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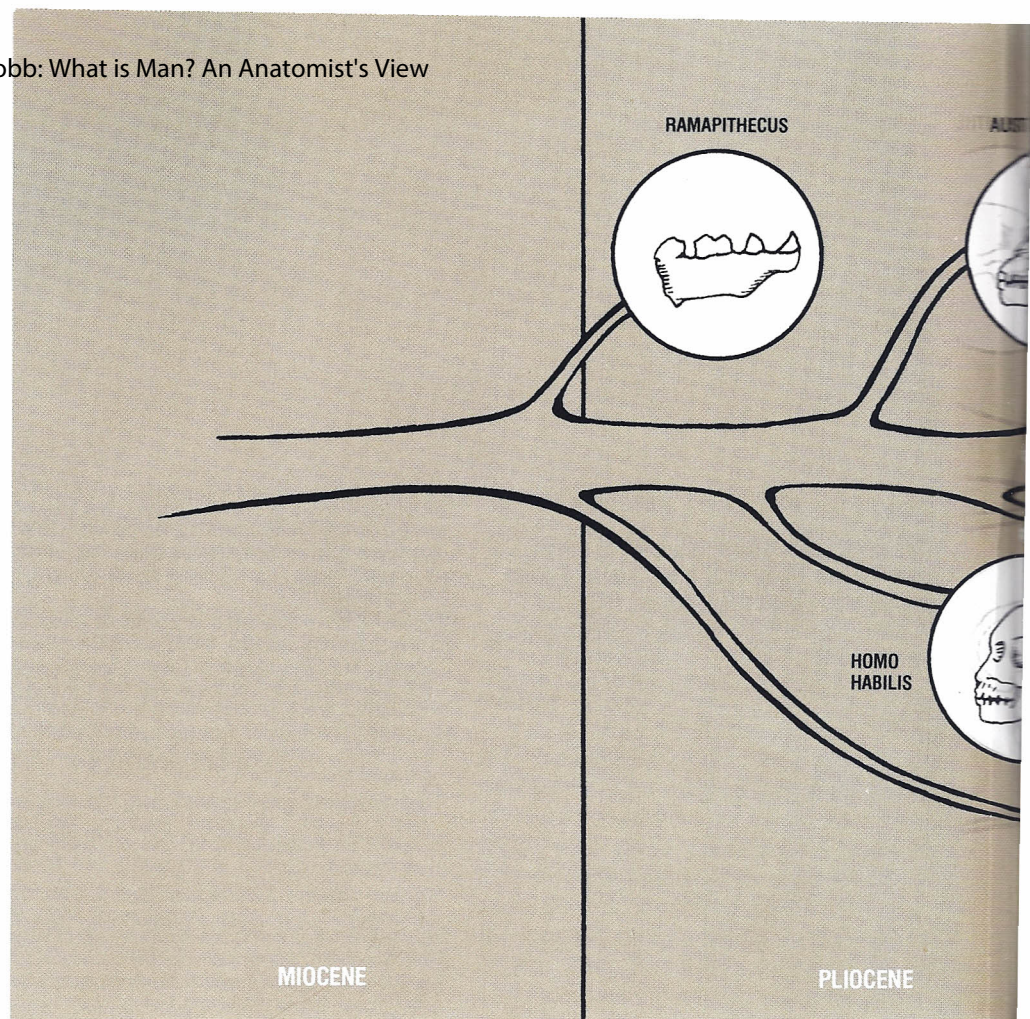
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What Is Man?

An Anatomist's View



By W. Montague Cobb

When one surveys the merits and ills of human society, one inevitably wonders what sort of a creature man is anyway. The pressures of the turmoil, conflicts and insecurities with which we all must live give rise to the question: In light of the nature of man, is there anything to be done about him?

