that their war effort was futile and that Japan was doomed. As a result, all of us were hated and treated poorly. Those who had been educated in the United States realized our love for books or relaxation in a game of bridge and tried all the more to deny these to us. At a hospital in Osaka, near Umeda Railroad Station, where we were occasionally taken for treatment about one and one-half years before the B-29's began raiding Japan, the civilian doctors, biochemists, and bacteriologists on the staff laughed at us, sneered, and only reluctantly gave very poor treatment. Their optometrist, with facilities available, for spite refused to correct for astigmatism in prescriptions for glasses. Thus it went on in this and other hospitals throughout Japan.

This is the picture of Japanese intellectuals taken from inside Japan. Of course, when the end of the war came, they did a complete about-face. This is undoubtedly what Lt. Gressitt found when he went to Japan.

SAMUEL A. GOLDBLITH

Nutritional Biochemistry Laboratories
Massachusetts Institute of Technology

Two Kinds of Neutrons?

The present concept of the structure of the neutron is generally given as a negative electron in close association with a proton. Among many others, Harkins (*Science*, 1946, **103**, 298) has indicated that the neutron is converted into a proton with the emission of a β-particle,

$$n^1_0 \rightarrow p_{+1}{}^1 + e_{-1}{}^0$$

causing an increase of one unit in the atomic number of the nucleus of the atom in which this process takes place. The neutron has been predicted by Wang (*Nature, Lond.*, 1945, **155**, 574) to be β-radioactive, with a half-life of about three hours.

With increasing emphasis on the existence of the negative proton, especially in connection with cosmic ray studies, theory apparently requires a second kind of neutron. Employing the designation An^1_0 for the usual neutron, the second kind can be distinguished as follows:

$$Bn^1_0 \rightarrow p_{-1}{}^1 + e_{+1}{}^0.$$

The new neutron would be comprised of a positive electron or positron in association with a negative proton and would likewise be radioactive, assuming the validity of Wang's study.

The possible existence of a second kind of neutron, having the same mass and lack of charge as the usual variety, gives rise to a number of interesting concepts for nuclear physics. For example, Harkins (*ibid.*) states that a positron is given off when a proton changes into a neutron (An^1_0):

$$p_{+1}{}^1 \rightarrow An^1_0 + e_{+1}{}^0.$$

Or, interpreted in terms of the Bn^1_0,

$$p_{-1}{}^1 \rightarrow Bn^1_0 + e_{-1}{}^0,$$

this would mean that a negative proton may change into a Bn^1_0 when a negative electron is released. Other interesting features of this concept will be evident to those in the field.

JACK DE MENT

Fluorescence Laboratories, Portland, Oregon

Quantification of Micronutrients

Quantities of vitamins in rations have been reported in a variety of ways, such as International Units, micrograms per gram, milligrams per 100 grams, or milligrams per cent.

Some of the authors who use metric units in their reports in biological journals are also writing for trade journals and reporting the vitamin contents of the rations in milligrams per pound—a mixture of the metric and the English system of weights and, in our opinion, a very unhandy system. In the same trade journals the quantities of trace minerals in rations are frequently reported in "parts per million" (ppm). An article in one journal reports some of the ingredients of a ration in per cent of ration, other ingredients in parts per million, and still others in milligrams per pound.

Would it not be much simpler if the micronutrients (vitamins and trace minerals) were reported in the scientific journals in micrograms per gram? These data could be translated directly into trade journals as "parts per million," because the number of micrograms per gram is also the number of parts per million. The advantage of doing this in the trade journals (such as *Feedstuffs*) is that both the minerals and the vitamins would be reported in the same units (ppm), and the reference in the technical journals, reporting in micrograms per gram, would require no recalculations.

HAROLD N. SIMPSON

Harold N. Simpson Company, Oak Park, Illinois

Complement Fixation in Rats' Blood Sera

The purpose of this letter is to report that we have found that blood sera from rats captured at Nuevo Laredo, Mexico, fixed the complement only with Rickettsia antigens from classic typhus.

The titers of these sera were up to 1:40, and weak crossed fixation appeared in two of them at 1:10—with Rickettsia antigens of murine typhus. H. Plotz has informed us that he has recently obtained the same data with sera of rats from Manila.

The results of our examinations of blood sera from rats captured in Nuevo Laredo were: positive murines, 49 per cent; positive classics, 5 per cent.

Complement fixation with classic antigen in rats' blood sera leads us to believe in natural infection of these rodents with this variety of typhus.

GERARDO VARELA, CARLOS ORTIZ MARIOTTE, and ROBERTO SILVA

Instituto de Salubridad Enfermedades Tropicales and *Dirección General de Epidemiología, Mexico, D. F.*

A Relativistic Misconception

It is evident, from many recent writings on the atomic bomb, that a serious misconception still persists, not only in the popular press but also in the minds of some scientists. The idea that matter and energy are interconvertible is due to a misunderstanding of Einstein's equation, $E = mc^2$. This equation does not state that a mass, *m*,