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Cultural Components in the Concept of Race

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The concepts of "race" and "race difference"

I have been asked to discuss the influence of culture on the development of the concept of race in a session which is to be devoted, overall, to the historical facts of human evolution and the development of racial difference. This brief contains an element of ambiguity which I intend to exploit.

First I want to consider how far cultural factors may have contributed to human evolution generally and to the development of racial differences in Man. For this purpose I shall be talking about two aspects of race difference both of which are recognised by such genetically oriented physical anthropologists as J. B. Birdsall (1972) and J. Buettner-Janusch (1966, 1973); these are: (a) visible differences of morphology as manifested in contrasts between the average phenotypes of selected populations, and (b) differences in the detectable gene frequencies occurring in the gene pools of approximate breeding isolates.

I would remark right away that the fact that it is meaningful to talk about *race difference* in this way does not imply that it is equally meaningful to discuss a *taxonomy of races* in Man. Cline maps which exhibit gene frequency differences on a global scale do not show consistent discontinuities and can seldom be shown to fit meaningfully with maps of morphological difference. I assume that differences of morphology are caused by differences in genetic constitution but at present we know hardly anything about the connection between the two.

Secondly I want to consider how this ambiguity in the scientific meaning of the expression *race difference* has become associated with a whole string of further ambiguities, which are of cultural origin and which are introduced at the level of folk taxonomy and the vernacular use of language. The end product is an irresolvable confusion which results in an atmosphere of impenetrable fog in all but the most austere discussions of this most explosive topic.

Until quite recently even the most distinguished physical anthropologists operated with the assumption that racial distinctions inhere in external appearances and that these appearances are hereditary, at least as types. Thus Hooton (1946) wrote:

"A race is a great division of mankind, the members of which, although individually varying, are characterised as a group by a certain combination of morphological and metrical features, principally nonadaptive, which have been derived from their common descent."

The assumptions that underlie this definition include the following. Modern Man is a single species *Homo sapiens* which has a world-wide distribution. In ancient times it was divided regionally and morphologically into some three or four original major stocks, sub-species, or "races". The morphological peculiarities of each race had been brought about in the past by intensive inbreeding, i.e. the postulated "original races" were thought of as analogous to a plant breeder's "pure line". Actual human populations were then described as if they were mixtures or historical residues of the supposed primary stocks.

The fallacies embedded in such a model are numerous. One such is the belief that populations which resemble each other in appearance even when they are territorially far apart must be descended from a common stock. Half a century ago this belief provided the basis for the elaborate pseudo-science of *ethnology* (as that term was understood by such anthropologists as Haddon) which purported to explain present-day racial distributions on the basis of migrations. It was supposed that the history of early human migrations could be confidently reconstructed by a consideration of the presently existing physical types of mankind.

It is certainly possible, indeed highly likely, that population migrations in the remote past have played some part in the present distribution of peculiar morphological racial distinctions. For example, some adult women in the South Andamans show marked steatopygia and in the same locality the spirally curled hair sometimes takes on a "peppercorn" appearance. Since both these striking peculiarities have otherwise only been reported among African Bushmen and African Pygmies there is a clear suggestion that these Andamanese traits must be survivals from some very ancient adaptation which once had a much more widespread distribution than it does now (Birdsall, 1972: 498). But this is only a "likely possibility". Phenotypical characteristics of human groups, such as steatopygia and peppercorn hair, are the outward and visible signs of inward genetical constitutions but genetical constitutions are not heritable as stable sets.

As counterpart to the Hooton type, morphological definition of race cited above, a modern genetic definition might be:

"A race is an interbreeding population whose gene pool is different from all other populations" (Birdsall, 1972: 487).

There is however fairly convincing evidence that the various forces of evolution (i.e. mutation, selection, gene flow, and genetic drift), acting in local combination on a scatter of small but thinly dispersed semi-isolated breeding populations, can produce quite rapid and major oscillations in observable gene frequencies. A study made by Birdsall in the early 1950s among 28 "tribal" groups of Australian Aborigines, all of which were physically of much the same appearance, showed a range of gene frequency diversity strictly comparable to that found in the whole of Eurasia in a sample including a vast variety of morphological types (Birdsall, 1972: 445, 454).

This suggests that a classification of races based on the statistical incidence of gene frequencies would not only be unstable but would not correlate at all with readily observable morphological distinctions. In point of fact serological studies lend no support to the theory that African Pygmies are related by common descent to Pygmies in other continents. On the contrary, Congo Pygmies seem to be simply short



Africans and Papuan Pygmies short Papuans (Buetner-Janusch, 1966: 416).

It follows therefore that, as is the case with the morphological evidence, the genetic data can lead only to inferences of probability rather than certainty.

"If adjacent populations are very similar genetically, then it is probable that they have a close common descent. But where distant populations have genetic similarities, these may have been produced in a variety of ways by the action of various evolutionary processes" (Birdsell, 1972: 487).

The converse point is equally important. "The action of various evolutionary processes" is at work all the time and though it is quite possible for separated distant populations to come to resemble each other, genetically and physically, as a result of accidental convergence or adaptation to similar conditions, the general probability is that populations which are spatially sufficiently separate to form breeding isolates (i.e. are approximately separate Mendelian populations) will continuously evolve so that they become more and more different with the succession of generations.

On the face of it the conclusion from all this is almost wholly negative. Morphological racial differences palpably exist. Negroid Africans are visibly different from Caucasoid Europeans and it is at least *probably* the case that great regional populations of Man which resemble each other have some common lines of descent. But such crude statements about the phenotypic consequences of genetic inheritance have very little scientific utility. Indeed a *scientific* typology of races *either* on morphological grounds *or* on gene frequency grounds seems to be ruled out. All that can be usefully discussed by scientists are the processes by which racial differentiation comes about, and the environmental and social circumstances which lead to an increase or decrease in such differentiation over time.

Nevertheless the view of racial difference which I have outlined above leads to a curious *social* paradox.

