SCIENCE NEWS

RACIAL DIFFERENCES

Science Service

EVERY one from the blondest Nordic to the darkest son of Africa had some stake in the symposium on the mental difference of races at the joint meeting of the Psychological and Anthropological Sections of the British Association for the Advancement of Science on August 11. Professor William McDougall, of Harvard University, advanced the theory that wide differences existed in the mental traits exhibited by racial groups as well as individuals. The psychoanalysts, Freud and Jung, go so far as to assert that each race has a mind-pattern of its own, using mental symbols typical of and peculiar to itself. Professor McDougall defined his own opinion as "the more conservative view" that races differ mainly in the strength of certain instinctive tendencies. We can not define very exactly in what "general intelligence" consists or describe in what manner it is inherited, but this gives us no warrant to deny or ignore the results of numerous tests which clearly indicate that racial mental differences exist.

Miss May Bere reported the results of some observations made on American children of south Italian, Bohemian and Russian Jewish parentage. A variety of intelligence tests, with due allowance made for the language difficulty and other interfering factors, showed the Hebrew and Bohemian children close together in their "intelligence quotients" and both considerably above the southern Italians. The investigation also showed very little correlation between the length of residence of the immigrant parents in America and the mastery of English by themselves or their children. Apparently the assimilation of the immigrant depends more on his individual ambition than on the time he has been in his new home.

Dr. F. C. Shrubsall, president of the Anthropological Section, endeavored to give some concrete illustrations of racial difference, although he admitted the difficulty inherent in the fact that no modern nation is of any single racial stock. He thought that the English could be classed as "tough minded," extravert, practical and inclined to think in concrete images and models, while German thinkers were more introvert and inclined to abstract ideas. This might be due to the "Alpine" racial element in Germany. Of the three racial elements in Europe commonly recognized by anthropologists he defined the tall, blond Nordics as "unemotional"; the dark Mediterraneans as "unrestrained emotional"; and the round-headed Alpines of eastern Europe as "restrained emotional," the "dreamy" type.

The majority of the speakers at the session questioned very strongly whether it were possible at the present time, in view of our imperfect racial classifications and the inadequacy of present mental tests to reach any definite conclusions as to "superior" or "inferior" races. Dr. Goldenweiser thought that unconsciously we graded other races by their degree of historical success, particularly in war, and pointed out how greatly we revised our opinion of Japanese mentality after the victory in Manchuria. The real differences in culture appear to be due not to differences in average ability, but to the achievements of a very small number of leaders of great genius. It is unfair to judge the negro by his failure to compete successfully with the white man in the United States without also taking into consideration the too frequent moral degeneration of the white man in Africa. Dr. H. Peake showed the difficulty in dealing with mental traits until the psychologists had analyzed them more exactly than at present. We call a people "thrifty," but just what is thrift? Of what elements of greed, caution, etc., is it composed?

Several of the speakers pointed out certain weaknesses of the intelligence tests as applied to widely different races. Dr. C. S. Myers instanced a group of Orientals, dissatisfied at their I. Q. ratings, who devised some tests of their own, suited to an Asiatic genius, and "flunked" the Europeans on it. Dr. W. D. Wallis showed how the negro in the favorable environment of the northern states had a much higher intelligence rating than the negro of the cotton belt. He warned against rash judgments of racial inferiority and asked his audience how a cultured Roman two thousand years ago might have judged their own barbarian ancestors from northern Europe. Dr. Sapir and Dr. Swanton (the latter in a written communication) pointed out the significant fact that where psychical measurements were most exact, as in testing sensory discrimination, the difference between races was found to be least. Dr. Sapir brought forward the interesting point that no intelligence test, not even the purely mechanical or geometrical tests which eliminate the advantage of familiarity with words and their use, could be quite impartial as between races of quite different backgrounds. The civilized man, for example, is from childhood trained to the use of exact geometrical shapes, just as the savage is trained to look for wild game, and so it is no wonder that he can recognize them more quickly and handle them more surely.