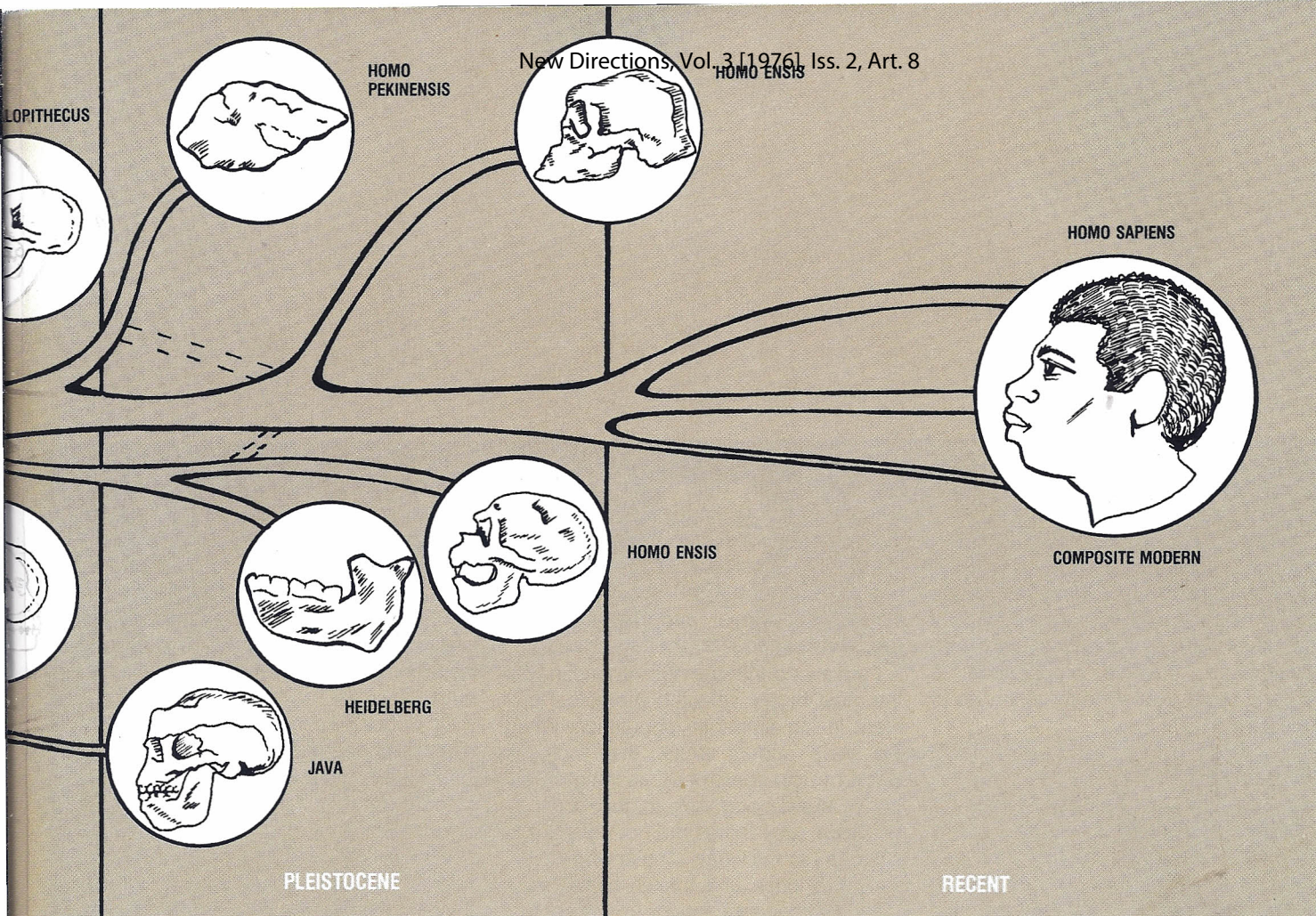
In modern scientific perspective, man can be defined as a predatory primate who has become the dominant form of life on earth. He owes this dominance to the assumption of the erect posture about two and a half million years ago, as manifest in the Australopithecine hominids of Africa who were only about three and a half feet tall. The adoption of the erect bipedal habit freed his hands while they were still in a generalized condition, not hindered in their capacities by the specializations found in the anthropoid apes. With his two free hands, man learned to make simple tools and weapons which enabled him to cope with an environment in which he could not otherwise have survived.

His brain was originally large, relative to body size, permitting good visuo-motor coordination, a heritage probably derived from some arboreal ancestor. His brain continued to increase, with

body size, and reached its present range of dimensions at least 100,000 years ago. Yet man has used this brain to develop what might be called civilizations only during about the last 8000 years, with the explorations and discoveries responsible for today's modern technology and population explosion occurring during the last 400 years. Moreover, cultural inertia would appear to be a world-wide phenomenon. In our own time peoples in mountainous regions of Europe have been studied who are estimated not to have changed their lifestyles in 1000 years and some in the Andean mountains who have not altered their ways in 300 years. It would seem clear, therefore, that the present distribution of the world's goods and power is due to something less than divine ordination or superior genetic endowment in any group.

