior Sci. Research* 18 (1): 1-55, 1983. (Based on fieldwork with Semai and Mah Meri/Besisi.)
397. Hartog, J. Institutions for the mentally and socially deviant in Malaysia. *Asian J. Med.* 8:170-177, 1972. (Includes incidental remarks on Orang Asli.)
398. Kinzie, J., and J. Bolton. Psychiatry with the aborigines of West Malaysia. *American J. Psychiatry* 130 (7):769-773, 1973. (Discusses lack of suicide or physical aggression among Orang Asli, but the data set in Tan and Armstrong, 1976, is more comprehensive.)

399. Leow, P. T. *Psychological adaptation and the health status of Sungei Ruil Semai community*. Research report. Univ. Malaya, 1978.

400. Tan, E. K., and H. Armstrong. Mental illness in the Orang Asli (Aborigines) of West Malaysia. *MJM* 31 (2):87-92, 1976. (Gombak hospital patients were studied over a 5-year period.)

XIV. Nutrition

401. Al-Mekhlafi, M., et al. Giardiasis as a predictor of childhood malnutrition in Orang Asli children in Malaysia. *TRSTMH* 99 (9):686-691, 2005. (25% of Selangor Orang Asli children had *Giardia duodenalis*; 56%, 61%, and 15% of the children were underweight, stunted, or wasted, respectively. Giardiasis was statistically a strong predictor of wasting.)

402. Al-Mekhlafi, M., et al. Protein-energy malnutrition and soil-transmitted helminthiasis among Orang Asli children in Selangor, Malaysia. *Asia Pacific J. Clinical Nutrition* 14 (2):188-194, 2005. (Low birth weight and severe trichuriasis were risk factors in stunting.)

403. Al-Mekhlafi, M., et al. Prevalence and predictors of low serum retinol and hypoalbuminaemia among children in rural Peninsular Malaysia. *TRSTMH* 101 (12):1233-1240, 2007. (Studied 281 Orang Asli children in Selangor, 2-15 years of age; found severe ascariasis, severe stunting, and giardiasis were associated with low serum retinol. Intestinal parasitemia and low household income were predictors of hypoalbuminemia. Recommended reduction of intestinal parasitemia be included in programs to prevent malnutrition and vitamin A deficiency in Orang Asli.)

404. Al-Mekhlafi, M., et al. Current prevalence and predictors of protein-energy malnutrition among schoolchildren in rural Peninsula Malaysia. *SEAJTMPH* 39 (5):922-931, 2008. (Among 241 Post Betau Semai children, 90% were underweight, 87% were stunted, and 49% were wasted. Children up to the age of 10 years were most affected by stunting. Remediation programs were suggested.)

405. Bolton, J. Food taboos among the Orang Asli in West Malaysia: a potential nutritional hazard. *American J. Clinical Nutrition* 25:789-799, 1972. (Nutrition of Ulu Langat Temuan children and of Kg. Satak Semai and Kg. Belatim Temiar of all ages was adequate at the time; lists food taboos of Semai, Temiar, Semelai, Chewong, Jah Hut, Semaq Beri, Mahmeri, Kensiu, Jehai, Mendriq, Batek, Lanoh, Orang Kanak, Orang Selatar, and Orang Kuala.)

406. Chee, H. L. Health and nutrition of the Orang Asli: the need for primary health care amidst economic transformation. In *Indigenous Minorities of Peninsular Malaysia*, Razha Rashid, ed. Intersocietal and Scientific, Kuala Lumpur, 1995. Pp. 48-71. (A review that cites and discusses some unpublished work.)

407. Dentan, R. *Some Semoi Semai dietary restrictions*. PhD dissertation, Yale Univ., New Haven, Conn., 1965. (On Batu Berangkai and Kuala Jinter.)

408. Endicott, K. L. Batek Negrito sex roles. *Second Internat. Congress on Hunter-Gatherers*. Laval, Quebec, 1980. Pp. 625-670. (Contains food consumption data.)

