

fault belts with neither creation nor consumption of oceanic crust within those belts — though presumably it has to happen elsewhere in other parts of the plate-driving system. Parts of their argument are as weak as any that have gone before due to the inadequacies and paucity of the palaeomagnetic data on which they have had to rely. Nor is their interpretation unique: their data are equally compatible with a 'Wilson cycle' of an ocean which opened and subsequently closed. Yet their model serves as an important reminder that this transcurrent style of tectonics is possible and draws attention to evidence consistent with it in Proterozoic times — there are substantial examples in the Phanerozoic, particularly in the evolution of the Caledonian and the Hercynian belts

in Europe.

This element of relative plate motion is easily missed in tectonic analyses of orogenic belts as it is dependent on discovering a few surface traces of large faults parallel not only to the structural grain but most likely parallel to the grain of sedimentary facies as well. If one looks back at the palaeomagnetic evidence of different polar wander paths from Europe and North America published in the mid 1950s as evidence of the opening of the Atlantic, one would nowadays pick the individual data to shreds; few if any would be accepted as adequately confirmed palaeomagnetic directions by current criteria. Yet the correct answer could be seen, and was indeed seen, in the systematic deviation of sets of (internally suspect)

data. The same may be so for Onstott and Hargraves' contention of large-scale transcurrent motions. As in the Phanerozoic the confirmation came from elsewhere than continental palaeomagnetism (in dated magnetic anomalies, transform fault interpretation, and the whole range of sea floor spreading data), so for the Proterozoic other disciplines may resolve the problem. The critical lines of inquiry are likely to be careful tectonic analysis of structures in plan, and seismic 'profiling' right through the lithosphere to give structure in cross-section. Mesozoic to present geological experience tells us that there are enough distinctions between major transforms and sites of destruction of major oceans or back arc basins for solutions to this problem to be attainable.

100 years ago



Mongoloid types, Indo-China. King and Queen of Siam.

MONGOLIAN TYPE

from A. H. Keane

We are all familiar with the essential characteristics of the Yellow or Mongolian division of the human family.

They correspond substantially with those we see in the ordinary Malay type, in Java, Bali, Madura, many parts of Sumatra, round the coast of Borneo, and in the peninsula of Malacca. The true aborigines of this region were the Negritos; consequently the Malays, like the pre-Malays or Caucasian Indonesians, are here intruders. Intruders from where? Obviously from where the type exists, the neighbouring Indo-Chinese peninsula. What then becomes of the Malay as a primary division of mankind? As such it can no longer be recognised in anthropology, and must sink to the position of a mere variety of the Mongol type. The so-called true Malay or typical Malay is essentially a Mongolian, and the likeness between the two has not failed to strike all careful observers. "The Malayan race," says Wallace, "as a whole undoubtedly very closely resembles the East Asian populations from Siam to Manchuria. I was much struck with this, when in the Island of Bali I saw Chinese traders who had adopted the costume of that country, and who could then hardly be distinguished from Malays; and on the other hand I have seen natives of Java who, as far as physiognomy was concerned, would pass very well for Chinese." Hence De Quatrefages rightly rejects the claim of the Malays to be regarded as a fundamental type. "All polygenists," he remarks, "have regarded the Malays as one of their *human species*; many monogenists have considered them as one of the principal races. I showed long ago that in reality they are only a mixed race in which white, black, and yellow elements are associated."

The last clause of this sentence gives the true solution of the problem. The inhabitants of Malaysia consist not of one, nor even of three distinct races, but of three races variously intermingled, the yellow or Mongolian, and the white or Caucasian chiefly in the west, these two and the black or Papuan chiefly in the east. As the fusion of yellow, white, and black produces the so-called "Alfuros" in the east, so the fusion of yellow and white produces the so-called Malays in the west. The more the yellow prevails the nearer do the Malays approach the Mongol type; the more the white prevails the nearer do they approach the Caucasian type, until in some places they seem to be no longer distinguishable from the Mongols, in others from the Caucasians." From *Nature* 23, 13 January, 250, 1881.