Education in Human Biology

Because education is the process to which we traditionally look for the improvement of society and the correction of its ills, including racism, which has been a divisive force throughout American history, in 1943 I published in the *Journal of Negro History* a paper entitled, "Education in Human Biology: 1



An Essential for the Present and Future." This was an attempt to set down a few facts from the realm of anatomy and physical anthropology which everyone ought to know. The premise was and is that the diffusion of such facts through the educational systems and media would promote more objective social attitudes among the population.

The paper collated the principal facts about primate evolution, the anatomy of the erect posture and the distinguishing features of modern man as a genus. The basic human variants, age, sex, race and physical type were illustrated.

Everyone is somewhere in age between fertilization and senescence. One is either male or female, the indeterminate being so few as to constitute a special problem.

One is genetically from one of the three major human stocks, the black or Negroid, the white or Caucasoid and the yellow-brown or Mongoloid, but human intermixture has been in progress for so long that it is almost impossible to define and identify a "pure" individual. Thus most of humanity represents an admixture of various kinds and degrees, and extremes of variability in physical features cannot be used as establishing dis-

Everyone, moreover, can be identified as being some intergrade between the three extreme somatotypes, the lean or ectomorph, the muscular or mesomorph, and the fat or endomorph. These physical types have been recognized since great antiquity and various personality traits associated with them. To cite one classical allusion, Shakespeare has Caesar say to Antony

*Let me have about men that are fat,
Sleek-headed men and such as sleep
o' nights:
Yond Cassius has a lean and hungry
look;
He thinks too much: such men are
dangerous.*

With respect to these basic human variants of age, sex, race and physical type, one cannot generalize about a given group in terms of one without taking into account the other three because all are interrelated. Thus a generalization of say, five year olds, would require specification of boys or girls, ethnic derivation and physical type. This is necessary because all of these factors could affect the conclusions drawn, and this refers only to physical matters.

In the paper on education in human evolution for all, I decided the customary

hierarchical chart of human ascent because, like a tree, there are lower and higher branches which generally show the Afro-American at the bottom and the white man at the top. To gain greater objectivity, I made a different chart in which the main branch of human phyletic descent was turned on the side and thus no form would be at the bottom and none at the top. The geologic periods at which the several types of fossil man diverged from the main stem were easily shown. The respective putative appearances of Pithecanthropus, Sinanthropus, Heidelberg, Rhodesian and Neanderthal man were indicated. For a composite modern man, I used the head of an Afro-American as the most representative because he is a blend of all three basic human stocks.

The comprehensive coverage of the paper cited included reference to errors resulting from the use of race undefined or specific racial traits as indicia of qualities to which race has no organic relation. It was emphasized that no harm could result from the objective investigation of race as one of the most obvious aspects of human variation. It was cited that while racial traits involve more than surface characters and no one knows their fullest extent, these traits have in themselves practically no survival value

26 in life as man lives it today. Race, biologically, provides no index of physical, mental or cultural capacity.

Insofar as I have been able to determine, only sporadic attempts have been made to disseminate information of this kind in educational programs for any age level, adult education included. Nevertheless, adverse propaganda in new and more exalted form continues to appear.

Biological Quality

Two years ago, as a visiting professor of anatomy at Stanford University, I was lurching alone at the Faculty Club one day when a kindly, distinguished looking gentleman came over and asked to join me. After the pleasantries, he said, "I am William Shockley," and asked if I were familiar with his ideas. I said, "only from what I had read in the newspapers." He then outlined his views and invited an opinion. I had to acknowledge an inability to evaluate his methodology as I had no competence in mathematics. After he asked what I thought about his publicized conclusions, I replied, "Nothing at all."

I explained that all of my life I had been exposed to propaganda purporting to show Negro inferiority and that I had reviewed the body of so-called scientific evidence on this in various publications. In the alarm area, it was tuberculosis when I was a boy. Chevy Chase families were warned against domestics because of the risk of infection with this disease. When I was in high school, it was venereal disease. Nearly all Afro-Americans were supposed to have it. They were not immoral, merely amoral. Stay away from them. As late as 1930, I heard a distinguished clinician at Western Reserve University say of a moot case in diagnosis that despite the absence of positive findings, the race of the patient was presumptive evidence that he had syphilis. When I was in college, the Stanford-Binet intelligence test was just coming into vogue. It

as the American Eugenics Society, but the enthusiasm died down after the amount of feeble-mindedness it uncovered in the white population became known.