409. Foo, E-L. *The ethnobotany of the Orang Asli, Malaysia, with a special reference to their food crops*. Univ. Malaya, Botany Unit, Kuala Lumpur, 1972. (Mainly on Semelai.)

410. Iskandar Zulkarnain Alias, et al. The effect of increased consumption of edible palm oil on the nutritional status, lipid profiles and lipid peroxidation among Malaysian aborigines. *Malaysian J. Nutrition* 8 (2):137-156, 2002. (Studied Semai at Tual Post, the oil treatment group, and at Sinderut Post, the control group, both in Kuala Lipis, Pahang. Oil treatment over 18 months led to increased calorie intake, reduced systolic blood pressure, and decreased total cholesterol, low density lipoprotein, and triglyceride. The oil served as a good source of fat and energy.)
411. Ismail, M. N., T. S. Wong, and Zawiah Hashim. Anthropometric and food intake studies among Semai children. *J. Malaysian Soc. Health* 6 (1):19-25, 1988. (In 13 villages in Betau, Pahang, most preschool Semai children and over a third of the 7-10 year olds studied were underweight or stunted, despite the fact that pupils in the school-age group received school meals.)
412. Kassim, Mohd. S., Zulkifli Ismail, and Lailanor Ibrahim. Nutritional status of children of various Orang Asli communities in Peninsular Malaysia. *J. Singapore Paediatric Soc.* 29 (Suppl. 1):96-100, 1987. Reprinted in *Akademika (Malaysia)* 35:69-74, 1989. (Studied Cameron Highlands; Semai at Post Jernang area, Sunkai, Perak; Jakun at the DARA project in Southeast Pahang; W. Pahang; Semai on the Land Development Scheme, Betau, Pahang; interior Kelantan; and Jakun at Sungai Temuan, Johore.)
413. Kassim, Mohd. S., Zulkifli Ismail, and Lailanor Ibrahim. Nutritional status of Orang Asli children in a resettlement village of Pangsoon, Hulu Langat. *Malaysian J. Child Health* 8 (1):31-37, 1996. (On Temuan, including anemia and intestinal parasites. Note: the first author is listed as Mohd. Shah K. in some databases.)
414. Khoo, T. E. *Some aspects of the nutritional status of Temiar in Kemar*. Master Public Health thesis, Univ. Malaya, Kuala Lumpur, 1977. (The Kemar, Perak, Temiar were bereft of forest to forage for food resources after the Temengor Dam was built, the resulting reservoir having flooded their traditional lands; children were underweight and stunted; women were iron-deficient.)
415. Khor, G. L. *A study of the nutritional status of the Semai*. PhD dissertation, Univ. Malaya, Kuala Lumpur, 1985. (Batang Padang District, Perak, Semai had shorter lifespans than Malaysians in general; prevalence rates for malaria parasitemia in the 1980s ranged from 1% to 21%, with over 90% of parasitemia being in those 0-18 years of age; major child mortality causes were diarrhea and fevers; the diet was deficient in protein, calories, calcium, and iron.)
416. Khor, G. L. Malnutrition among Semai children. *MJM* 43 (4):318-326, 1988. (Among 1180 Semai of Batang Padang, Perak, 24-44% had iron-deficiency anemia, 42-78% stunting, and 30-65% low weight, by age group; 14-57% of those 0-12 years of age had intestinal worm infestations.)
417. Khor, G. L. Resettlement and nutritional implications: the case of Orang Asli in regroupment schemes. *Pertanika J. Social Sci. and Humanities* 2:123-132, 1994. (A review with international comparisons; stresses the need for policy changes on Orang Asli health problems.)
418. Kuchikura, Y. Food use and nutrition in a hunting and gathering community in transition, Peninsular Malaysia. *Man and Culture in Oceania* 4:1-30, 1988. (Mainly on Semaq Beri in Ulu Trengganu district.)

