Letters

Permafrost Research

The 29 Nov. 1957 issue of *Science* [**126**, 1099 (1957)] contains an article titled "Earth Science," prepared by Philip H. Abelson. One paragraph states: "Two problems of immense importance to survival in the Arctic are those of water and permafrost. We have two geologists working on a study of these topics. The Russians have scores." If by "we' is meant the United States, the statement is in error and should be corrected.

The U.S. Army Snow Ice and Permafrost Research Establishment conducts research on these items for the Department of Defense. Currently, 15 engineers, scientists, and technicians are employed by the Frozen Ground Basic and Applied Research Branches. Part-time work is sponsored at a number of universities utilizing about ten professional people as consultants. Contract work is also sponsored in this field, with the work done by a number of universities and private organizations.

The Arctic Construction and Frost Effects Laboratory, U.S. Army Engineer Division, New England, Corps of Engineers, has a staff of about forty engaged in the study of frozen ground and permafrost as related to military construction. They also do much of their research by means of contracts with several universities, notably Massachusetts Institute of Technology, Harvard, and Purdue.

The U.S. Geological Survey maintains a staff at Point Barrow, Alaska, and at Menlo Park, California; both are engaged in a study of the thermal gradients in permafrost under lakes, along the beaches of the Arctic Ocean, and at other locations in Alaska to measure the effect of other variable factors on the temperature regime in permafrost.

The U.S. Army Engineer Research and Development Laboratories, U.S. Army Engineer Waterways Experiment Station, the U.S. Air Force, the U.S. Navy, the Bureau of Public Roads, and the U.S. Department of Public Health all conduct substantial amounts of research in permafrost as a part of the study of particular problems which have Arctic and Antarctic applications.

The total number of technical people devoting time to a study of permafrost problems in the United States must be several score and not two as is stated. I do agree that the amount of effort spent by the Russians is more than that spent by the United States at this time and that our effort should be increased.

W. K. BOYD

U.S. Army Snow Ice and Permafrost Research Establishment, Wilmette, Illinois

I was aware of the engineering activities being carried out by the U.S. Army Snow Ice and Permafrost Research Establishment when I prepared the material which appeared in *Science* on 29 Nov. 1957.

Some of the "research" projects sponsored by W. K. Boyd's organization (as listed in the *Army Research Annual Task Summary, 1955,* vol. III, *Geophysical and Engineering Sciences*) include: "Development of methods by which troops can rapidly entrench themselves in frozen ground" ($54,000); " Development of an apparatus that will demonstrate the feasibility of applying heat to the frozen soil and progressively removing the thawed surface by a scraper" ($30,000); "Development of drilling and sampling equipment and techniques for all types of frozen ground" ($26,000).

Another "research" sponsored by one of the other organizations mentioned by Boyd: "The work consists of preliminary studies and minor investigations to determine the necessity of specific research or development relative to soil and snow mechanics" ($20,000).

Few scientists—for example, those listed in *American Men of Science*—would agree that the above examples constitute either research or science, which was the topic of our symposium.

The estimate of two geologists was incorrect, though it was provided me by one of the leading hydrologists of this country. The actual number is at least 13—11 engaged in mapping arctic areas, 2 in laboratory and theoretical research studies.

Neither Boyd's remarks nor this altered estimate change the conclusion that Russian scientific activity in the Arctic far exceeds our own.

PHILIP H. ABELSON

Carnegie Institution of Washington, Washington, D.C.

Multilingual Reporting of Scientific Data

Science, in principle, is an international undertaking. The results of scientific inquiry are published and thus made a common property of mankind or, more precisely, of those scientists who can read the language in which the work has been written. For a variety of reasons (the large volume of printed matter on almost any subject being the most cogent one), the typical scientist cannot aspire to be a polyglot, mastering all of the European languages, much less all of the Oriental. He has to rely on his helpers—the writers of abstracts, "excerpts," and reviews, on second-hand information.

The usefulness of a scientific paper, written in a language understandable only to a limited audience, is substantially increased by the attachment of an

informative synopsis in one or more world languages. In time, perhaps, the *Interlingua* will serve for this purpose as the universal language of scientific summaries and will thus restore, to some extent, the intellectual unity of the Western world, lost with the replacement of Latin by national tongues. In smaller countries, still wishing to be heard in the international forum, a program for providing technical help in the preparation of idiomatically correct synopses and abstracts of scientific publications would fully deserve the attention of the local academies of science.

There is another important step that the author (and the publisher) can take in the interest of making a scientific communication more widely and more thoroughly intelligible—namely, presentation of legends, table headings, and graph labels in a language of world-wide currency. In particular, we have stressed this point for years to our Japanese colleagues and friends.

It has been a real pleasure to see in a recent paper on the anthropological differences between population groups in Czechoslovakia [V. Fetter, *Ceskoslov. Ethnograf.* **5**, 217 (1957)] the consistent use of both Russian and English, in addition to Czech, in tables and graphs. In sciences which operate with quantitative data, the tables and graphs contain, as a rule, the essential new information. Together with a clear verbal summary of conditions and methods, the presentation of tabular and graphic material in a form intelligible to the majority of scientists will go a long way toward removing the curse of nationalism and provincialism in scientific publications.

In works which rely heavily on pictorial documentation, such as Hess' atlas [W. R. Hess, *Hypothalamus und Thalamus* (Thieme, Stuttgart, 1956)], the use of bilingual legends may be both preferable on purely scientific grounds and more economical in the long run.

JOSEF BROZEK
University of Minnesota

"Psychozoa"

In the note by William L. Straus, Jr., on "Evolutionary terminology" [*Science* **127**, 22 (3 Jan. 1958)], there unfortunately occurs a protest about Huxley's use of the term *Psychozoa* for man, presumably on the ground that our social world's state today does not indicate anagenesis with reference to man, but the opposite. If, by what Straus terms the "increasing disintegration of human interpersonal and intersocial relations," he refers to the radical alteration of social affairs in our time, this might very well be cited as evidence of the adaptability of the type and, possibly, as leading to its "biological improvement." The