POPULATION AND INTER-RACIAL PROBLEMS

Science Service

THE population of the world is rapidly reaching its limit and the struggle for expansion, which was the ultimate motive of the world war, will inevitably be still more bitter and terrible if it becomes the struggle for existence between white and colored races. This is the conclusion of Professor J. W. Gregory, expressed in his address as president of the geographical section of the British Association for the Advancement of Science. If population increases as it did in 1906–1910, there would be as many people as the world could feed in 120 years, and even if the food supply should be indefinitely multiplied, there would be standing room only, on land outside the

polar regions, by the year 3,000. There is a double menace in the race problem. We are warned from one side of the danger to civilization of the rising tide of color and from the other of the peril to humanity from the rising tide of color prejudice. A thousand years ago the whites held only part of Europe. Now Europeans, though only a third of the world's population, rule eight ninths of the habitable land. But during the past half century colored races have increased faster than the white. Increased disparity in numbers means, in a democratic age, an inevitable transfer of power; while the former prestige of the white man has been undermined by his own beneficent rule. Alike in war and peace the personal authority which the white man held in 1900 has undergone a momentous decline. African negroes are increasing faster than any other people in the world. South America is firmly held by a mixed race, and Professor Gregory thinks it most probable that a similar hybrid race will eventually occupy the southeastern section of the United States with some measure of home rule. The whites can only hope to hold in South Africa certain segregated sections and in Asia only the north and northwest. White colonists have no chance of permanently occupying land near the overcrowded parts of Asia or accessible to the fast multiplying negroes of South Africa. White merchants may find in these regions profitable trading centers and may for a time rule and administer them, but when white enterprise has subdued the land, built railways and utilized the rivers, the colored man will oust the white from all but the few posts that require experts. But Australia may be completely colonized by the white race for the speaker believes that the conquest of tropical diseases will enable the tropics to support white civilization. Australian experience has proved that even in the hot and humid climate of Queensland, sugar cane plantations can be more successfully worked by white than by colored labor. Black men can usually stand more heat than white. Professor Gregory looks to segregation as the best solution of the race problem for he does not believe in interbreeding and regards coresidence as incompatible with racial integrity and the highest development of either race. "The affectionate, emotional negro, the docile, diligent Asiatic and the inventive, enterprising European, do not work at their best when associated in mass."

THE MEASUREMENT OF THE UNIVERSE

Science Service

THE universe is finite and measurable. So said Einstein, and now Silberstein has measured it. Space is boundless and yet limited. The radius of the universe is one hundred and fourteen million light years. In a paper read at the Toronto meeting of the British Association for the Advancement of Science by Ludvik Silberstein, of Rochester, this result was deduced from the observed shift toward the blue and toward the red of the spectrum lines of sixteen globular star clusters, two Magellanic clouds and one nebula, which are among the most distant objects visible, all over thirty-three thousand light-years away. Such a shift, called the Doppler effect, has been interpreted by astronomers as indicating that the stars were moving toward, or away from us. But, according to Einstein, a small part of it may be due to an apparent slowing down of the period of the light waves from very massive sources. Silberstein based his formulae and figures on the conception of the Dutch astronomer De Sitter, who regards the universe as a sort of four-dimensional sphere, three space dimensions, the fourth being time. Such a spherical universe has no boundary and any point in it can equally well be regarded as the center. Lines start out straight in all directions from a point extended to the most distant plane, called the polar, and then return to the original point. The straightest line in such a spherical universe is a closed curve and of very great but still finite total length. Dr. Silberstein figures that the greatest possible distance between two points by the straightest line, which is one half that total length, is one hundred and eighty million light-years. A light-year is 63,000 times the distance of the sun from the earth, or six trillion miles. You would not run against a wall when you reached that limit, but if you continued straight ahead in the same direction you would be approaching your starting point from the other side.

These ideas seem strange as applied to the universe yet they are familiar as applied to our earth. The earth's surface is unbounded yet finite and measurable. The straightest line on the earth is a great circle. Start out from any point in any direction and travel as straight as you can and you can never get more than twelve thousand miles away, if you walk farther in the same direction you get nearer home. The earth's surface has no end and no center, for it is curved spherically in the third dimension. Like the earth, the universe is not a perfect sphere but is slightly irregular, corrugated as it were, owing to the gravitation of the matter it contains. The length of the radius of curvature of the universe in miles, as calculated by Dr. Silberstein, is represented by the figure sixty-seven followed by nineteen zeros.

JAWS OF FOSSIL APES

Science Service

THREE lower jaws of fossil apes, found in the Siwalik Hills of India, were presented to the British Association for the Advancement of Science by Professor William K. Gregory, of Columbia University, as relics of a common progenitor of apes and man. They belonged to an extinct creature, about the size of the chimpanzee, picturesquely named "the ape of the oakwood," or, in scientific parlance, Dryopithecus, who lived in the Miocene epoch some three or four million years ago. The Siwaliks of the Himalayas was in those times a great breeding ground of such anthropoid apes whose bones show such similarities with those of orangs, chimpanzees, baboons, gorillas and men as to indicate that they were close to the ancestral type. These jaws were discovered by Dr. Barnum Brown, of the American Museum of Natural History, and the crown pattern of the anterior

molars falls in between the type of the chimpanzee and the human bicuspids. These new discoveries give support to Darwin's view of the descent of man from the anthropoid stem and they also give a date, the Miocene of the Age of Mammals, after which distinctly human characteristics began to develop. Professor Gregory said: "Darwin's conclusion that mankind has sprung from some early member of the anthropoid division of the Old World primates could be supported to-day by the citation of an enormous mass of independent testimony gathered from very many special fields. In whatever direction competently trained investigators have worked, they have uncovered more and more the all-pervasive, structural, physiological and psychical kinship of man with even the existing anthropoids, in spite of their divergent specialization for far different modes of life."