419. Kuchikura, Y. Wild yams in the tropical rain forest: abundance and dependence among the Semaq Beri in Peninsular Malaysia. *Man and Culture in Oceania* 9:81-122, 1993. (Ulu Trengganu district.)
420. Lee, S. S., Y. S. Chang, and M. N. P. Noraswati. Utilization of macrofungi by some indigenous communities for food and medicine in Peninsular Malaysia. *Forest Ecology and Management* 257 (10):2062-2065, 2009. (Studied Semai, Temuan, Batek, Chewong, and Jakun villagers; over 31 species of macrofungi were collected for food and 14 species used for indigenous medicine; one kind, susu rimau, was also sold to urban herbalists.)
421. Lim, E. H. *Penilaian taraf pemakanan warga remaja Semelai di Kampung Sungei Sampo, Jempol* [Nutritional status of Semelai teenagers]. B. Sci. thesis, Faculty Med. Health Sci., Univ. Putra Malaysia, Serdang, 2000.
422. Low, A. C. *Penilaian taraf pemakanan warga tua Semelai di Kampung Sungei Sampo, Jempol* [Assessment of the nutrition of Semelai elders]. B. Sci. thesis, Faculty Med. Health Sci., Univ. Putra Malaysia, Serdang, 2000.
423. Massita Mohd. Sin. *Penilaian taraf pemakanan kanak-kanak Orang Asli di Rancangan Pengumpulan Semula (RPS), Betau, Pahang*. B. S. thesis, Faculty Human Ecology, Univ. Pertanian Malaysia, Serdang, 1992. (Cited in Chee, 1995; among 129 Semai children 0-8 years of age, over a third were underweight or stunted; energy nutrition averaged only 77% of the recommended daily allowance.)
424. Mohd Faisal, M. A. *Assessment of the nutritional status of Semelai children in Kg. Sungei Lui, Jempol, Negri Sembilan*. B. Med. Sci. thesis, Univ. Putra Malaysia, Serdang, 1999.
425. Moktar, N., et al. Malnutrition and soil-transmitted helminthiasis among Orang Asli children in Selangor, Malaysia. *Asia Pacific J. Clinical Nutrition* (suppl.) 13:S122, 2004. (The majority of children studied were underweight and stunted, possibly due to severe intestinal worm infestations. Note: N. Moktar is listed in other databases as M. Norhayati.)
426. Mona Zarida b. Nasaruddin. *Assessment of the nutritional status of Semelai children in Kg. Sungei Sampo, Negri Sembilan*. Third year project dissertation submitted to the Faculty of Med. and Health Sci, Univ. Putra Malaysia, Serdang, Selangor, 2000.
429. Ng, W. C., et al. Perceptions and knowledge of Orang Asli mothers on child health and nutrition. *Malaysian J. Nutrition* 11 (2):75-88, 2005. (Studied 4 Temuan and 4 Mah Meri areas in Selangor; mothers were generally knowledgeable about which foods were nutritious but less so about why they were nutritious.)
430. Ngah, N. F., et al. Ocular manifestation of vitamin A deficiency among Orang Asli children of Malaysia. *Asia Pacific J. Clinical Nutrition* 11:88-91, 2002.
431. Osman, A. *The relationship between malnutrition and endocrine disorders among Malays and Aborigines in Malaysia*. PhD thesis, Univ. Kebangsaan Malaysia, 1992.
432. Osman, A., Zarina Shamsuddin, and B. A. K. Khalid. A socioeconomic, social behavior, and dietary pattern among Malaysian Aborigines and rural native Malays. *MJM* 46:221-229, 1991. (On Kuala Pangsoon Temuan in Selangor.)