Imagine a zero point in time (T.1) and a single Mendelian population (P.1) which forms a breeding isolate. At a later point in time (T.2), this population comes to be divided into two separate breeding isolates, P.1.1 and P.1.2. There are many possible causes for such a separation, e.g. part of the original population P.1 may migrate to a remote island, some social or religious crisis may divide the population into two endogamous sub-groups, and so on. If the initial allocation of individuals to P.1.1 and P.1.2 is random, then, initially, the gene pools of these two sub-groups will be indistinguishable—they will be members of a single race. As time goes on, however, differential selection will generate differences in the frequency of the variable genes of the two gene pools. In this simple model situation, provided we rule out complicating possibilities such as a third population P.2 which interbreeds with both groups, the general expectation must be that the more prolonged the period of separation, the greater will be the racial difference between P.1.1 and P.1.2.

While there are a variety of distinct evolutionary processes which may further such differentiation, the major factor is always selection. Roughly speaking we can say that the two populations concerned become genetically distinguishable over time *because* they are adapting to different environmental circumstances. Note however that "environmental circumstances" here means the ecosystem in the broadest sense—not merely climate and terrain and natural resources but also many features of the environment which are the direct or indirect consequence of cultural activities among the populations concerned. For example, a genetic peculiarity is very likely to be a response to the prevalence of an endemic disease (e.g. malaria) the incidence of which is itself determined by human cultural activity.

For such incipient racial differences to develop it is necessary that the environments to which the two populations are adapting should be continuously different even though they need not be stable.

The same model schema may also be considered in reverse. Suppose we start at T.1 with two racially distinguishable populations, P.a and P.b, which initially form separate breeding isolates, and then, at time T.2, because of migration or some social revolution, members of the two populations are brought together and reshuffled as members of a single pack, then clearly the whole notion of "adaptation to separate environments" becomes meaningless.

The principle is obvious and may be reduced to a formula.

- (a) Whenever two populations persist over time in separate environments and there is no remixing of individuals, racial difference will tend to increase from generation to generation;
- (b) Whenever individuals from racially distinguishable populations are mixed up in the same environment, racial distinctions within the mixed population will tend to decrease from generation to generation.

These *latter* conditions are precisely the ones in which "race as a concept" first acquires political significance.

The *only* circumstances in which race difference can have cultural and hence political significance are ones in which there is a widely prevalent belief that the population, taken as a whole, is of mixed ethnic origin. If the belief is well founded, then it is also factually the case that racial difference is decreasing and will continue to decrease. The paradox is that although race prejudice is generated by resentment against the existence of racial diversity within what is potentially a single Mendelian population, the effect of race prejudice is to reinforce social barriers which inhibit random mating. *The prejudice thus sustains the diversity which generates the prejudice in the first place.*

Incidentally, the mixing of populations of readily distinguishable ethnic origin does not *always* have these cultural implications. We need to understand much better than we do just why such mixture sometimes becomes a political issue and sometimes not.

It is for the geneticists to spell out just how far human populations really differ from one another as biological collectivities; the rest of us would do well not to attach too much importance to superficial

appearances. As amateurs in a highly technical field, most members of this audience could usefully take a lesson from what a well-known handbook of European birds has to say about the Yellow Wagtail:

"Systematics of the Yellow Wagtail group are complex. Some authors classify various forms as distinct species. But inter-gradation occurs where ranges overlap. Mutants resembling other races breed with birds of normal appearance. Thus birds identical with Sykes's Wagtail (*M. f. beema*) of Russia breed with normal Yellow Wagtails (*M. f. flavissima*) in England. In field work it is better to call them all 'Yellow Wagtails'" (R. Peterson, G. Mountfort, P. A. D. Hollom: *A Field Guide to the Birds of Britain and Europe*, 1967 edn., p. 252, Collins, London).

In field work it is better to call all varieties of *Homo* "Men". We are all mongrel to greater or less degree. All the same, the manner in which superficial morphological differences in Man have been generated and partially stabilised is of great scientific interest and without question the social significance of such superficial differentiation is in some cases profound.

Cultural factors in the evolution of racial difference

The precise criteria by which we should distinguish Man from a "pre-human hominid" are matters for dispute. However it is clear that, of species that now survive, Man is the *only* creature that possesses language and his tool-making capacities are out of all proportion greater than those of any other creature.

Both these characteristics are human universals and they both provide a kind of bridge between human nature and human culture. The capacity to learn and use language and the capacity to manipulate tools are part of our genetic endowment; the particular languages we speak and the particular tools that we use are cultural inventions, culturally transmitted.

We do not understand at all how the capacity for using language might have evolved, but any discussion of the distribution and varieties of *Homo sapiens* must accept as an axiom the proposition that we are all the time concerned exclusively with a creature which had a fully developed language capacity. It is that capacity more than any other which has had the consequence that ever since the dawn of prehistory Man can be seen to have dominated his environment instead of being dominated by it. It is because of language (and the cultural flexibility which flows from the use of language) that, to a unique degree, Man, as a species, is not confined to any one type of naturally existing ecological niche. For untold thousands of years Man has overcome environmental barriers to his movements by adopting cultural innovations which modify the environment in question. The cultural ingenuity which has recently allowed astronauts to walk on the surface of the moon is not a novelty; it is a general species-wide human characteristic.

This makes the zoological understanding of Man peculiarly difficult. We have to assume that our physical development in its manifold varieties has been an adaptive process in which there has been a continuous feedback response between the genetic composition of the adapting species and the attributes of the "total environment" to which it has been adapting. But there is no other species in which this relationship is so unstable; no other species can so readily move from one "natural" habitat to another; no other creature systematically alters its habitat on such a grandiose scale as it goes along.

Clearly we have to assume that the varieties of racial differentiation which are currently observable in Man have been brought about in the past by the operation, either singly or in combination, of the various generally recognised "forces of evolution" which apply to all species—e.g. mutation, selection, gene flow, genetic drift. But we have to appreciate that in the case of Man the environmental context within which these forces operate is unstable to a quite unique degree. At the present time nearly all human habitats are man-made rather than natural and we do not really know what has been adapted to what.

Most textbooks of physical anthropology cite examples of extreme cases where it seems reasonable to suppose that the present human ecological situation has been stable for a sufficiently long period to have had easily identifiable consequences for the local inhabitants. Thus the tall spare body structure of the Hamitic peoples of the Southern Sudan, which maximises the ratio of skin surface to body weight, looks like an adaptation to a dry hot climate. But if such correlations are valid at all, the original causal feedback relationship between environment and human physique are unlikely to have been simple. The inhabitants of dry hot savannahs are not all tall and slender.