I told Dr. Shockley that to me his theories were just the most recent anti-Black material to appear and that I felt the record was adequate rebuttal.

I advanced that the Afro-American was the most highly selected biological element in the American population. When the slave raiders struck, they took the best physical specimens, an initial selection. On the long trek to the coast in shackles, grey ladies did not go along to serve tea to the weary. Those who fell out were cut loose and thrown by the wayside, a second selection. In the pens at the coastal factories where the captives were held awaiting a ship, the dealers did not provide hotel accommodations and there was further mortality, a third selection. The horrors of the Middle Passage or the voyage across the Atlantic have been too well documented to require description, a fourth selection. Thus every African who landed on these shores had undergone a more rigid biological selection than any group in the history of mankind. Moreover, more than 250 years of hard labor, long hours, and meager food, clothing and shelter are not calculated to promote the survival of the unfit.

Despite the propaganda and oppression, the genetic quality must have held, else how could we explain the sudden burgeoning of Afro-American super-stars in every sport, once the barriers were lifted.

On the other hand, the European landed on this side, with the single exception of the Puritans who included many well educated people, were generally fleeing persecution of some sort at home, and they brought their elderly and ailing with them. Benjamin Franklin once appealed to the Crown of England to stop using the colonies as a dumping ground for all its unwanted—from the

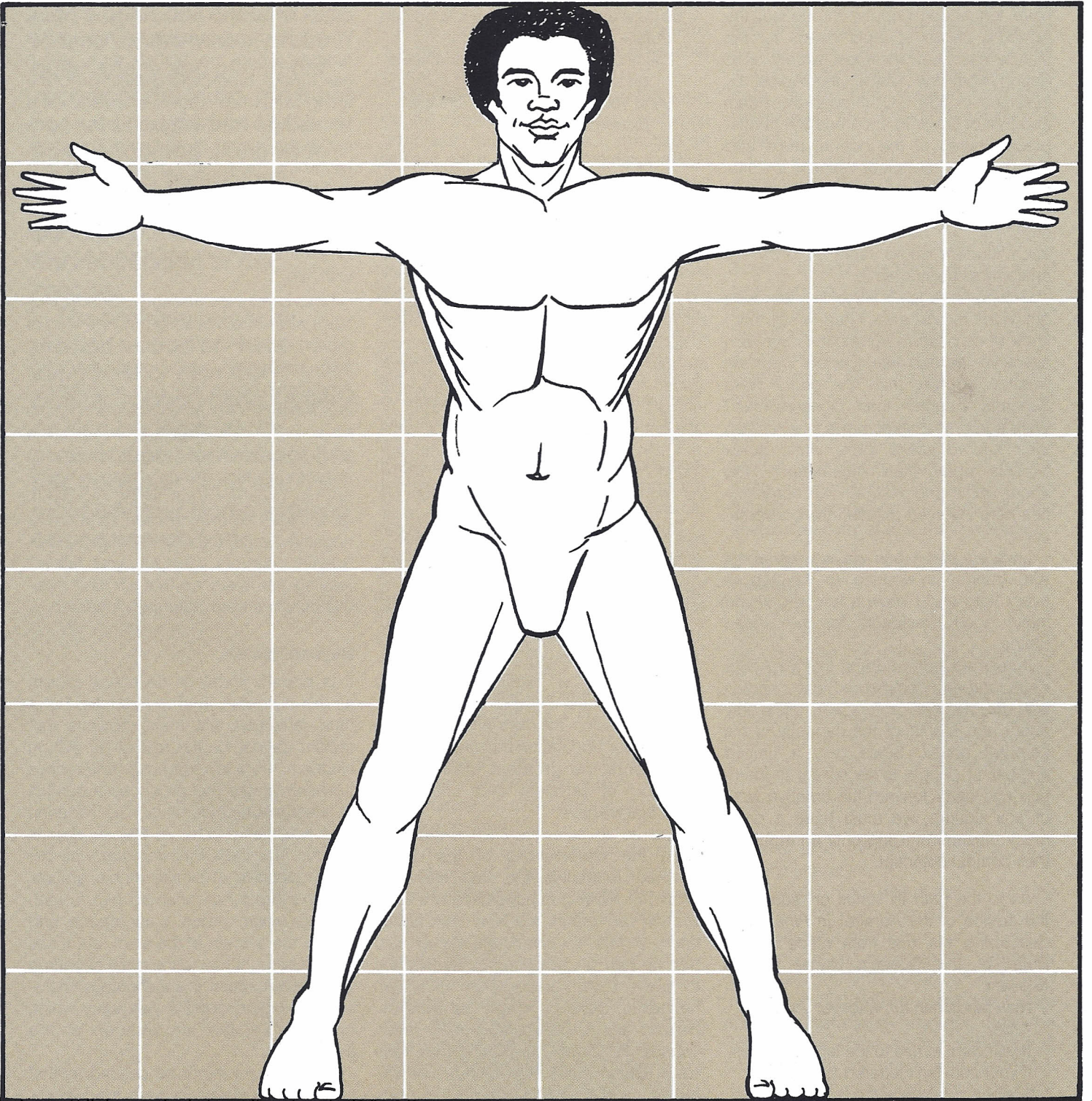
T. Wright, retired director of the Folger Shakespeare Library, publicly stated that frequently he had to advise the *nouveau riche* who hire genealogists to research the Library's resources to dig up an aristocratic ancestry for them that they pursue a futile task. The British upper class who came over did tours of duty and went home. This is obvious at Williamsburg.