433. Osman, A., and M. I. Zaleha. Nutritional status of women and children in Malaysian rural populations. *Asia Pacific J. Clinical Nutrition* 4 (3):319-324, 1995. (Studied 343 Betau and Lanai Semai; 80% of 2-6 year olds and 35% of women were malnourished. For Betau versus Lanai children, 80% versus 60% had protozoan infections, 30% versus 8% had roundworms, 30% versus 16% had threadworms, and 9% versus none had hookworm. Goiter generally increased with age, from 23% for 2-12 years of age to 50% for older ages, with a 2 to 1 bias toward goiter in females. Cassava and millet were mentioned as local goitrogens.)

434. Osman, A., et al. Thyroid function and pubertal development in malnutrition. *Annals Academy Med., Singapore* 23 (6):852-855, 1994. (207 Orang Asli were studied; poor nutrition was found to affect thyroid function, as well as growth hormone levels in children; authors listed as "O. Ali et al." in some databases.)

435. Osman, A., et al. Blood glucose and glycosylated hemoglobin in Malays and aborigines in Malaysia. *MJM* 51 (2):179-187, 1996.

436. Robson, P., J. Bolton, and A. Dugdale. The nutrition of Malaysian aboriginal children. *American J. Clinical Nutrition* 26:95-100, 1973. (Found Orang Asli nutrition to be the same as for an urban sample; 75 Orang Asli studied, including Temiar, were in upland sites: Betis, Blau, Gemala, Sat, Tenau, Wias; 86 were in lowland Jakun sites by Sungai Endau: Labong, Dura, Mentelong, Sungai Muk, Peta, and Punan.)

437. Saibul, N., et al. Food variety score is associated with dual burden of malnutrition in Orang Asli (Malaysian indigenous peoples) households: implications for health promotion. *Asia Pacific J. Clinical Nutrition* 18 (3):412-422, 2009.

438. Shasikala, S., et al. Nutritional status of 1-3 year old children and maternal care behaviors in the Orang Asli of Malaysia. *S. African J. Clinical Nutrition* 18:173-180, 2005.

439. Yusof, H. M., et al. Anthropometric indices and lifestyle practices of the indigenous Orang Asli adults in Lembah Belum, Grik of Peninsular Malaysia. *Asia Pacific J. Clinical Nutrition* 16 (1):49-55, 2007. (27% of Jehai and Temiar adults studied were underweight and 40% showed nutritional deficiency.)

440. Zaiton Surut. *Penilaian taraf pemakanan kanak-kanak prasekolah masyarakat Orang Asli (suku kaum Temuan)* [Assessment of the nutrition of preschool Temuan children]. Research paper, Faculty Human Ecology, Univ. Pertanian Malaysia, Serdang, 1996.

441. Zaleha, M. I. Micronutrients and its [sic] correlation with mental performance among school children in Bario, Sarawak. *MJM* 58 (3):309-319, 2002. (Iodine and other micronutrients were ample in 7-12 year olds in Bario but mental test scores averaged below normal, with girls scoring lower than boys; contrasted these test results with those for Semai, see Osman et al., 1996.)

442. Zalilah, M. S., and B. Tham. Food security and child nutritional status among Orang Asli (Temuan) households in Hulu Langat, Selangor. *MJM* 57:36-50, 2002.

443. Zulkifli, A., A. K. Anuar, and A. S. Atiya. The nutritional status of children in resettlement villages in Kelantan. *SEAJTMPH* 30 (1):122-128, 1999. (On Kuala Betis; Temiar children were in poorer health than Malay children, with preschoolers being the worst off; supported a comprehensive health care program in displacement villages that targeted preschoolers.)

XV. Sexually transmitted infections

444. Anita, S., et al. HIV/AIDS knowledge, attitudes and risk behaviours among Orang Asli in Peninsular Malaysia. *MJM* 62 (3):227-233, 2007. (On a survey of 2,706 Orang Asli age 13 years and older in Kelantan, Perak, Pahang, Selangor, Negeri Sembilan, Melaka, and Johor; 97% had never been tested for HIV but 89% in the survey consented to be tested and of these 7 were positive, 6 of them males; of these 7, 6 acquired the virus through heterosexual transmission and one through injecting drug use; 7% of those surveyed said that they had relatives, friends, or neighbors who were HIV-infected; 0.5% said they had injected drugs during the past year. The low rate of infection found contrasts with the higher rate reported previously by JHEOA for Orang Asli injecting drug users. Orang Asli, especially the women, knew little about AIDS; condoms were rarely in use. Some demographic information was also elicited.)