But if the original feedback was complex, then there will have been a number of alternative possible chains of causation, and it becomes impossible to assert with any confidence how far "culture" does or does not enter into the sequence. Consider the following example.

A widely favoured theory among physical anthropologists is that fair skin among the inhabitants of North-west Europe is a long-term adaptation to cloudy skies and a cool climate. The limited sunlight made it advantageous to maximise the absorption of vitamin D through exposed surfaces of the skin. The somewhat disconcerting fact that many of the arctic peoples who spend six months of the year in the dark have quite dark skins is then explained by a counter argument that, as a protection from snow blindness, Eskimos need darkly pigmented eyes and the melanin content of the eye is governed by the same genetic mechanism as governs the pigmentation of the skin.

The foregoing theory ignores cultural influences, except possibly that it presumes that all the populations concerned are fully clothed, but in an alternative version cultural influence is prominent. According to this second view the relatively dark pigmentation of the arctic peoples is ancient and is associated with an adaptation to a vitamin D rich diet of meat protein and fish which was presumably normal for all inhabitants of North-west Europe and even Southern Europe at all periods prior to about 9000 B.C. Over the next five millennia the

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to maximise human dispersal over the earth's surface and to contribute to the fact that, despite this dispersal, we remain one species.

The negative side of that argument is that physical environments which are indestructible by fire would maximise the stability of local human populations. We might expect therefore that the most highly specialised racial groups of man would be found in environments which cannot be devastated by fire, e.g. exceptionally humid rain forest, semi-deserts, arctic tundra. In crudely morphological (as distinct from genetic) terms this proposition more or less fits the observable facts.

In more recent times other cultural factors besides fire have become increasingly relevant in the continuous interaction between Man and his environment but the general implication is similar.

In recent millennia the circumstances which are necessary for a human population to achieve long-term stability in relation to its physical environment have become increasingly rare. With increasing frequency, changes in population density have been correlated with radical cultural innovations which have continuously altered the overall physical context.

The general tendency has been for the scale of political units to increase and for larger and larger numbers of individuals to be brought into association through trade and in other ways.

The combination of population increase and cultural innovation has nearly always stimulated an increase in the territorial movement of individuals away from conditions of economic scarcity and towards centres of economic prosperity. As in the much earlier phenomenon of primeval nomadism, the resulting "Brownian movement" of human beings has tended to maximise human dispersion and minimise the total separation of human populations. With the passage of history the remixing of partially separated populations has been continuous and is still accelerating.

This does not mean that the evolution of the species has come to a halt or gone into reverse. Racial differentiation may have stopped; genetic adaptation continues. For example, we must assume that urban environments, mechanically processed diets, and the selective (but at times highly efficient) medical care which now constitute the normal living space of hundreds of millions of members of the human species are all exercising some sort of evolutionary pressure on the populations concerned.

Here again, and in an extreme form, human culture is a part of the human ecosystem to which mankind is adapting, though of course we have no real idea what these pressures are or what their long-term consequences are likely to be.

But in any case all the parameters that are likely to be involved in selective pressures have now become so changeable that it is difficult to see how any further tendency towards sub-speciation could be occurring anywhere. The phenomenal development of communication systems of all kinds, which is one of the most striking features of contemporary human culture, has meant that even the most isolated human populations are now in regular contact with all the rest. This implies that, to a degree that is unprecedented since the first emergence of *Homo sapiens*, the whole of our species now forms a single Mendelian breeding population.

Quite apart from that, there are major values in the culture of modern urban society throughout the world which quite explicitly operate against sub-species differentiation. From the viewpoint of modern medicine any biological variety in the human constitution is rated as an "abnormality" and any hereditary abnormality is rated as a "disease". Medical policy is therefore directed towards eliminating the abnormality by restricting the breeding potential of "carriers of the disease". Propaganda in these areas is not yet 100% effective but the intention is clear. Any genetic development that might lead to an increase in racial diversity is to be deplored and should, so far as possible, be eliminated.

This kind of self-conscious scientific anxiety to preserve the integrity of the species in its present form is likely to have the effect that from now on we shall evolve as a total species rather than as a set of partially distinguishable races.

But in considering the phenomenon of racial difference as we observe it at the present time, we are concerned with the past rather than the future. What did happen in the past? Man's culture has always been a part of his adaptive environment and it is only reasonable to suppose that it had a bearing on how he evolved in the first place.

For example, Man everywhere cooks his food. The archaeological evidence suggests, but does not prove, that he has done so for a very long time indeed. Cooking is a cultural activity. When hard pressed, even modern men can survive on raw food; indeed it might sometimes be better for them if they did. Men cook their food to show themselves that they are men; cooking is what *men* do, it differentiates them from mere beasts. So what?

Well there is the long-standing and continuing debate among the physical anthropologists between the "lumpers" and the "splitters" about the relationship of modern Man (i.e. *Homo sapiens* since 50,000 B.C.) to his fossil predecessors. The extreme "lumper" view treats *Homo sapiens* as a species with a history of around a million years, in which specialised morphological forms such as *Pithecanthropus erectus*, *Sinanthropus pekinensis*, *Homo neanderthalensis* were simply transient races (sub-species). The extreme "splitter" view is that Neanderthal Man and modern Man were separate species and that Neanderthal Man disappeared because he was wiped out by invading hordes of his superior successors.

As Buettner-Janusch (1966 : 151) points out, the issue is essentially a "dilemma of interpretation". The view that "the replacement of Neanderthals in Europe by invading hordes of *Homo sapiens* . . . is conditioned by a highly anthropocentric attitude towards human evolution", a kind of racial prejudice which makes otherwise very sensible scientists reluctant to believe that they could themselves be closely related to people with faces like those attributed to the Classic Neanderthals which, by our modern standards, were bestial (Birdsell, 1972 : 282).

Certainly I have no professional competence to judge on these matters though I note with interest that Birdsell (pp. 281-2) holds that the Neanderthals stood perfectly erect and that "there is little reason to doubt that these early Europeans were intellectually as bright as present-day ones".

Anyway the archaeological evidence is that if we take the lumpers' classification, all the more recent varieties of *Homo sapiens*, including Pekin Man and Neanderthal Man, cooked their food. The corresponding fossil evidence is that over a very long period there has been a progressive flattening of the human face and a reduction of the brow ridges, a development which could be a response to a lessening of the musculature of the jaw. This in turn could be a long-term adaptation to the steady replacement of raw (hard-tough) food by cooked (soft) food.

