

HUMAN UNITY\*

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Men have been members of a single species for over three million years. Still earlier they were making tools. It took over a million years for them to learn how to shape flint, not just to break a pebble to form a sharp edge, to double their body weight and brain size, to add a foot or so to their height. Perhaps three-quarters of a million years ago, men had spread from Africa into Asia, fire was beginning to be used, and the crude stone tools show slight regional variations. More than 70,000 years ago some groups of men began to give ceremonial burial to their dead. More than 30,000 years ago different cultural traditions for making the varied equipment used by skilled hunters had come into being, replacing earlier means of food-gathering. About 10,000 years ago in Meso-America, in northern Thailand, on the Iranian plateau, and in other areas, some yet to be discovered, different systems for deliberately producing animal and vegetable food products were invented, and were added to and modified as they spread to new areas.<sup>1</sup> About 5000 years ago these

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techniques had developed to the point where, in favored areas, men could live together in cities, and from some of these the written records we call history still survive. During the last few centuries the techniques for maintaining long-range contact in space and time reached the point where peoples from some areas could spread out rapidly across the surface of our planet, and report back what they found. At first they were struck more by the diversity than the unity of mankind. But as we recover and reconstruct knowledge of the past, the fundamental and specific unity of man is becoming clear.

That men are members of one species is shown by the fact that, regardless of the great apparent differences between cultures and races, men can and do interbreed; that is what a biologist means by a species; there is no other generally accepted definition. According to our present understanding of the origin of species, this already shows that men and their progenitors have always been one interbreeding group. Species get started when formerly interbreeding groups have been separated by some impassable geographical barrier like a mountain range or ocean for several hundred to several thousand generations (say 10-50,000 years for man). Over such a long period of time, chance changes in heredity accumulate to the point where interbreeding is no longer possible if the groups are reunited. But even a slow and small interchange of interbreeding individuals between such groups can prevent such isolation from taking place. This was the case for our ancestors.

More complicated situations come up when two groups that have gone part, but not all, of the way toward separation into species are brought back together on the same territory. If their distinct ways of living are so different that they can use different foods and areas within the common territory without serious competition, it is greatly to the advantage of both groups to preserve these

differences. Since such differences would be wiped out by interbreeding, natural selection then operates rapidly to erect firm barriers against interbreeding. Once such barriers have been erected, genetic theory assures us they are next to impossible to remove. This situation did not occur among our own ancestors. When two groups are in competition for the same sources of food and living space, there are two other possibilities. One group may have so much of an edge that the other will become extinct. This destroys the advantages and flexibility offered by the differences between the way the two groups gain a living from the environment. It is more advantageous for both groups to preserve these differences as extremes of the range produced by interbreeding. The result is a highly varied species which can explore more opportunities than either group could approach separately. The great variety of human types must have come from many partial separations and refusions. Our diversity led us to use more environments than any other species.

If we go far enough back along any one of our ancestral lines, we are sure to encounter someone we are no longer willing to call Homo sapiens (knowledgeable man) – the somewhat optimistic biological designation for modern man. Current fashion is to call remains from about a million years ago or less Homo erectus (upright man), and from about two to four million years ago Homo habilis (man the maker), but if we had more examples to study, the specialists might well say that we are separated from man the maker by three intermediate species rather than one. Such distinctions are of no great importance. What makes no biological sense, however, is to say that there were different species, ancestral to modern man, living at the same time in the past.<sup>2</sup> If this had been so at any time in the past, and descendants of that different species were still alive, we could no more interbreed with them than we

can with our nearest biological relatives, the apes.

Of course, if we study remains from thirty million years ago or so, it becomes difficult to distinguish types ancestral to modern apes from our own line, so species separation from the apes probably occurred about then. It seems likely that the apes were more successful than our ancestors in forest living, and as the forest areas began to get smaller, that our ancestors developed feet to cross open spaces and reach smaller groves not accessible to the apes. A few million years ago the Australopithecines had developed into an open country type that could ignore the trees. We have as yet to pinpoint the era when our own ancestors became distinct from this line, but the species distinction is obvious over three million years ago, when Homo habilis was making pebble tools or using hyena thighbones to kill baboons and the archaic Australopithecines, who were still around but had not learned to make tools.<sup>3</sup> Thus it appears likely that our ancestors were partially responsible for the extinction of our nearest ground-living relative about two million years ago. But modern man shares a single genetic heritage, interrupted perhaps for periods of 20,000 years or so between specific groups, but never to the point where genes could not flow between humans throughout the whole area of the world occupied by mankind.

Not that there are not very great racial and cultural differences between different groups of men, different abilities, different skills. But these are not insuperable barriers. A single adult individual raised in a stone-age culture can be brought into the modern world in a single year,<sup>4</sup> and an entire stone-age culture can be brought into the modern world in a single generation.<sup>5</sup> As the world draws closer together, in a process which must end soon in an integrated political and ecological communal system over the whole surface of this

planet,<sup>6</sup> we should look to these cultural and racial diversities as a great strength, a rich source of novel ideas, institutions, and skills to turn to the new tasks facing us. This article is aimed at showing that there can be no biological barrier to this growing human unity, and that in a strictly scientific sense we can say with assurance that "nothing human can be alien to me".

#### REFERENCES

1. J. R. Harlan, *Science* 174, 471 (1971).
2. This point is made forcefully by the eminent geneticist T. Dobzhansky in *Current Anthropology* 4, 360 (1963) in a review and criticism of C. Coon's book, The Origin of Races, which latter book makes this fundamental genetic error.
3. P. V. Tobias, *Current Anthropology* 6, 391 (1965); see this issue also for critical comments on this position. Tobias's position has been vindicated by recent (1974) finds in Ethiopia of genus Homo more than three million years old.
4. T. Kroeber, Ishi in Two Worlds (University of California Press, Berkeley, 1961).
5. M. Mead, New Lives for Old (Morrow, New York, 1965).
6. "Terra's Energy Crisis," *Bull. Am. Phys. Soc.* 18, 24 (1973).