445. Anonymous. *Basic information on Orang Asli in Malaysia, 2004*. JHEOA publication, Kuala Lumpur, 2004. (Cited in Anita et al., 2007).

XVI. Tuberculosis

446. Bolton, J., and M. Snelling. Review of tuberculosis among the Orang Asli (aborigines) in West Malaysia from 1951-1970. *MJM* 30 (1):10-29, 1975. (Found males and the elderly at greatest risk for contracting TB; at the time, patient cost at Gombak hospital was only 28% that of other government hospitals.)

447. Lokman, M. N., and Z. Baharuddin. Tuberculin sensitivity in Malaysian children: lessons from the Orang Asli. *Malaysian Med. Sci.* 3 (1) (suppl.):51, 1996. (On Legap Temiar in Perak.)

XVII. Typhus

448. Brown, G., D. Robinson, and D. Huxsoll. Serological evidence for a high incidence of transmission of *Rickettsia tsutsugamushi* in two Orang Asli settlements. *AJTMH* 27:121-124, 1978. (On scrub typhus among Temuan of Bkt. Lanjan and Semelai of Post Iskandar; noted that scrub typhus was understudied and can have severe consequences.)

449. Cadigan, F., et al. The effects of habitat on the prevalence of human scrub typhus in Malaysia. *TRSTMH* 66 (4):582-587, 1972. (Found scrub typhus antibodies in 73% of Orang Asli from "deep jungle," 49% from "fringe" areas, and 8% from non-forest villages.)

450. Muul, I., Lim Boo Liat, and J. Walker. Scrub typhus infection in rats in four habitats in Peninsular Malaysia. *TRSTMH* 71 (6):493-497, 1977. (On Bkt. Lanjan Temuan.)

451. Tay, S. T., et al. Diagnosis of scrub typhus in Malaysian aborigines using nested polymerase chain reaction. *SEAJTMPH* 27 (3):580-583, 1996. (24 Gombak hospital patients suspected of having scrub typhus were studied; not all of them had it, as shown by analysis of the parasite's DNA.)

452. Tay, S. T., et al. Antibodies to *Orientia tsutsugamushi*, *Rickettsia typhi* and spotted fever group of rickettsiae among febrile patients in rural areas of Malaysia. *TRSTMH* 94:280-284, 2000. (Serological tests of rural Orang Asli patients confirmed the general knowledge that they had a high exposure to scrub typhus.)

