Although the fact is not widely known, geopathology is a branch of an already established science called biometeorology. Hippocrates knew of these problems when he wrote his *Airs, waters and places,* and Hirsch's and Drake's treatises on geopathology, published in the 1850's, are classics of medical literature. For many years, however, interest in these problems has been lacking, but along with the recent growth of interest in the problem of constitution, investigations of the influence of the environment on man have appeared in increasing numbers. In particular, workers both in this country and in Europe have been studying the influences of weather, climate, and altitude on plants and animals. This study has been designated biometeorology, and in 1939 a section devoted to the literature of this field was founded in *Biological Abstracts* under the section on Ecology. Some of the divisions of biometeorology are medical climatology, meteoropathology, geopathology, and climatotherapy. At the present time the Committee on Climatology of the American Geophysical Union is attempting a classification of the branches of biometeorology so that the existing and forthcoming literature will be readily available to the interested workers.

Although our knowledge is incomplete, it is certainly not fragmentary; for there is already available a vast literature on biometeorology. In recent years a number of excellent monographs have appeared, summarizing some of that knowledge. W. F. Petersen's *The patient and the weather* (4 vols., 1934–1938) and M. Piery's *Traité de climatologie: biologique et médicale* (3 vols., 1934) are among the most extensive. B. de Rudder's *Grundriss einer Meteorobiologie des Menschen* (1938) outlines many of the fundamental principles of the science. C. A. Mills' *Medical climatology* (1939) is an analysis of the seasonal and geographical variation of disease. A. G. Price has admirably analyzed the problem of the *White settlers in the tropics* (1939), and D. H. K. Lee (*Univ. Queensland Pap.*, 1940, **1**, 1–86) has summarized the literature on the physiology of acclimatization.

I do, however, agree with Dieuaide that there is a great need for a systematic investigation of these problems, for a correlation of available literature to serve to focus attention on the problems requiring further study, and for collaboration among the interested investigators so that the research may be carefully planned and efficiently executed to reveal the facts and make the acquired knowledge applicable.

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Retention of High School Science

When I read the recent comment of Charles A. Gramet concerning secondary school science courses (*Science*, 1946, 103, 149), I felt that a reply was necessary.

A few years ago I gave a college pretest in biology, at the time requesting that those who had studied the subject in high school indicate that fact. The results astonished me. Of some 50 students who had studied secondary school biology, only 10 ranked higher than

those who had none, and in no case was the increase in percentage more than 5 points.

Within the past 10 years I have taught in several high schools in widely separated places; I have also inspected numerous others. It has been my experience that the science teaching in most of these was very poor. Inadequate equipment, inadequately trained teachers, and, especially, administrative interference with classroom work accounted for this.

By interference is not meant meddlesome supervision, but the insistence that extracurricular nonsense be injected into study and class periods. In one school, for example, my chemistry class was interrupted daily by a loud-speaker broadcast of school gossip which (the school being small) was already familiar to the students, and this was by no means the only case.

College teachers have constantly to erase misconceptions acquired in the lower schools: One certainly becomes tired of hearing about "pure and impure blood," "nerves carrying messages," that "spores are seeds," and that "plants breath out oxygen." And although biology seems to suffer especially, similar misconceptions are numerous with respect to the other sciences.

One can agree most heartily with Mr. Gramet that we need to teach more science in the lower schools. But also needed are teachers meticulously careful not to instill wrong concepts. Poor results will continue as long as school boards insist that a music teacher give courses in biology and that the football coach teach physics. They will continue as long as textbooks, in order to simplify explanations, give wrong explanations. Especially will they continue as long as the "pep meeting" is so important that the entire business of the school is interrupted as a consequence.

The wonder is that children in high school learn anything at all.

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Catalogue Corner

Please write directly to the company indicated for any publication you wish mentioning the bulletin number and *Science*. Publications are gratis unless otherwise noted.

Summer camps and biological stations directory. Now that summer field work is again a possibility, biologists, botanists, geologists, and zoologists will want to secure a copy of the latest Turtox edition of *Biological field work*. This annual list of field stations and summer workshops lists the latest available information about such institutions that plan to have sessions this coming summer. The information also covers the type of course work offered, the name and address of the director, and the dates and expense of attendance. A special section, "Afield With the Season," gives many valuable instructions for the best dates and ways to undertake collecting. *Biological field work, 1945–46 ed. SC–461.* General Biological Supply House, Inc., 761 East 69th Place, Chicago 37, Ill.

Apparatus for thermal conductivity method of gas analysis. Charles Engelhard, Inc., has published a large-size, 24-page bulletin describing the principles and operations of its equipment for gas analysis in production processes. Engelhard equipment is designed to use the principle that gases have certain thermal conductivities in relation to air which is taken as 1. These thermal conductivities vary widely and consequently offer a ready means of comparison between a standard gas and the gas to be analyzed. Equipment is available for the analyzing of SO_2, CO_2, H_2 and highly corrosive gases such as wet SO_2, H_2S, and Cl_2. *Bulletin 800 SC–463.* Charles Engelhard, Inc., 233 New Jersey R. R. Avenue, Newark, N. J.

Industrial research. Research directors and heads of laboratories who have a difficult and infrequent problem requiring specialized equipment and personnel will be interested in a recent brochure of the Arthur D. Little Company. A pioneer in the field of applied research, this company undertakes to do research on the fringe of a client's established activities; in many instances new fields are opened up and large investments in equipment and personnel are avoided. The brochure is illustrated with pictures of typical research problems. *Some information about Arthur D. Little, Inc. Brochure SC–463.* Arthur D. Little, Inc., 30 Memorial Drive, Cambridge, Mass.

Supplies for mineralogy and geology. Ward's Natural Science Establishment has issued a special catalogue covering its mineral rock and fossil collection materials. The catalogue is designed to assist both the instructor who is starting to build up a collection for classroom use and the advanced collector who is seeking special items. The mineral and rock section includes sections on introductory collections, collections illustrating descriptive and determinative mineralogy, petrographic and petrologic collections, and collections for general geology, dynamic and structural geology, and physical geography. The section on fossils presents material on introductory collections, study collections of fossil and recent plants, systematic collections, collections for use with Twenhofel and Schrock's paleontology, special stratigraphic collections, and general stratigraphic collections. *Catalogue 433 SC–463.* Ward's Natural Science Establishment, Inc., P. O. Box 24, Beechwood Station, Rochester 9, N. Y.

Biological leaflets. A new set of the *Turtox service leaflets*, published by the General Biological Supply House, has just reached this office. The series comprises approximately 50 informational pamphlets which have been prepared primarily for the use of biology teachers in secondary schools. The series is undergoing more or less constant revision and most of the pamphlets are rewritten and brought up to date once each year. Sample titles of several leaflets are: "How to make an insect collection," "Practical microscopy," and "The culture of drosophila flies and their use in demonstrating Mendel's law of heredity." *Turtox service leaflets SC–463.* General Biological Supply House, Inc., 761 East 69th Place, Chicago 37, Ill.