Here then is a possible example of the influence of a universal cultural trait (cooking) on a universal morphological character of the modern species (the flattened face).

There have been all sorts of other speculations on similar lines. Language is a cultural phenomenon. It is also a species-specific peculiarity of Man. The evolution of the capacity to speak and to decode the speech of others is part of the basic genetic history of mankind, but it was clearly also part and parcel of the cultural evolution of mankind. We have no idea how it took place.

There have been dozens of theories on the subject and new ones turn up every few months. I personally find them all equally implausible. Yet clearly the evolution of the morphology of the human throat and mouth and ears and associated areas of the brain has been "interdependent with" the evolution of human culture.

Incidentally, there is no evidence that "race difference" enters into this complex in any way. Individual children vary greatly in the rapidity and accuracy with which they acquire a linguistic competence but all existing human languages seem to be equally easy to acquire in this way. Or perhaps we should say that all ordinary languages are equally difficult for all individuals regardless of their race.

Toolmaking is another cultural feature which has evolutionary implications. Recent East African excavations suggest that, even if we accept the "lumpers' view of *Homo sapiens*, there were still a great variety of pre-*sapiens* hominids of immense antiquity that were tool users. Man's ancestors were presumably better at it than the others. The making and use of tools is clearly cultural, but the consequences for evolution may have been physical. Man's upright stance and the structure of his hand may well be an adaptation to an environment which includes Man's cultural use of tools and weapons.

All this is a kind of Just-So Story. Neanderthal Man and his ancestors are no longer with us and all statements about their cultural behaviour are 99% pure guesswork. What about the races of modern Man?

As my earlier aside about the Yellow Wagtail was supposed to indicate, my personal assumption is that the whole contemporary human population is a continuum which can be segmented in any way that is convenient. There are no objective hard line boundaries between one "race" and another. Classifications which distinguish 50 or more contemporary races of Man are just as true, or false, as those which distinguish only three or four. Nevertheless, as visual polar types, races can clearly be seen to exist. A fair haired Scandinavian looks entirely different from a West African Negro. However trivial the origin of this physical distinction may have been, its present day social and cultural significance is enormous.

I have already made the point that certain cultural universals—human language, the use of fire, cooking, the use of tools—may have had an influence on the evolution of Man considered as a single species. Is there anything that can be usefully said about the influence of cultural particulars on the evolution of racial differences?

The fundamental point is that we know extremely little about the origin of such differences. People have dark skin, or fair skin, or "yellow" skin because some of their ancestors in the past have been members of populations where it was genetically advantageous to have more or less melanin or more or less carotene pigmentation. But no one understands the details of such selection. And, as I indicated earlier in this paper (p. 00), even if we postulate an immediate "cause" for the increase or decrease in pigmentation we still cannot be sure of the sequence of events. Part of the adaptation may be "natural", part "cultural".

Theories, such as those which I have cited already, which explain fair skin as a response to vitamin D deficiency, at least have the merit that they are sociologically neutral. In contrast, the folk mythology of racial origins is invariably rooted in prejudice. The prejudice always has its roots in the ideology of religion or of politics or both. Skin colour in particular is often mixed up with moral judgements about nudity. For example, generations of Jews and Christians have seen the black skin of Africans as a divine punishment of Ham for "uncovering the nakedness" of his father Noah!

Explanations of skin colour difference appropriate to European imperialist aspirations have been proposed for centuries. They start from the position that it is in the nature of things that fair skinned men should be the ruling aristocrats. Civilised man protects his delicate complexion by wearing clothes; savages wear no clothes and get burnt in the tropical sun. All sorts of pseudo-scientific versions of this thesis have been produced from time to time, and bits of it are liable to survive even in the work of respected physical anthropologists.

It certainly *could* be the case that, if the relation between culture and environment were locally stable over a very long time, clothing could have adaptive consequences for the development of racial difference. For example it seems common sense to suppose that Man has only been able to make a special physical adaptation to arctic conditions (in the form of the short, heavily built, dark-skinned physique of the Eskimo) because he was also able to use the skins of arctic animals as clothing to provide himself with an efficient heat insulation.

But the wearing of clothes is a much less universal cultural attribute of Man than the cooking of food and it does not correlate with climate in at all the way one might expect.

Strange as it may seem, the now extinct inhabitants of Terra del Fuego went naked even in extreme arctic temperatures; some of the Berber and Arab populations of the Sahara are among the most heavily clothed people to be found anywhere.

What about diet? The most general point here is that man is potentially almost omnivorous. In almost any environment there is an enormous variety of plants, animals, insects, birds, fish, reptiles, from which Man can derive satisfactory nourishment if he chooses to do so. It is invariably the case that in practice human populations consume only a very limited selection of these possible foods. The distinction between what is rated as "food" and what is rated as "not-food" is a cultural distinction. The social prejudices that are involved are commonly extremely strong and reinforced by all sorts of religious sanctions.

Clearly the overall combination of food preferences and food taboos in any given environment adds up to a tolerable diet—otherwise the population would not survive at all. But most culturally determined diets are medically unsatisfactory. Throughout the human species a great variety of deficiency diseases are the indirect consequences of failing to take advantage of resources readily available in the local environment. In so far as such diseases affect human fertility and the prospects of infant survival, and in so far as resistance to these diseases is affected by genetic factors which may be more prevalent in some populations rather than others, then diet and dietary deficiency may contribute to "racial" selection.

An even more obvious way in which cultural prejudices might be thought to influence racial differentiation is through customs relating to mating behaviour, but the facts here are by no means as simple as some professional physical anthropologists seem to imagine.

Certainly it seems likely that in the remote past, when most of the human population consisted of small bands of hunters and collectors widely dispersed across the map, the effective breeding isolate was usually very small. Even today there are culturally specialised nomadic groups of hunter-collectors where this is broadly speaking the case, though the total isolation of small breeding communities is probably very rare. But the genetic consequences of inbreeding are not necessarily restricted to territorially isolated closed groups of this sort.