XVIII. Women's health

453. Baba, Y. K. A. P. study of family planning among married Orang Asli women of Kuala Langat district, Selangor. *Malaysian J. Reproductive Health* 8 (2):72-76, 1990. (A knowledge-attitude-practice study of 69 women, average age 16.3 years, found 19% were married before age 15. Most of the women and their husbands approved of family planning.)
454. Baer, A. The health of Orang Asli women. In *Orang Asli Women of Malaysia: Perceptions, Situations, and Aspirations*, by A. Baer et al. Center for Orang Asli Concerns, Subang Jaya, Malaysia, 2006. Pp. 107-130. (A review providing strong evidence of the poor health of Orang Asli women.)
455. Cheah, P. K. *Health status of Orang Asli (Semelai) women in Kg. Sungei Lui, Jempol, Negeri Sembilan*. B. Med. Sci. thesis, Univ. Putra Malaysia, Serdang, 1999.
456. Culbertson, C. C., et al. Dietary intake and iodine deficiency in women of childbearing age in an Orang Asli community close to Kuala Lumpur, Malaysia. *Asia Pacific J. Clinical Nutrition* 9 (1):36-40, 2000. (In Kg. Chemong of Sungai Lalang, Hulu Langat, Selangor, 34% of Temuan women had goiters and also low protein and energy intakes.)
457. Darlina b. Mohd. Dhari. *Health status of Semelai women in Kampung Sungai Sampo, Negeri Sembilan*. Third year project dissertation submitted to the Faculty Med. Health Sci., Univ. Putra Malaysia, Serdang, 1998.
458. Gianno, R. 'Women are not brave enough;' Semelai male midwives in the context of Southeast Asian cultures. *Bijdragen tot der Taal-, Land- en Volkenkunde* 160 (1):31-71, 2004.
459. Gianno, R. What happened to the female midwives? Gender, childbirth, and change in Semelai society. In *Orang Asli Women of Malaysia: Perceptions, Situations, and Aspirations*, by A. Baer et al. Center for Orang Asli Concerns, Subang Jaya, Malaysia, 2006. Pp. 91-106. (Discusses the effect of medical officialdom on Semelai birthing practices.)
460. Harrison, M. *Healthcare Decisions among Semelai Women of Malaysia*. Honors thesis, Dartmouth College, Hanover, New Hampshire, 2001. (Discusses pros and cons of biomedicine for women at Sungai Sampo, Negri Sembilan; notes government personnel can be demeaning, waiting-room time hours-long, and that invasive procedures in hospital are disliked.)
461. Hema Apparau. *Reproductive health of Orang Asli women who used the antenatal services of the Gombak Hospital*. B. Med. Sci. thesis, Univ. Putra Malaysia, Serdang, 2002. (Reports that 55% of 42 pregnant women studied were anemic; Orang Asli women have the highest rates of postpartum hemorrhage and puerperal sepsis in W. Malaysia.)
462. Jamsiah, Mustafa. *Family planning among the Orang Asli women in the district of Hulu Langat, Selangor*. M. Public Health, Univ. Kebangsaan Malaysia, Bangi. (On Temuan, with a review of relevant health services.)
463. Jennings, S. *Theater, Ritual and Transformation: The Senoi Temiars*. Routledge, London, 1995. (Contains a discussion of home birth practices.)
464. Lim, H. W. *Nutritional status and reproductive health of Orang Asli women*. B. Sci. thesis, Faculty Human Ecology, Univ. Putra Malaysia, Serdang, 1997. (Studied 34 reproductive-age Jakun women in Kg. Sungai Soi and Kg. Batu-15 in Pahang; found significant nutritional deficits in calories, thiamine, vitamin A, riboflavin, and—especially—iron.)

465. Lim, H. W., and H. L. Chee. Nutritional status and reproductive health of Orang Asli women in two villages in Kuantan, Pahang. *Malaysian J. Nutrition* 4:31-54, 1998. (On Pahang Jakun.)
466. McLeod, F. Midwifery among the aborigines. *Nursing Mirror News* 132 (11):28-31, 1971. (Observations on Gombak hospital care in the 1960s; praises the care given by Orang Asli aides.)
468. Ong, H. C. Hematological values in pregnancy in Orang Asli (Aboriginal). *MJM* 27:240-242, 1973. (26% of 278 pregnant Orang Asli women at Gombak hospital were anemic.)
469. Ong, H. C. Vaginal candidiasis and trichomoniasis in pregnancy. *Asian J. Med.* 9:93-95, 1973. (A Gombak hospital study; did not include serious venereal diseases.)
470. Ong, H. C. Hemoglobin E variants and pregnancy in Malaysian aborigines. *Acta Haematologica* 52 (4):220-222, 1974. (48% of Hb E women analyzed were anemic; other genetic factors were not assessed.)
471. Ong, H. C. Anemia in pregnancy in an aboriginal population. *J. Tropical Med. Hygiene* 77:22-26, 1974. (On Gombak hospital patients.)
472. Ong, H. C. Obstetrical data in Malaysian aborigine women. *Tropical Geographical Med.* 26:384-388, 1974. (On Gombak hospital; includes attention to anemia, nutrition, and sexually transmitted infections; some low-birth-weight data; p. 385 has a map of medical posts and emergency evacuation posts for Orang Asli.)
473. Ong, H. C. Maternal and fetal outcome associated with hemoglobin E trait and hemoglobin E disease. *Obstetrics and Gynecology* 45 (6):672-674, 1975.
474. Ong, H. C. Migration in Malaysian aborigines: clinical observations in pregnancy. *SEAJTMPH* 6 (3):407-412, 1975. (On Gombak hospital patients, but not on migration; compares remote and near-urban Orang Asli.)
475. Wendy, G. S. C. *Insekuriti makanan dan status pemakanan di kalangan wanita Orang Asli di daerah Sepang dan Pulau Carey, Selangor*. B. Nutrition Community Health thesis, Univ. Putra Malaysia, Serdang, 2004. (On food insecurity of Temuan women in Sepang and Mah Meri women on Carey Island.)

