Curitiba in January, 1943. At the Rio de Janeiro meeting the program included seventy-nine scientific and technical papers. In addition two conferences were held, one on the production of quinine in Brazil, at which Professor Ricardo Wasicky made the principal address, and one on possible improvement in the instruction in chemistry provided by the high schools of the country. Prizes were offered by the Instituto do Acucar e do Alcohol for studies on sugar and the alcohol industry.

As in former years, the School of Mathematics of the Institute for Advanced Study will allocate a small number of stipends to gifted young mathematicians and mathematical physicists to enable them to study and to do research work at Princeton during the academic year 1945–1946. Candidates must have given evidence of ability in research comparable at least with that expected for the degree of Doctor of Philosophy. Blanks for application may be obtained from the School of Mathematics, Institute for Advanced Study, Princeton, N. J., and should be returned at the earliest possible date.

At Columbia University the Faculty of Dentistry has become a part of the Faculty of Medicine. The staff in dentistry will retain its identity as a professional group within the faculty of medicine, and will have departmental autonomy in carrying out the educational program in dentistry, which will be continued under the name of the School of Dental and Oral Surgery. Members of this department will have seats on the Faculty of Medicine and one of its members will be appointed associate dean for dental and oral surgery and will be the executive officer of the department.

The *Journal* of the American Dental Association states that a bill authorizing the appropriation of a million dollars for the erection and equipment of a national institute of dental research and an annual sum of $730,000 for the carrying on of its activities has been introduced by Senator Murray. This bill is the translation into legislation of the first part of the program of the American Dental Association as the basis of a long-range program for dental health.

Securities turned over to the University of Rochester by Mrs. Helen W. Rivas, of New York City and LeRoy, N. Y., will make possible the establishment of a neuro-psychiatric clinic at the School of Medicine and Dentistry of the University of Rochester, for which a trust fund is set up to conduct and maintain the clinic. The new unit will be built as soon as practicable. It is reported that a committee of the faculty of the School of Medicine will make a survey to select a director for the clinic, so that he may participate in preparing the plans for the physical plant and for the organization of the staff.

International measures to check the spread of epidemics were made public when it was announced by UNRRA in the *Times*, London, on January 18 that new sanitary conventions have been signed in Washington by nineteen nations. The object is to prevent the spread of epidemics when millions of persons deported by the Germans are repatriated. The conventions will facilitate the return of these people by ensuring that the quarantine arrangements are in accordance with modern scientific developments. UNRRA will act as a clearing-house for information on epidemic diseases in cooperation with the Office of International Health in Paris.

DISCUSSION

"THE NEEDS OF MAN"

I am grateful to the editors of Science for publishing and to Dr. Warren S. Thompson for writing the extensive review[1] of my recent book, "Enough and to Spare," but there are certain statements and implications in that review that call for comment on my part. The issues involved are of far-reaching significance in the shaping of public opinion, and it is well for them to be brought out into the open. In spite of the hypercritical tone of his review, the fact is that Dr. Thompson and I are largely in agreement about the fundamental principles that both of us are eager to have widely recognized by the general public.

Either of Dr. Thompson's statements of my aim is quite satisfactory to me. My only regret is that he did not indicate more clearly that he too believes "that it is not the niggardliness of nature but the stupidity of man which imposes the sufferings of poverty and war upon such a large proportion of mankind." That this is his own conclusion is indicated by his writings, from which I had drawn some of the data used in my book (*e.g.*, page 171). In his "Plenty of People" (Jaques Cattell Press, 1944), he writes (page 110):

> It is my contention that if plans are made to use these thinly settled lands, as well as to provide for much freer trade between the nations of the world at all times, the inevitable increase in the world's population during the next few decades can be cared for and thus the danger of armed conflict can be lessened, possibly conflict can even be avoided.