Dr. Shockley commented that I had not discussed the subject in the way he would have thought. But what about his criteria for the "perfect man," and he enumerated some of them, which I could not follow. I replied that I had no idea of how to prepare specifications for the "perfect man," that I was sure plans submitted by the Chinese, the Russians, the Nilotes or ourselves would all be different. Attempts of this sort have an inherent irony subtly expressed by Oliver Wendell Holmes, who was professor of anatomy at Harvard University for 35 years, in his famous poem, "The Wonderful One Hoss Shay."

I acknowledged, however, that speculation as to what the ideal human being ought to be had existed since ancient times. As Dr. Shockley did not seem familiar with this area, I cited the statue Doryphorus, by Polycleitos of Greece, [about 440 B.C.] which was considered the ideal figure and came to be known as the Canon in his own time.

Galen writing in the second century A.D. said, "The exactly well tempered body is midway between being soft and being hard, between being very hairy and being hairless, between having wide veins and having narrow ones, and between having a strong pulse and having a weak one. The body that is exactly balanced in regard to its organic parts is, to put it briefly, just what the Canon of Polycleitos was said to be."

The Doryphorus supplied the canon used by artists ever since, in which the stature is 7½ times the height of the head and the shoulder breadth twice the head height. Since taller figures



28 have long been popular throughout the world, a canon of eight heads for the stature has been the most widely used dating from the statue, the Agias, by Lyssipos in 330 B.C. through the Adam and Eve of Durer in 1504 and the frontispiece figures of the normal male and female in the Fabrica of Vesalins in 1543. I utilized the Canon of Polycleitos in developing, "A Graphic Method of Anatomy," in our own laboratory whereby each student could learn to draw his anatomy as he studied it.

Getting back to Dr. Shockley, when we got to the mental area, I had to say that I knew of no positive correlations between status in life and intelligence. Were the wealthy brighter than the poor? Were Senators brighter than Congressmen? Were corporation executives smarter than their subordinates? Were white collar workers abler than blue-collar? How about M.D.s and Ph.D.s? The complexities here involved diffused the conversation.

I added that I had no worries about Afro-Americans working to the top in every field and I know a few who would make good Presidents for the United States.

It seemed worth adding that Sir Arthur Keith long ago commented that a person who has learned a job well uses only about one eighth of the capacity of his cerebral cortex. Since only a limited number of people is necessary to maintain and carry forward the creative work of any culture, we must have a great many citizens utilizing only an eighth of their cortical potential.

As to the path to status or "success," the advice of the Admiral in *Pinafore* in describing his rise from office boy to Ruler of the Queen's Navee, seems relevant.

Now landsmen all, whoever you may
be,

If you want to rise to the top of the tree,
If your soul isn't fettered to an office

stool

Be careful to be guided by this golden
rule—

Stick close to your desks and never
go to sea,

And you all may be Rulers of the
Queen's Navee!