XIX. Journalistic materials

476. Alyaa Alhadjri. Orang Asli demand change. *The Sun*, 9 March, 2010. (Discusses a petition from Orang Asli covering 5 years of documented problems in Orang Asli health care at Gombak hospital.)
477. Alyaa Alhadjri. New director for Orang Asli hospital. *The Sun*, 16 March, 2010. (A human rights commissioner reported that Orang Asli feel threatened because the Gombak hospital, originally built to cater to their medical needs, has been taken over by non-Orang Asli; the hospital's outpatient unit is now open to many others in the Gombak area and Orang Asli have to compete for limited resources.)

478. Alyaa Alhadjri. ...But JHEOA denies allegations. *The Sun*, 16 March, 2010. (The federal department for Orang Asli affairs denied mismanagement at Gombak hospital.)
479. Anonymous. JOA sahkan kegiatana judi di Hospital Orang Asli Gombak. *Berita Harian*, 10 March, 1984. (Commentary on the 3 March report in the same newspaper; JOA was later renamed JHEOA.)
480. Anonymous. Hospital Orang Asli jadi tempat judi. *Berita Harian*, 3 March, 1984. (Hospital staff accused of using premises for daytime gambling dens.)
481. Anonymous. Why blame the Orang Asli? *The Star*, 2 December, 1985. (Health authorities blamed unhygienic practices of an Orang Asli village for causing jaundice in nearby settlers in Perak and called for the village to be forcibly moved elsewhere, although nearby non-Orang Asli villages were not threatened with such moves; then the jaundice outbreak was found to be due to poor chlorination at the local water-treatment plant.)
482. Anonymous. Orang Asli encouraged to give birth in hospitals. *Sunday Star*, 29 September, 1996. (62% of the 42 reported West Malaysian women who died during home births were Orang Asli.)
483. Anonymous. Jaleha gets assurance from police. *New Straits Times*, 28 June, 1997. (A federal minister ordered late-pregnant Orang Asli to stay at birth centers; this warding for a month or so before delivery was both stressful and boring for the women and a burden on their families in terms of child care and work duties; home births were discouraged or forbidden.)
484. Anonymous. Charge the guilty ones, A-G urged. *The Sun*, 1 April, 2000. (When Jah Hut children died in Seboi, Pahang shortly after anti-malarial overdoses, the parents were accused of general negligence by government officials, but a coroner's inquiry found that the deaths were indeed due to an overdose.)
485. Anonymous. Spooked by 'mysterious' deaths. *New Straits Times*, 2 May, 2004. (Orang Asli were blamed by officials for the deaths of 4 Semai children over 5 days with symptoms of vomiting and diarrhea.)
486. Anonymous. Orang Asli still plagued by age-old ailments. *New Straits Times*, 2 May, 2004.
487. Anonymous. Danger lake. *The Star*, 26 July, 2004. (A university study found high levels of *Escherichia coli* in shallow Tasek Chini, and Orang Asli headmen pointed out that the problem arose only after the government dammed the Chini River so that lake water couldn't flow into the Pahang River.)
488. Anonymous. Orang Asli exposed to danger. *The Star*, 27 July, 2004. (Also on the Chini lake problem; the pollution of Tasek Chini caused rashes and diarrhea in some lakeside Orang Asli.)
489. Anonymous. Scattered Orang Asli to be resettled in one village. *The Star*, 27 July, 2004. (The official assessment of the Chini lake problem: A state official blamed the Orang Asli for dirtying the lake and attempted to move them inland.)