Of course, it will not be easy to put into practice our present knowledge of the techniques of increasing agricultural production and extending the area of cultivated ground across regions not yet put to

[1] Science, vol. 101, no. 2612, January 19, 1945, pp. 65–67.

maximum use for the benefit of man. Perhaps I "played down" the difficulties, although I had no intention of doing so. Certainly I did not ignore them, either "blithely" or otherwise. May I not be forgiven, as a geologist, for taking a long look ahead, beyond the "number of decades" during which Dr. Thompson doubts "that India or China will have 'enough and to spare' of food," to the better times that he himself implies may come "because Malthusianism is not forever inevitable"?

My figures for the "potential agricultural lands" of the world were derived from articles in *Economic Geography* by Dr. H. L. Shantz, of the U. S. Department of Agriculture, as indicated on page 173 of my book. Possibly his estimates are over-optimistic, but they can be considerably discounted without vitiating my conclusion. Interestingly enough, that conclusion is verified by another study that has just come to hand. Dr. Karl Sax in his contribution to the symposium, "The Science of Man in the World Crisis" (Columbia University Press, 1945), edited by Ralph Linton, states on page 280:

> There is room for a larger world population—how much room depends upon the standard of living which the majority wish to enjoy. A high standard of living could be provided for 3 billion people, but perhaps 8 billion could exist at a bare subsistence level on the present and potentially available agricultural resources of the world.

Dr. Raymond Pearl, in his "Natural History of Population" (London, 1939), presented evidence indicating that the limit of the current cycle of population growth is 2,645 million, a total that "will be closely approached around A.D. 2100, providing nothing happens in the meantime to alter seriously the present trends of reproductivity." That present trends will be altered in the next few decades seems inevitable to me. I therefore placed "the probable future maximum for the entire population of the earth between 2.8 and 3.2 billion." In the light of Dr. Sax's statement quoted above, as well as the estimates made by many others, it certainly appears that "Mother Earth is rich enough to nourish every man in freedom." If that profoundly significant thought could only be spread widely throughout the body politic, there would be much better ground for "hope of political reorganization" than Dr. Thompson believes is now present.

It was precisely because I keenly appreciate "how futile technological skills and scientific knowledge are if political and social conditions do not give them a chance to work," that I devoted so many pages to the problems of world organization and democratic processes. Unless scientists demand that political action be based upon modern knowledge of the nature of man and the resources available for his welfare, such action will continue to be based upon prejudice, superstition and fear.

There are three possible ways to meet such problems as those posed by the densely populated regions of India and China—to choose the areas that seem most explosive in Dr. Thompson's mind. One way is to decide that nothing can be done to adjust their inhabitants to the resources of their environment except to let Malthusianism run its course. If that is our decision we should call home our medical and educational missionaries and surround those lands with a ring of impregnable fortifications to keep their inhabitants within bounds. The latter will be necessary because the damage has already been done—the Indians and the Chinese have heard our preachments about democratic freedom and Christian brotherliness, our teachings about public health and industrial organization, and they have believed what they heard!

A second way to meet the problem is to open up the many, vast, sparsely populated areas of the western hemisphere, Australia and Africa to mass migration from the congested areas of Asia. If that were the only alternative, I would work for it as diligently as possible, in spite of the tremendous political and socio-economic opposition that Dr. Thompson correctly asserts would be encountered.

But there is a third policy that I believe holds promise of success. That is to encourage the Indians and the Chinese to find their own salvation by more intelligent adjustments of their cultures to their resources. I can not agree with Dr. Thompson that their "poverty-stricken lands . . . have meagre natural resources." On the contrary, the known and geologically probable mineral resources of India and China are of considerable variety and great value. If they are exploited primarily for the benefit of absentee owners and investors, the local inhabitants will continue to live on a low subsistence level. If, on the other hand, the people of those countries are encouraged, not merely by words but also by political action and economic freedom, to exploit those resources for their own welfore, there is at least a chance that they will be able to achieve a higher standard of living within a few decades. Everywhere, a high standard of living has been accompanied by a decrease in birth rate. Professor Radhakamal Mukerjee, of Lucknow University, is the authority for the statement that the birth rate in India has already begun to decline and that his country is passing through precisely the same population cycle as the countries in western Europe, only three or four decades behind the European cycle.

