logical departments and institutions and their personnel.

A COLLECTION of mollusks, from waters all over the world, has been added to the department of zoology of Field Museum of Natural History. It includes more than 100,000 specimens of shells, accumulated during a period of some forty years by Walter F. Webb, of Rochester, N. Y. The collection was acquired through the interest of Stanley Field, president of the museum. According to Dr. Fritz Haas, curator of lower invertebrates, the permanent scientific value of the collection is enhanced by the fact that it includes other important private collections which Mr. Webb had purchased in Europe and America, some of them dating as far back as the eighteen-sixties.

DISCUSSION

JOINTING IN THE COAL BEDS OF OHIO

THE results obtained from a study of jointing in the coal beds of Ohio are interesting. From data secured by field work and from engineers and operators, some important facts have come to light. The jointing or cleat, as it is commonly known, shows remarkable regularity or uniformity in trend. The joints appear to follow the trend of the Appalachians to the east. The direction of the joints appear to be the same, even though more than one coal bed is involved. In Mahoning, Columbiana, Stark, Tuscarawas, Wayne, Holmes, Belmont, Jefferson, Harrison, Carroll, Guernsey and Noble counties, the joints occur in two sets commonly known as the face and the butt joints. The two systems occur at right angles to each other, one set running in a northeast-southwest direction and the other having a northwest-southeast trend. Farther south in Muskingum, Perry, Hocking, Athens and Morgan counties, one system trends in a direction a few degrees west of north and the other at right angles, has a course running a few degrees north of east or nearly east and west.

There is a variety of opinion as to the origin of the cleat in coal. One group of geologists believe that the cause is inherent in the coal itself, and that jointing is the result of contraction from the loss of gases such as methane and carbon dioxide, moisture, and the rearrangement of the carbon compounds, which has caused loss of substance. The other group are convinced that the cleat is the result of tectonic forces. The writer is inclined to follow the latter group. It is difficult to explain the remarkable uniformity in direction of the joints and the parallelism with the Appalachian folds unless we assume diastrophic movements. Moreover, shrinkage of coal, one would assume, would produce jointing in all directions.

KARL VER STEEG

COLLEGE OF WOOSTER

LABORATORY PSYCHOLOGY AND THE A.B. DEGREE

THE status of laboratory psychology in 75 prominent colleges and universities of the United States has recently been reviewed by Winter.[1] Winter's report dealt especially with the question of whether psychology was or was not included among the group of sciences which satisfy the science requirement for the A.B. degree. Of the 75 institutions listed, 13 (or 17 per cent.) had no laboratory science requirement for the A.B. degree; 18 of the remaining 62 institutions (29 per cent. of the 62) accepted psychology as satisfying the laboratory science requirement for the A.B. degree; 44 of the 62 institutions (71 per cent.) did not accept psychology to satisfy the laboratory science requirement for the A.B. degree.

Subsequent to the initial publication of these figures, a note by Courts[2] disclosed that the University of Missouri, which was classified as not accepting psychology to satisfy the science requirement for the A.B. degree, had changed its policy in 1939–40, and now accepted psychology. In view of the fact that Winter's original data were obtained in 1937, it appeared likely to the present writer that other similar changes might have occurred during the 5-year interim. On the strength of this supposition a questionnaire was sent to the 43 institutions (excepting the University of Missouri) which were originally classified as not including psychology among the sciences which satisfy the requirements for the A.B. degree. Replies were received from 42 of those to which requests were sent—a remarkably high percentage of returns. The results show several changes from the tabulation reported by Winter.

(1) Thirty-six of the 44 remain in the negative category. (We here classify the single non-responding institution along with those which voted negatively.)

(2) Three which formerly did not accept psychology to satisfy the science requirement for the A.B. degree now accept it. These three are, the University of Chicago, the University of Colorado and North Dakota University. With the University of Missouri, a total of 4 which formerly did not accept psychology to satisfy the science requirement now do so.

(3) Four of the original 44 reported special extenuating circumstances, to wit:

(a) The Massachusetts Institute of Technology gives

[1] J. E. Winter, SCIENCE, 95: 96–97, 1942.
[2] F. A. Courts, SCIENCE, 95: 275, 1942.

no A.B. degree, hence should not be listed as "not accepting" psychology to satisfy the science requirement it does not have.

