other members of these boards are college men I do not know, as this information is merely accidental, but they constitute a goodly company. It is the judgment and the criticism of these men that this station must first reckon with, and I have found them entirely competent to judge of the scientific reliability and soundness of our experiments as well as of their practical significance; nor is it necessary to publish sub rosa the better product of our laboratories.

These men are selected not by the station itself, but by the farmers' organizations of the state, and it is fair to assume that as time goes on the men nearest the station and its work will be college trained. In a few days this university will graduate nearly a hundred men from a four years' scientific course in agriculture. By the ratio of the past, fifty-five per cent. of these graduates will go at once to their farms, where, with even a larger number of men who have not fully completed the course and with a still larger number graduated from other colleges, they will constitute a rapidly increasing constituency trained not only in agriculture as a business, but in scientific methods of study. It is this class of men and the colleges which trained them that are in truth covered by what Dr. Pearl denominates as a scientifically uneducated and uncritical constituency.

In this state, and in others so far as my observation goes, since the station started a quarter of a century ago, the uneducated and uncritical farmers simply ignore the station and all it says. They do not count one way or the other in its policy, nor do they constitute or even characterize its constituency.

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Does a Low-Protein Diet Produce Racial Inferiority?

To the Editor of Science: The argument usually advanced against the adoption of the "low-protein" diet plan is that the races practising it, when compared with those employing a protein-rich dietary, show in general some points of physical inferiority or lack energy, aggressiveness or courage. To this it has been replied that the diet is the result, rather than the cause, of such racial characteristics, but by the writers of most books on nutrition and related subjects, both scientific and sensational, this reply has been either overlooked or regarded as inadequate.

As there are no doubt many people who could be benefited by the adoption of a low-protein diet, judging from the results of the studies by Chittenden and others, but who hesitate to try it because of uncertainty as to its possible unfavorable effects, it would seem that the results of new investigations bearing upon the matter should be given wider publicity than their publication in the technical journals usually affords. Accordingly, the present note is offered to call attention to recent work which apparently tends to weaken the above argument in the cases of two of the countries often used as examples of its application, namely, Japan and India.

The disease called beri-beri, a multiple inflammation of the nerves, which is prevalent in most oriental countries, though also known among the fishermen of Newfoundland and Labrador, but which has been most extensively studied in Japan, long baffling explanation, has frequently been brought forward as evidence of the insufficiency of the low-protein diet. The cause of the disease has now been discovered, and found to have no relation to the deficiency of the diet in proteins in the usual sense. For some time it had been known that the use of unhulled grains instead of those from which the bran was completely removed would prevent the disease, and further, that the bran itself contained some principle which would cure many cases that had not progressed too far, but these facts, based chiefly on experiments on animals, were discounted by those who wished to uphold the protein theory.

Finally, however, three Japanese investigators[1] have succeeded in isolating from rice

[1] Suzuki, Shamimura and Odake, *Biochemische Zeitschrift*, XLIII., 89.

bran a nitrogenous base, which they call *oryzanine,* which proves to be a specific for the cure of the disease. Pigeons, chickens, mice and dogs, which would die in a few days or weeks with symptoms of starvation and nerve inflammation if fed on polished rice alone, remained in health when small amounts of oryzanine were added to the diet, as little as 0.3 gram per day being required for an average-sized dog. The bran of other grains and most vegetables were found to contain oryzanine, or at least a substance with similar therapeutic action, while milk, eggs, fish and meat showed little or none, although the alcoholic extract of fresh meat had some beneficial effects on dogs. The authors state that the experience of the Japanese in regulating the dietary of their navy, for instance, confirms in every way the results of these studies, in that beri-beri was stamped out only when foods rich in oryzanine were introduced, and feel justified in concluding that this substance is an absolute necessity for the maintenance of the health, not only of the lower animals, but also of the human race.

Many inferences might be drawn from these results. They show, for instance, the reason why graham bread is more desirable than white, which has been urged by diet reformers for many years, yet has been repeatedly questioned by scientists because no definite reason could be given and because actual experiment showed the white flour product to possess the greater digestibility. They suggest, indeed, that certain nervous troubles, which afflict the civilized races in general and the United States in particular, may have as at least a contributing cause the extensive use of grains from which the bran has been removed. But most interesting of all they show that the apparent inferior power of the Japanese and other eastern races to resist such diseases as beri-beri has nothing whatever to do with their low-protein diet as such, but is caused by their following the dictates of fashion and making use of bran-free, polished rice, as their staple article of diet.

The evident inferiority of the races inhabiting India, which enables a mere handful of British soldiers to keep them under control, is very often referred to as evidence of the inadequacy of the vegetarian—essentially low-protein—dietary made use of by these peoples, as a matter of religious observance. The recent survey by the Rockefeller Sanitary Commission has shown, however, that from 60 to 80 per cent. of the inhabitants of that country are infected with the hookworm. And as the degenerating influence of this parasite on both the physical and intellectual development of its victims is now so well known that further discussion of it is unnecessary, it would appear that we have herein sufficient explanation of the status of these races, without being obliged to assume that their diet is faulty.

With two of the supposedly most typical illustrations of the unfavorable results of a deficiency of protein in the dietary thus explained away, we are surely justified in inquiring, is there any evidence whatever that a low-protein diet ever causes or aids in the production of racial inferiority?

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A RULING THAT IS AGAINST THE RULES

IN the "Opinions rendered by the International Commission on zoological nomenclature"[1] *Opinion 11* (p. 17) reads as follows:

> The "Table des genres avec l'indication de l'espèce qui leur sert de type" in Latreille's (1810) "considerations générales," should be accepted as designation of types of the genera in question (Art. 30).

The matter concerns the meaning of the word *type,* as used by Latreille. Some authors hold that Latreille could not have used it in the modern sense of *genotype,* simply because that particular meaning was entirely unknown at this time. This view surely is supported by common sense.

But admitting that there was cause for con-

[1] Smithsonian Inst. Publ. 1938, July, 1910.