ENCKE'S COMET

Science Service

ENCKE'S COMET, the most frequent of such visitors in the solar family, has been sighted at the Yerkes Observatory, according to telegraphic information received at Harvard and distributed to astronomers in America and abroad. This is the forty-second return of the comet since it was first discovered in 1786.

Encke's comet is remarkable for its short period of revolution around the sun—about three and a third years—and especially for the peculiar variations in that period. No other comet returns at such short intervals to the vicinity of the sun, though many of them make closer approaches. At its greatest distance Encke's comet is four hundred million miles from the sun, nearly out to the orbit of Jupiter. At perihelion, when nearest the sun, it is within the orbit of Mercury, about thirty million miles from the sun's surface.

Though discovered and lost two or three times in the eighteenth century, it was not until about one hundred years ago that Encke's mathematical studies connected the various discoveries and revealed the nature of the orbit and period. The investigations by Encke and later astronomers showed that, after making allowance for the perturbing effects of near-by planets, the period of revolution is continuously decreasing by approximately two and a half hours each revolution. Russian astronomers in particular have paid close attention to this unprecedented behavior.

The only satisfactory explanation is that the comet is hindered by obstructing matter as it moves through space. The resisting medium acts in a somewhat paradoxical manner. The comet tends to fall toward the sun when its motion is hindered, taking up a new position where the natural speed is greater. The obstruction, therefore, makes the comet go more rapidly and shortens its period of revolution. Whether this resisting medium is of the nature of a swarm of meteors, or is material more uniformly distributed throughout space, astronomers can not tell. Other comets, however, have not suffered such pronounced changes of period, suggesting that the disturbing factor is not wide-spread throughout the solar system.

Encke's comet is not likely to be a conspicuous object on this visit, for it is one of the smaller bodies of its kind. It very frequently misses discovery upon its return to the neighborhood of the earth and the sun. At its present approach, when it was photographed by Professor Van Biesbroeck with the Yerkes reflector, it was of the sixteenth magnitude, therefore visible only with the greatest telescopes. It was then about five degrees southwest of the Pleiades.

Its motion will be followed in order to throw more light on the change in its period and on the unexplained resisting medium in the solar system.

ITEMS

Science Service

THAT the pronghorn antelope, lately considered doomed to certain extinction, may yet be saved is the encouraging word that comes from the government naturalist at Yellowstone National Park. One of the most beautiful and graceful of American game animals, it was also at one time most abundant, its vast herds on the western plains outnumbering even the bison. But the same fate overtook it that befell the bison, and now its numbers are reduced to a few thousands in the American northwest and in Canada. Part of the surviving herd is protected in Yellowstone Park. Hunting the pronghorn has long been prohibited generally, but predatory animals, especially coyotes, still kept their numbers down. Recent intensive campaigns against the coyote in the park seem to have had beneficial results, and the antelope herds are again on the increase.

TREES can't breathe smoke and be healthy. Such has been the experience, at least, of the St. Louis municipal park department. Efforts to establish trees within the smoke area created by the industries of the city, which includes some of the most prominent public buildings, are proving failures. Sycamores and poplars, supposedly smoke resistant, succumb within two or three years. The only tree which seems to thrive in such localities, a veritable child of the slums as it were, is the tree-of-heaven, or ailanthus. Shrubs show much the same tendency. Privet has proved the most resistant—but even this is dying out. Lilacs, when they live, seldom bloom. Blue grass lawns are impossible except for a short period in spring.

AN appreciable lessening in the cost of certain forms of mining in the United States may result from studies now being conducted by the Bureau of Mines on the use of liquid oxygen explosives. These can be manufactured at the mine with the same power plant used for other operations so that the high costs of transportation for other explosives may be eliminated. The experiments to date indicate that liquid oxygen explosives can be used in iron, salt and other mineral mines and quarries. They probably can not be used safely in dusty and gaseous coal mines. G. St. J. Perrott, associate physical chemist on the staff, has been sent to Pachuca, Mexico, to study the use of these explosives in the large silver-lead mine there.