Be it remembered that in the final act when it was discovered that the Captain was really low-born and the common sailor, Ralph Rackstraw, was really high-born, because in their infancy little Buttercup had mixed those two babies up, the indicated social adjustment was simply made by the Captain and Rackstraw just swapping hats.

Finally, Dr. Shockley said, "What about sickle cell anemia?" I replied that I had been waiting for that one. Of course we want to find a remedy for this condition and all possible research toward that end should be pushed, just as we search for cures for cancer, heart disease and so on.

But the panic signals on the sickle cell trait have been premature and unjustified, and have already done a great deal of harm. The sickle cell genes have been over here for more than 350 years and if they could have produced a lethal or dysgenic effect population-wise, the evidence would be manifest. Rather the opposite is true. Despite the privations and oppression the Afro-American segment of our population has undergone, it represents the greatest little-tapped reservoir of physical and intellectual vigor that we have.

And as to selective human mating I cited the observations of the distinguished journalist, the late Heywood Broun, Sr. Writing in opposition to a sterilization law before the New York Legislature a few decades ago, Broun said that he had no objection to sterilization to prevent the propagation of known heritable defects, such as amelos. Beyond that he would have many reservations. A known devotee of the race track, Broun cited that 75 years of scientific horse breeding had failed to pro-

duce an animal which could break Whiskbroom's record for the mile and a quarter, while the human race, which has always bred helter-skelter had come along with men like Cunningham and Venzke, who have knocked the top-lights out of the record for the mile. Therefore, he would have no confidence in any commissions who would have to decide who was to be sterilized. I said that current records have more than sustained Broun's conclusions and I would go along with him.

I was careful to point out to Dr. Shockley that I was not advocating any new kind of racism. Perish the thought. I had in my own constitution, as did most other Afro-Americans, genes from African, European and American Indian sources, and I have never been able to assign my positive and negative traits to any particular ancestry. In fact, the only case in which this has been done with which I am familiar is that of my own children, as to whose negative traits their mother would frequently point out, "Just like your father," leaving the inference that all their positive qualities were maternally inherited.

Beyond Racism

It is popular today to denounce racism as the dominant ill of our country. But a little reflection will make obvious that racism cannot be the root of all evil. In Northern Ireland, religious differences between whites has produced a conflict of inestimable bitterness. The Nigerian civil war was a case of Blacks against Blacks. The India-Pakistan war was between peoples of similar ethnic groups.

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Man's brain has enabled him to land on the moon, probe outer space and plumb the secrets of the atom, but it has not yet brought him to the point of getting along with himself. His technology, moreover, has developed a weaponry which could effect the annihilation of the species.

The problem might be posited as that of *Homo sanguinis* or Man the Bloody, versus *Homo sapiens* or Man the Wise. At the present time, *Homo sanguinis* has the upper hand and it is moot whether *Homo sapiens* can supersede him.

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Man, incontrovertibly, is the bloodiest of all creatures. Prehistoric evidence indicates the widespread practice of warfare and cannibalism. In the Biblical story of Cain and Abel we are presented with a fratricide in the first generation after the Creation. After Moses came down from Mount Sinai with the Ten Commandments, one of his first acts was to order a purge of the dissenters.

The Phoenician deity, Moloch, received into his fiery maw countless thousands of infants offered up by his worshippers about the ancient Mediterranean littoral. In this hemisphere, the 15th Century Aztecs had developed the bloodiest sacrificial cult of all time; in one ceremony 20,000 and in another 12,000 human victims had their hearts torn out for theological purposes.

While ritual human sacrifice has been abandoned, the world has witnessed the more horrible perpetrations under attempted genocide. The Nazi war crimes are well known. The Japanese acknowledge that they killed 25 million Chinese during the occupation of 1937-42. The Chinese say the figure was 35 million.

Upon what does the *Homo sanguinis* feed today? Upon hate, and hate is rife throughout the world. As to what hate does, Melville gave the answer in one of the greatest of all novels, *Moby Dick*, a treatise on hate.