(b) Similarly the University of Florida, although it gives the A.B. degree, has no science requirement in connection with that degree.

(c) At Rutgers and Vanderbilt Universities, the A.B. laboratory sciences are placed in the work of the Junior Division. Psychology is in the Senior Division, where it is accepted as a laboratory science.

These recent changes necessitate corrections in the material published by Winter. The tabulation now stands as follows:

(1) Fifteen of the original 75 institutions have no laboratory requirement for the A.B. degree. (One of these, the Massachusetts Institute of Technology, does not give the A.B. degree.)

(2) Twenty-two of the remaining 60 institutions (37 per cent.) now accept psychology to satisfy the A.B. laboratory science requirement.

(3) Thirty-six of the 60 institutions (60 per cent.) do not accept psychology to satisfy the laboratory science requirement.

(4) Two consider it too advanced for this basic requirement.

The increase from 29 to 37 per cent. acceptance in 5 years may be taken as evidence of a definite trend toward the inclusion of psychology among the laboratory sciences which satisfy the requirements for the A.B. degree.

W. N. KELLOGG

INDIANA UNIVERSITY

AN EXPANDING UNIVERSE AN INDETERMINATE PROBLEM

CERTAIN fundamentally important considerations in connection with this and other problems appear to have been overlooked or neglected in many writings and discussions of questions in ultra remote astronomy.

Nothing can possibly be known or ascertained about an object one hundred million light years distant from the earth, later than conditions as they were one hundred million years ago. It is wholly unwarrantable to assume that no material changes have taken place in that immensely long period of time and that conditions that we *observe* now are the same as those that *exist* at present. In other words, there is a complete absence of any certainty that changes which might entirely invalidate any deductions or conclusions based on this assumption have *not* taken place since the date of the latest available evidence.

For two objects distant, respectively, one hundred million and two hundred million light years from us, in the same region of the sky, we have no basis for considering their relative contemporaneous positions and other conditions except upon an assumption that no relative changes had taken place, up to one hundred million years ago, during the preceding one hundred million years. Such an assumption is manifestly quite untenable, or at least problematical.

The light-year, as the unit of measurement for great astronomical distances, is really *one yearly light mileage*. It might better be designated one Y L M.

The problem of whether the universe is "expanding" *now* or not is something like trying to determine several unknown quantities from a less number of independent equations than the number of values sought. The problem is not solvable: It is indeterminate.

JOHN MILLIS

CLEVELAND, OHIO

NICOTINIC ACID

THE reaction of the public to hastily reviewed or hastily read scientific articles, especially those relating to diets, vitamins or tumor growth, is something that deserves consideration. A good example may be pointed out in regard to nicotinic acid. The only reason for changing its name to "niacin" was because of the unfortunate linking in the lay mind of nicotinic acid and tobacco. In regard to hastily reviewed articles, one news release headlined an article dealing with the fortification of white bread by nicotinic acid—"Tobacco in Your Bread"! The lay response to this article may well be imagined.

The recent work dealing with cancer induced by the feeding of butter-yellow and modifications by specific diets is definitely newsworthy and probably headed for popularized review. I do not believe that any amount of explanation will suffice to separate "butter-yellow" from "butter" in the lay mind, and I therefore would like to enter a suggestion that steps be taken to change the name of "butter-yellow" to a form that does not have such an undesirable connotation.

JAMES R. ENRIGHT

Director, Bureau of Communicable Diseases

HONOLULU, HAWAII

BIOGRAPHY OF THE EARTH

IN my recent popular book, "Biography of the Earth" (Viking Press, 1941), representing an attempt of synthesis of to-day's astronomical, geophysical, geological and paleobiological knowledge concerning the history of our globe, I have used to a large extent the results of Professor Charles Schuchert, of Yale University, on the distribution of waters and lands in past geological epochs. In doing so I was acting under the conviction that the published results of any scientific research become an intrinsic part of science, and can be used freely for the purpose of further study or popularization. Professor Schuchert informs me, however, that in this case the situation is different, since the results collected in his paleogeographical