Throughout the world there is a great variety of societies which, in one way or another, express a marked preference for the marriage of first cousins. This contrast with their own moral values has upset a number of European scientists who have gone to considerable lengths to try to demonstrate that such customs must have deleterious genetic consequences. Some pseudo-scientific racist theorists have developed this theme and appear to assert the proposition that the inferiority of savages derives from the fact that they marry their close kin, while the superiority of Northern Europeans stems from the fact that they do not. The issue is less straightforward!

In practically all human populations that we know of children are brought up to believe in a discrimination between "people like us" and "people not like us". The category "people like us" is then further sub-divided into sub-categories such as "friends", "enemies", "kin", "affines", "non-kin". Similarly, "people not like us" can be divided into such categories as "servants", "slaves", "strangers", "lords". Within such clusters of categories and sub-categories the formation of breeding pairs is closely circumscribed by cultural conventions. Many "possible" combinations are vetoed outright as "incestuous" or "socially outrageous". A man may not marry his sister. A free man does not marry his slave. But marriage and copulation are not the same thing!

If people really adhered to the breeding conventions that their customary rules seem to imply then there would be marked "racial" consequences. For example, in societies in which a hierarchy of property ownership has already developed, it is very common to encounter social conventions which should, in theory, make the property owning ruling class an inbred minority within the larger whole. In many circumstances the life prospects of the children of these "aristocrats" are greater than those of the children of "commoners", and it is easy to envisage ideal-type models in which the aristocrats at the top would come to form a breed apart. Since aristocrats are likely to be better fed than their neighbours, and will, in many cases, believe that they are indeed "a race apart of divine origin" it is not surprising that early ethnographic reports of remote peoples have often included the assertion that the ruling class were physically quite distinct from those whom they ruled.

Genuine ethnographic situations of this sort have certainly existed, and in some cases can still be directly observed, but I am extremely doubtful whether a phenotypical distinction such as this, applicable to a whole social class, could be the result of the kind of social inbreeding to which I have referred. Most of the genuine examples are indeed known to be the historical outcome of military conquest or the mass importation of foreign slaves at a relatively recent date. The inbreeding of social classes is a genuine phenomenon, indeed it could almost be said to be normal, but the breeding population that is thereby established is only an "isolate" to a very partial degree.

Rules of incest and conventions of endogamy vary greatly between one society and another and even within different segments of the same political system. But whatever the rules may be, breaches of those rules are extremely frequent. No biologist should imagine that ethnographic statements can be used as a basis for biological genealogies. Many years ago the celebrated Bronislaw Malinowski reported of the Trobriand Islanders that they regularly married their father's sister's daughter; a subsequent investigator managed to discover only one such marriage in a list of several hundred! That perhaps is rather an extreme example but it certainly can be said of marriage conventions in general that any

tendency to genetic specialisation which is being reinforced by the "rules" is all the time being dissipated by "irregular unions" which produce a gene flow across the group boundaries which the rules in themselves postulate.

The *locus classicus* of a major population sub-divided into a hierarchy of sub-divisions, each rigidly endogamous within itself, is Hindu India with its caste order. If formal caste rules were always obeyed they would generate marked racial distinctions. Castes are supposed to be strictly endogamous within themselves; castes have widely differing dietary customs which are likely to produce differential rates of survival, and so on. Furthermore, in some parts of India, caste groups living as neighbours in the same environment give a superficial appearance of being morphologically different, and in some cases the genuine character of these alleged differences is supposed to have been established by the scientific investigations of local physical anthropologists. Biologists need to be cautious in their evaluation of such evidence. If indeed there are detectable differences of average phenotype between members of Indian caste groups which are closely resident in the same neighbourhood then it seems unlikely that these differences were "caused", in any simple sense, by caste conventions of marriage and endogamy.

The only named caste group which is to be found throughout India is the one which, in terms of moral purity, stands at the top of the social hierarchy, namely the caste of Brahmins. Brahmins are under much greater pressure to keep to the rules than anyone else. If Brahmins had in fact adhered to their own rules in a consistent way over the centuries they would all now be fair skinned northerners. That being so, South Indian Brahmins ought to stand out as racially quite distinct from the short-statured, dark skinned general population. But in fact this is not so. Brahmins in South India look like other South Indians; Brahmins in North India look like other North Indians.

The Jews provide another striking example of the same kind of thing. Jewish cultural prescriptions concerning mating are very explicit. Jews should mate only with other Jews. These formal rules have been in force for at least 2,500 years. If Jews had in fact kept these rules they would by now constitute a clear-cut physical type. In fact, although local communities of Jews are sometimes physically distinguishable from their immediate neighbours, the general pattern is quite the contrary: Polish Jews look like Poles, Yemeni Jews look like Yemenis, Chinese Jews look like Chinese. It is still quite possible of course that modern sophisticated blood group analysis might demonstrate that all populations of contemporary Jews can be statistically discriminated "as Jews" from neighbouring non-Jewish populations, but if such discriminating factors exist they are not of the kind which ordinary members of the public have in mind when race difference is under discussion.

There are numerous other analogous cases. For example, although recent blood group studies indicate that contemporary European gypsies include some genetic strains which are not ordinarily encountered in the surrounding settled population, they lend no support to the mythology that all modern gypsies are descendants of a nomadic tribe which emigrated from North India around the 10th Century A.D.!

All this is not meant to imply that cultural conventions regarding "right" and "wrong" breeding pairs are to be regarded as fairy tales which have no racial consequences whatever: it is simply that I am warning biologists that they must recognise that human breeding patterns are invariably widely different from stated convention. In certain exceptional circumstances the transmission of an hereditary disease may be mapped on to a genealogy which extends over several generations, but, in general, genealogies are a device for asserting social claims and a most unreliable guide to biological fact. No biologist would be justified in explaining the incidence of some present day racial peculiarity by invoking retrospectively the operation of a marriage rule.

Negative evidence of this sort has some bearing on an apparently plausible "racist" theory which keeps on turning up in one form or another. The argument runs roughly as follows:

Most contemporary human societies of substantial political scale are socially stratified with a ruling class at the top and a working class at the bottom. Cultural factors of various kinds operate in such a way that, even where there is a relatively high degree of social mobility, upper class males tend to mate with upper class females, lower class males with lower class females. Any genetic difference between the upper class and the lower class considered as total populations will tend to be reinforced by this pattern of inbreeding so that, in due course, the folk mythology which maintains that the ruling class are of a different (and superior) "breed" from those they rule comes to be true.