To make the story impersonal he makes the object of Captain Ahab's hate an animal, the whale. He makes the whale white as a symbol of evil and devotes a whole chapter to the whiteness of the whale. The harpooners, the prime crewmen, represent all the races of mankind—Queequeg the South Sea Islander, Tash-tego the Indian, Daggoo the African, and Fedallah the Parsee. In the universal setting of the seven seas, Ahab's relentless pursuit finally leads him to Moby

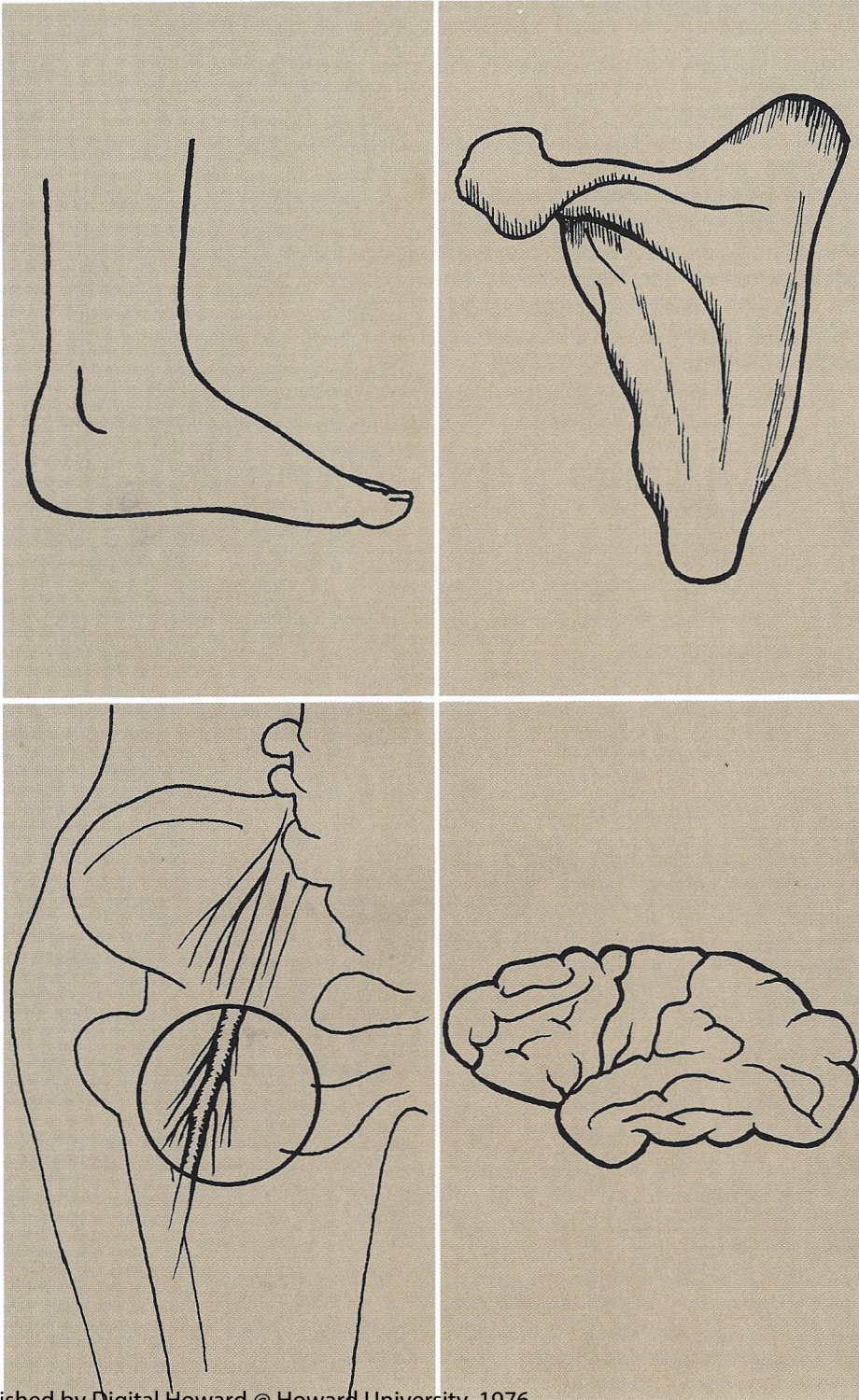
Dick, who rams the ship, so that in the end Ahab loses all—his ship, filled with oil, his crew, his life—and the whale, though badly mauled, gets away. The hate, in the end, yielded only total destruction, and failed to achieve its object.