There will presumably be a considerable increase in population in India and China before the end of the century, and it will not be easy to care properly for that increase within the boundaries of those coun-

tries. Nevertheless, I believe it can be done. The number of inhabitants per acre of arable soil is only a fraction of that in Java. The science of economic botany has certainly not reached the limits of its fruitful research, much less of its application to the soils and climates of southern and eastern Asia. That science is not yet bankrupt either in Cambridge, Calcutta or Chungking.

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ON "RACIAL" DIFFERENCES

PROFESSOR GARRETT'S comments on the psychological differences between races[1] affords an almost classic example of the confusion which marks the use of the word "race," and underscores a plea entered some months ago[2] for the utmost clarity in terminology where problems of human endowment and its transmission are to be studied. Reference is especially pertinent to his statement that "investigations of race differences in this country have regularly and consistently found differences as between the Negro and white."

In making such a statement, the fact is quite overlooked that one of the groups referred to is not biological, but "racial" only by definition. The Negro in the United States is a mixed type; research carried on almost two decades ago showed that, at that time, of a series of 1,551 adult males, only 22 per cent. did not know of white or Indian ancestry.[3] Admitting the smallness of the sample, it would be hazardous to place the proportion of those among the American "Negro" population of unmixed African descent—that is, biological Negroes—at more than 30 per cent., with the large probability of a much smaller percentage of unmixed Negroes to-day. A "Negro," in the United States, is thus a person of any degree of African ancestry. Biologically, he may be a white person with one Negro great-great-grandparent. It is only in this country that we find "Negroes" with blond hair and blue eyes.

What, then, does it mean that tests "regularly and consistently" find differences between the Negroes and whites? Quite aside from the fact that, as Dr. Garrett says, students "have not always known what their tests were measuring," it would seem that the ultimate significance of these differences is that the sociological group known in this country as Negroes, for historical reasons, in vast majority comprise members of the economic underprivileged group, and as such, have neither the incentives nor the educational background to make the showing in tests attained by whites. Nor should it be overlooked that certain white groups of underprivileged status test about the same as the Negroes.

Whether there are racial differences in innate traits or not, it would seem to be essential to any scientific approach to the problem that the student at least work with groups belonging to different races, and not make a case for racial differences where the distinction is one of degree rather than kind, and which is social rather than biological. One can thus agree wholeheartedly with Professor Garrett's remark that the "distinction between fact and interpretation should be clearly made."

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SCIENTIFIC INTERCHANGE BETWEEN THE UNITED STATES AND SOVIET RUSSIA

DURING the first two years of the present war and the period just preceding it, scientific communication between the United States and Soviet Russia was greatly reduced. Because of difficulties of language, distance and the absence for many years of normal diplomatic relations, scientific interchange between these two countries was never as active as it should have been, considering the similarity and importance of their scientific development.

Among the steps which are being taken to improve and facilitate scientific interchange between American and Soviet scientists is the program of the Science Committee concerning the exchange of scientific publications. We are regularly receiving through VOKS, the Society for Cultural Relations with Foreign Countries, and through the Soviet Embassy copies of Russian scientific journals, new books and manuscripts intended for publication in the United States. Arrangements are being made to put these promptly into circulation through the usual channels of abstracting and reviewing journals, the manuscripts being submitted to American scientific journals.

In return, this committee is arranging for shipments of recent scientific books, and particularly of journals issued since 1941, to Soviet libraries and institutes. It must be remembered that not only was normal communication interrupted, but many libraries in western Russia have been destroyed, and the scientific collections must be replaced. One shipment of books, reprints and journals has been sent to Kiev, where the university buildings, together with libraries and museums, were destroyed by the Nazis a few days before they retreated. Others will follow as received and as shipping space is available.

Persons who have copies or files of journals which they would like to give to a Russian scientific institute or a Russian colleague are urged to communicate

[1] SCIENCE, n. s., 101: 16–17, 1945.
[2] SCIENCE, n. s., 100: 50–51, 1944.
[3] M. J. Herskovits, "Anthropometry of the American Negro," p. 15, pp. 177 ff. 1930.