The "superiority" part of the argument rests on the proposition that "ability" is a general quality which applies to all social contexts and is genetically transmitted in some quite simple way. From this it is inferred that wherever there are constraints operating against completely random social mobility it will, by and large, be the "most able" individuals who will find their way to the top. Hence the inbreeding upper class will constitute an aristocracy in which the gene pool contains an exceptionally high concentration of the genetic elements which contribute to high ability. It then follows that the *de facto* hereditary ruling class are the best people to constitute a ruling class because they are the "most able" people anyway.

The circularity of the argument is readily demonstrated by turning it upside down. If we assume from the start that the existing ruling class are those who have the genetically derived characteristics appropriate to a ruling class and you then give these characteristics the label "intelligence" or "ability" it is not very surprising to find that, at the end of a lot of statistical fiddling, you are able to show that "high intelligence" (thus defined) has a significant correlation with high position in the social class hierarchy!

The logical *non sequiturs* in the argument are very numerous and I find it rather depressing that numerous eminent Professors of Educational Psychology seem to be unable to recognise what they are.

However the point of my references to the Brahmins and to the Jews and to the gypsies is simply that if this kind of argument palpably doesn't work out in cases where the inbreeding conventions are explicit and where one is looking for clearly recognisable physical characteristics

which are quite definitely genetically determined, one needs to be particularly suspicious of evidence in which the inbreeding conventions are not explicit and the characters under discussion, e.g. "ability", "intelligence", are of most uncertain heritability, and are defined by highly subjective criteria anyway.

Rules of endogamy and rules calling for marriage between close kin, if obeyed, would lead to the formation of quite small breeding isolates. But another mating custom which might have racial implications is polygyny. Polygyny is highly esteemed in a great variety of societies and in some circumstances is carried to extremes. There are well established instances of political leaders who have counted their wives and concubines by scores and even hundreds, and of single individuals who have died leaving several hundred direct offspring. Clearly if the male polygynist were the bearer of a rare genetic element (because of a mutation or because the individual concerned is himself the offspring of parents who are in some way abnormal in relation to the local population) there is the possibility here of a highly non-random and extremely rapid spread of the characteristic in question throughout the breeding isolate.

Most textbooks of physical anthropology seem to imply that the phenomenon of non-random dispersal of genetic elements ("genetic drift") could only operate in a significant fashion if the breeding isolates involved were numerically very small. It is also commonly argued that because the human life cycle is such that there are only about four generations to a century, the dispersal of a genetic innovation must always be exceedingly slow. Hence it is inferred that observed abnormalities and discontinuities in gene frequencies across the map should nearly always be attributed to local selection rather than to other evolutionary forces such as mutation or genetic drift.

I personally do not really doubt that this is probably the case, but it does appear that wherever polygyny is an established custom these assumptions need to be qualified. Polygyny could be the cause of rapid distortions in anticipated gene frequency distributions.

One further point before I leave this complex subject. Geneticists commonly argue that close inbreeding in any normal population must, on balance, have deleterious effects. I am familiar with the arguments but empirical evidence seems to show that at least in some circumstances selective pressures must have a countervailing effect.

We do not really know a great deal about differential human longevity on a world wide basis, but there are certain corners of the world where the folk expectation is that the normal life span is much greater than our own conventional "three score years and ten". Reports of healthy and virile old gentlemen mountaineering in the Caucasus at the age of 120 naturally evoke a certain amount of scepticism among more puny mortals, but there does seem to be a lot of very convincing evidence that as far as longevity is concerned, some of the healthiest and most vigorous strains of humanity anywhere in the world are to be found in the borderlands of Russia, Turkey, Iran and Iraq.

The history of this region, so far as it is recoverable, suggests that the adaptation of man to the environment in the wilder mountain areas has been stable over at least 3,000 years and it is thus reasonable to suppose that the pattern of culture which we can now observe in this region has also undergone very little change. With that background in mind it is of interest to note that in this part of the world the declared customary preference for marrying a first cousin is actually put into practice with quite exceptionally high frequency.

What one should make of this I do not know. The Kurds have been a trial and tribulation to their political neighbours ever since the days of the Biblical Medes and Persians but their obsessional desire to marry their father's sister's daughter seems to have done them no great biological harm!

That concludes my discussion of possible cultural influences on the development of racial difference. It will be seen that I have qualified every statement. I do not *know* for certain that culture has ever influenced racial adaptation in man. But that is not simply *my* deficiency. All common sense explanations of racial adaptation are almost certainly false if considered as generalisations; and unfortunately the professional scientist is equally at sea. At the genetic level the scientists have been able to produce plausible explanations for the apparent correlation between the presence of certain abnormal haemoglobins and the incidence of certain diseases (e.g. the complex relationship that is supposed to exist between sickle cell anaemia and falciparum malaria)—but these are cases where only single genes are involved. Visible phenotypic adaptations (such as are involved in differences of racial morphology) are likely to be of great genetic complexity and all hypothesis about what is an adaptation to what are simply plausible guesses which it is impossible to verify.

Race as a cultural concept

But now let me move to the other leg of my argument. So far I have been talking about how far cultural factors may have contributed to actual racial differences in man. Now I want to discuss how far cultural factors have influenced the development of the "concept" of race as such. All concepts are cultural products, but concepts have very different degrees of objectivity and therefore of "translatability". If you are trying to convey the meaning of the word *swan* to a foreigner who knows no English, the shortest, and indeed only effective means of achieving that end, is to produce a specimen of the bird in question and give it a name. But *RACE* is not a word of that sort; there is no class of material "thing" in the world-out-there to which it can readily be attached as a means of identification. Nevertheless this kind of word plays an important part in all natural languages. The word *race*, in English, belongs to the class of "category words", words like "kind" or "sort" or "class" or "type" or "variety" or "species", or, indeed, "category" itself. The historical etymology of such words is often significant. For example English *kind* is related to German *kind*, a child, and to English *kindred*, relatives. Things which are of one *kind* are interconnected by multiple ties as in a family. In the language of

the Kachins of North Burma, among whom I was once engaged in anthropological fieldwork, the nearest equivalent of English "kind" was *amyu*. If, for example, I wanted to ask "What kind of tree is this?", or "What kind of bird is this?" I had to ask what was its *amyu*. Now the base meaning of the word *amyu* is what anthropologists call a patrilineage, a collectivity of persons who trace descent from a common ancestor through male links only. So it would seem that the English and the Kachins have a different ultimate conception of how things in the world should be sorted out: the English lump things together because they are "kinds", related to one another in a network but not necessarily descended from a single common "ancestor". The Kachin divisions of the world are much sharper, "things" are related to one another in segmentary hierarchical trees like botanical species in a formal system of Linnaean taxonomy.