Is there any way in which man can understand what is necessary to overcome this entrenched human habit of sanguinary hate? First, its palingenetic character must be recognized. Man has been a bloody, predatory primate for at least two and a half million years, but only in about the last 2500 years has he developed anything like ethical systems, a caenogenetic habit. Consequently, man's ethical ideas lie like a thin, easily scraped-off veneer, upon the ten times older substrate of man's palingenetic sanguinary habits. Can *Homo sapiens* win? It is possible, but this will require more universally directed effort than has hitherto appeared on the earth. Here the anatomical point of view may be helpful.

Our Palingenetic and Caenogenetic Heritage

The human body is a functional whole, but its multiple parts represent differing degrees of antiquity. Characters which reflect long phyletic history are referred to as palingenetic, while those of relatively recent origin, useful to a particular species, are called caenogenetic. For example, the cell is the earliest form of life, going back to the origin of life on earth about a billion or more years ago. The composition of the body as a mass of cells of different kinds is thus a palingenetic character.

Similarly, the differentiation of the spermatozoan as a small, mobile element and the ovum as a large, passive element, is a palingenetic character because this differentiation occurred more than 500 million years ago before the vertebrate stem diverged from the invertebrate. There is little difference in size between the sperm and ova of the small fish, *Fundulus*, and those of mam-



Every region of the body shows anatomical modifications for adaptation to the erect posture, but because this habitus is so recent, there has not yet been enough time to work all of the "bugs" out of the machinery. Hence, we suffer from a whole series of ailments related to the adoption of the erect posture and nothing else. These include flat feet, varicose veins, inguinal and femoral hernia, hemorrhoids, weaknesses of the pelvic floor, particularly in the female, pathological curvatures of the spine, sacroiliac disorders, visceroptosis, panniculus adiposus, wing scapula, etc.

Could it not also be true that the human brain has not yet had time so to perfect its circuitry as to control our irrational behavior? All the urges to violent behavior are conditioned by paligenetic anatomy, which instead of being controlled by cortical anatomy, too often control the cerebral cortex, subverting it to increasing cleverness in the design of fearsome weapon systems of species-annihilating potential.

mals like the mouse, elephant, whale and man. This made it possible for the phenomena of fertilization to be studied chiefly upon marine invertebrates, as was done by the late distinguished Howard University scientist, Ernest E. Just, and have the results be immediately referable to man because in the enormous time span of 500 million years no further evolution in that particular trait—small, mobile spermatozoan; large, passive ovum—had taken place.

The segmented vertebral column is also a paligenetic character, as is the possession of limbs, but the limbs are much younger than the vertebral column because their development dates from the emergence of lung fish from the sea and the adoption of terrestrial life habit.

On the other hand, the assumption of the erect posture by man, to which he owes his planetary dominance, is relatively a very recent caenogenetic character.

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Since the first step toward remedy of any condition is diagnosis, it is suggested here that man's present dilemma—while long recognized—has not been stated in the simple terms of what it is, *Homo sanguinis* versus *Homo sapiens*. This has possibly been due to our present preoccupation with the ultramicroscopic in biochemical, biophysical and biomedical areas, when the gross diagnosis is obvious. Let us not miss the forest for the trees and give *Homo sapiens* the attention he must have.

Victory for Sapiens

Alfred Friendly, former managing editor of the *Washington Post*, wrote a fanciful story, “Death of the Earth, Seen from 45,000 A.D.” The planet Earth is being studied by a space expedition from elsewhere. Man is extinct, apparently having come to a sudden end through a series of nuclear explosions. His records, discovered in a time capsule, give rise to this comment in the space mission's report:

“What was unique about Earth was that through its last period and consistently even in the midst of its wars, lasting honor and esteem were accorded to the peacemakers, not the warriors. Highest and most enduring value was placed on the precepts and philosophies of the prophets of survival and amity, not on the bellicose voices.

“To be sure, champions in war evoked intense adulation during their lifetimes and at recurrent but brief periods. But the persons and ideals which were given permanent honor in all civilizations on Earth which had progressed beyond stone implement cultures were those which acclaimed love, forbearance, freedom, the supreme importance and sacredness of each individual creature and his personal and spiritual liberty.”

I take the optimistic view and close with a short poem of Edwin Markham's:

He drew a circle and shut me out,
Heretic, rebel, a thing to flout.
But love and I had wit to win.
We drew a circle that took him in.

The hope of *Homo sapiens* is in the larger circle. □

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