490. Anonymous. Development blamed for Tasik Chini's woes. *The Star*, 27 July, 2004. (The university study found that the pollution was caused not by the Orang Asli but by improper sewage disposal from the new resort and the local national service camp there.)
491. Anonymous. Gombak Hospital to remain under JHEOA. *Bernama*, 21 May, 2007. (A health ministry official stated that the Gombak hospital was well run by the JHEOA.)
492. Anonymous. No action yet on allegations of mismanagement. *The Sun*, 9 March, 2010a. (On Gombak hospital and whistle blowers)
493. Anonymous. Hospital built to cater to Orang Asli needs. *The Sun*, 9 March, 2010b. (A statement that the quality of government healthcare at Gombak hospital and elsewhere for Orang Asli has deteriorated since the 1970s when it was run by the British.)
494. Anonymous. Gombak hospital gets new director. *The Star*, 17 March, 2010.
495. Anonymous. Orang Asli community: genocide in Malaysia? *Malaysiakini*, 19 March, 2010. (A letter from a medical worker gives details of extremely poor health care for Orang Asli in Pahang, including medical indifference and injustice.)
496. Anonymous. 30 families live 20 years without water, electricity. *Malaysiakini*, 29 March, 2010. (On Kg. Pelam near Rompin, Pahang where lack of potable water has produced gastric distress and vomiting; copied from a Bernama report, but the accompanying photos are from elsewhere, the second one being of a Jehai mother in Kelantan who lost her husband to a tiger attack.)
497. Aw, N. Vexed Orang Asli protest over JHEOA hospital. *Malaysiakini*, 24 February, 2010.
498. Ding, J-A. Orang Asli hospital not fulfilling role. *The Nut Graph*, 22 March, 2010. (While the Gombak hospital was ostensibly for Orang Asli alone, over two-thirds of the hospital's patients were non-Orang Asli, a physician said; she added that trips to outstations were irregular and medicines were dispensed on an ad-hoc basis, and further that the hospital did not carry out the Health Ministry's basic food basket program for malnourished children.)
499. Idrus, R. Basic human rights for the Orang Asli. *The Malaysian Insider*, 5 March, 2010. (Reviews disclosure of malpractice and misappropriation of resources at Gombak hospital.)
500. JHEOA website. <http://www.jheoa.gov.my/>
501. Lim Teck Ghee. Tyranny of the Malaysian bureaucracy. *Malaysian Mirror*, 27 February, 2010. (On the Gombak hospital problems.)
502. Mohamed Idrus, S. M. Keep out country's healthcare statistics information up to date. *New Straits Times*, 12 September, 2000. (Reported that static rural medical posts stand empty, with no medical personnel present; this was confirmed in Anonymous, *Malaysiakini*, 19 March, 2010, which see.)
503. Murugasu, S. A man's touch. *The Star*, 17 December, 1998. (On male midwives among the Semelai.)

504. Nicholas, C., A. Williams-Hunt, and Tiah Sabak. *Orang Asli in the News: the Emergency Years: 1950-1958*. Center for Orang Asli Concerns, Petaling Jaya, Malaysia, 1989. (Contains journalistic materials, some of which deal with health issues.)

505. Yip Ai Twin. Doc spills beans on Orang Asli hospital. *Malaysiakini*, 12 February, 2010.

Later insertions

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