Hierarchy, in this sense, is that employed by Euler, the more inclusive category "encompasses" the less. Thus in botanical taxonomy, an order of plants encompasses a number of families, a family encompasses a number of genera, a genus encompasses a number of species, a species encompasses a number of varieties. Botanists would like to believe that the segmentation of their hierarchical tree reflects the actual historical evolution of the independent species, but the utility of the taxonomy is, for most purposes, quite independent of whether the postulated "descent" of particular species does or does not correctly represent historical facts.

The same principle applies to "folk-taxonomies" of all kinds. Their utility does not depend upon how accurately or inaccurately they reflect the historical facts of evolution.

Category words such as I have been discussing here are commonly rooted in analogy. I have given two examples. English *kind* derives from a kinship network analogy; Kachin *amyu* derives from a unilineal descent group analogy; but there are many other possibilities. For example, English *class* carries with it a strong overtone of rank order. Classification as such may purport to be "neutral" but as soon as the named classes are placed in order . . . 1, 2, 3 . . . an implication of superiority and inferiority creeps in. A First Class degree is better than a Third Class degree; the Registrar General's Social Class I is not only different from, it is superior to Social Class IV, and so on. On the negative side, if two things A and B are placed in the same class this does not carry any implication that they are genetically related.

So what about the category word *race*? The etymology and primary analogy is quite obscure. The word is a version of the Italian *razza* which reached English by way of French. However the modern dictionary definition is that a *race* is "a group of persons or animals or plants connected by common descent . . . genus or species or variety of animals or plants . . .". In other words, the usage recognised by the lexicographers is very close indeed to that implied by the Kachin term *amyu* and by the hierarchical classification of traditional Linnaean botanical classification. But it is quite a different usage from that implied by the English words *kind* or *class*.

The point of this observation is that, throughout the world, hierarchical, segmentary classifications of this *race-amyu* type are very common; folk taxonomies everywhere very frequently use the segmentary hierarchy of (human) unilineal descent groups as a model to convey both the relatedness and the differences between one "thing" and "another".

Hierarchical "trees of descent" of this kind were developed long before, and quite independently of, any scientific theory of evolution, and all post-Darwinian attempts to restrict the concept of *race* to a strictly genetic meaning have been contaminated and confused by this circumstances. The confusion has several sources.

First, all folk-taxonomies which employ a "racial" hierarchy for the categorisation of things and species embody the idea that the more restricted, more specialised, categories are "descended from" the encompassing more general categories higher up the hierarchy, but this is "a manner of speaking" rather than of historical fact. Secondly, the "unilineal descent system" structure of segmentation which this "manner of speaking" presupposes is an extremely bad approximate model for the complex process by which (according to modern post-Darwin, post-Mendel, evolutionary theory) species are supposed to be differentiated through time.

But the most serious confusion of all arises from the circumstance that whereas scientific terminology tries to be precise, *race*, in common usage, is an extremely general term which can be used for any "genus, or species or variety of animals or plants". Such vagueness automatically precludes any serious discrimination between the notion of *species* and the notion of *variety*.

But modern Man is, without any question at all, just one species, and a species at that which is exceptionally polymorphic in its genetic constitution.

If we use the word *race* in scientific discourse, racial difference must refer only to a "breed" or "stock" or "sub-species" (i.e. as in the case of the Yellow Wagtails mentioned at the beginning of this paper, races are distinguishable *varieties* of a single species all of which are known to interbreed). But, unfortunately, "common usage" leads ordinary people to think that different races of man are different *species* rather than different *sub-species* and hence that cross-breeding between individuals of different racial stocks is somehow contrary to nature.

This attitude is compounded by the Judaeo-Christian background of most Europeans. In the world as a whole, hierarchical taxonomies of

the "race" type . . . for example the Kachin use of *amya* which I have mentioned already . . . usually serve to categorise humanity into exogamous groups. The basic rule is that "I shall not mate with a member of my own 'race' (descent group)". Exceptionally, in Semitic cultures—of which the Israelites of the Old Testament were an example—"races" (descent groups) are endogamous and the basic rule is that "I shall not mate with any individual who is not a member of my own 'race'".

Most European cultures lack unilineal descent groups of any kind, either exogamous or endogamous, but they have all been heavily influenced by the ideology of the Old Testament and there is everywhere a deep-rooted belief that, for religious reasons, we ought to mate only with members of "our own kind". Christian sects, whether of the "right" or of the "left" have a strong tendency towards endogamy. Catholics marry with Catholics; Quakers with Quakers.

It is important to appreciate that all religious prejudices of this kind are racialist in their implication, and vice versa that all race prejudices are religious. The set of values which makes many white skinned English nationals feel that there is something immoral or unnatural about a member of the "white race" mating with a member of a "black" or "brown" or "yellow" race has religious rather than psychological roots.

This poses an historical question. How universal is race prejudice? Non-rational religious evaluations occur in all human societies; how often do they include evaluations about race? The answer to that question could have physical as well as social implications. If mating discrimination on the basis of skin or hair colour or other "obvious" physical characteristic has frequently occurred in the past, and over prolonged periods of time, it is possible that, in some cases at least, the discrimination could itself have been a factor which has led to the reinforcement of incipient racial distinctions. Is there any evidence on this point?

Not a great deal, and most of what there is is negative. Until the very recent development of scientific genetics and knowledge of blood group differences, the only way that supposed human races could be distinguished was by very crude physical criteria, e.g. colour of skin and eyes and hair, stature, hair form among the living; skull shapes and so on among the dead.

Now in folk taxonomies the colour of real or imaginary characteristics is very frequently used for purposes of social classification. Here are some random examples: the four major formal divisions of traditional Indian society—Brahmin, Kshatriya, Vaishya, Shudra, were known as "colours" (*varna*). The Lolo people of West China distinguish their aristocrats from their commoners as *black boned* versus *white boned*. English aristocrats have claimed to be *blue blooded*. The convention of Ancient Egyptian painting was to show free born Egyptians in reddish brown and slaves in black.

Clearly such conventional distinctions cannot be automatically interpreted as symptoms of colour-bar prejudice. In Lolo ideology *black* is superior to *white*, but *black boned* Lolo are physically indistinguishable from their *white boned* neighbours. But perhaps we should infer from Egyptian painting styles that the "blacks" in Egyptian society formed an underprivileged "racial" minority as in the contemporary United States? I doubt it, but it is certainly possible.

On the other hand, in the formative period of European civilisation, systematic colour-bar prejudice of this kind could not possibly have operated as a general phenomenon. From the 5th Century B.C. through to the 16th Century A.D. very large sections of the populations inhabiting the coastal regions of the Mediterranean were in slave or serf status, but the people in question were of the most diverse ethnic origin and the political relationship between the different ethnic groups was constantly changing. For most of the period a high proportion of the slave class must have been of much fairer complexion than their owners. For example, the Mamelukes were originally fair skinned Circassian slaves, and even during the period 1250-1517 when they were the rulers of an extensive empire based on Egypt the Mamelukes other than the ruling Sultan, were technically of slave status. Likewise, for several centuries prior to 1400, dark skinned Moors were politically dominant over fair skinned Christians throughout most of the Iberian peninsula. Later, when the political position was reversed, and Henry the Navigator began to import Negro slaves into Portugal in substantial numbers, the slaves were assimilated into the local population without any obvious symptoms of "colour-bar". When Shakespeare introduced a colour-bar theme into *Othello* he was expressing the values of England at the end of the 16th Century rather than of Renaissance Italy.

What I am arguing here is simply a follow-up of what I said in the previous section. In any human society in which social stratification develops in such a way that there is a privileged ruling class lordling it over an underprivileged working class, the ruling class is likely to develop mating patterns which would have the effect—if they were consistently followed—of turning the members of that class into an inbred aristocracy, incipiently "a race apart". The evidence suggests that, in practice, such endogamous conventions do not have any obvious practical effect; in one way or another too many individuals manage to break the rules. But where such rules exist—i.e. wherever there is a convention that the aristocracy should be endogamous—we have a potential seedbed for race prejudice.

Whether that potential becomes actual depends on further factors which none of us fully understand. The probabilities seem to be that if, on account of some recent pattern of immigration, or other historical circumstances such as slavery, colonisation, or conquest, any substantial section of the subordinate working class group is readily distinguishable in appearance from their rulers—either because of customs concerning clothing or because of real physical difference—then that visible subordinate group is likely to become the target of race prejudice on the part of the rest of the society. The social function of the prejudice, which may or may not be fully perceived by those who exercise it, is to inhibit the social mobility of those against whom the prejudice is directed and to ensure that they remain an identifiable group "at the bottom of the stack".

Anatomical difference is a convenient rather than a necessary component of race prejudice. There have been many historical instances in which the focus of hostility was a difference of custom rather than a "real" difference of physique, such as skin colour. But in any situation of race prejudice, the essential idea is always that the subordinate group, which is to be deprived of the full social rights of "people like us", constitutes "a breed apart". If it so happens that the members of the group in question actually look different physically than this provides a focus ready made and makes it all the easier to preserve the prejudice.

Whether the prejudice eventually dissipates itself through social integration or is perpetuated indefinitely from generation to generation depends on the structure of the social system as a whole rather than on the continued existence of any visible stigma. The *burakumin* of Japan have been treated as a race apart and confined to a ghetto type existence for well over a thousand years, but they look no different from anyone else.

Compared with that dismal story our own recent social history suggests a more favourable prognosis. Contrary to our own self image we are a most intolerant society and the periodic outbursts of persecution against Jews and "aliens" of all kinds do us no credit at all. But there have been a number of occasions during the past 500 years when London, in particular, contained large visible "coloured" populations which were temporarily the object of venomous discrimination. The fact that in most cases these groups somehow disappeared after a few decades is encouraging. More recent history points in the same direction. Twice during the past century there has been a large influx of population from Poland and the former Baltic states into Great Britain. The first, at the end of the 19th Century, was mainly Jewish and for fifty years the social problems connected with their assimilation was perceived by the general public as a problem of "race". Anti-semitism is still around in this country but no one I imagine would claim that it still lies at the heart of our "race problem". The second wave of Baltic immigrants came here during and after the last World War and they seem to have melted into the social landscape without arousing racial hostility at all.

The point is, I suppose, that because a high level of social mobility is the norm rather than the exception in British society, any underprivileged minority quite quickly tends to lose its self-evident identity. A Jew of Polish origin, or the grandson of a Latvian can only be recognised as such if the individual concerned chooses to declare himself. But a Sikh who wears a beard and a turban, an Indian woman who wears a *sari*, and a West Indian with a dark skin can be recognised at sight. That is where the English folk-concept of race now finds its focus, but since a very large part of the "visibility" of the people concerned depends upon custom rather than anatomy this particular set of associations could well be transitory. We simply do not know.

Incidentally, as the examples I have already cited indicate, race concepts in folk taxonomy have a marked tendency to be bi-polar. For the Ancient Egyptians men were free or slave, red or black. Admittedly contemporary South Africa distinguishes White, Black and Coloured but for most purposes the Coloured category gets pushed down into the Black. And so too with ourselves. However complex the facts of the case may be, we manage to reduce it to a binary opposition "black" versus "white". The expression "black immigrant", like the word race itself, is so marvellously elastic that it is made to include people of West Indian, Indian, Pakistani, Chinese and African ethnic origin, many of whom were born in this country anyway.

This brings me back more or less to where I began. At the beginning of the paper I formed the conclusion that while *race difference* is a manifest fact which can be objectively measured either by a study of morphology or a study of genetics, *racism* as such are arbitrary entities with no "objective" existence at all. This is because morphology and genetics lead us to divide up the continuum in quite different ways. Now at the end of my paper I am saying the same sort of thing about our use of the concept of race. We use the concept to discriminate a variety of different sorts of previously existing social collectivity, but we are able to do so only because the isolate concept a *race* has no explicit "objective" meaning whatsoever.

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