It is perhaps unfortunate that most of our courses in science must necessarily call for facts instead of entertaining information, but I am not as yet convinced that the doing away with lecture work and emphasizing contact work will greatly improve the situation where our classes are large and the subject-matter required.

I do not, however, want to be understood as being an adherent of the lecture system. The easiest way for any of us to explain the situation seems to be to blame the other fellow—something must be wrong with our secondary schools and the age at which the boys and girls enter college. On the other hand, I believe our students have a right to question in some instances the teaching ability of the instructor. As college teachers, our greatest responsibility is not to teach our undergraduate students primarily facts, but to think. The question in each one's mind should be how this can best be accomplished under the present conditions.

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RECENTLY SCIENCE published so-called "howlers" composed by students during examinations. While the compositions are humorous in a certain sense, yet they possess a pitiable aspect in revealing the lack of preparation in English and geography and a lack of coordination of thought, especially on the part of students entering college. The following have been selected from the writings of students in several schools and in upper classes as well as first year. The quotations are verbatim.

The preCambrian roch were where in distinct fossil were found. The rocks were mostly ingneous and meta morphosed, with some sedimentation in the proterozoic Limestone was found in the rochs. which lead to evidence of life of some organism The Archean is universal and very thick. This tell it was a long period of time and equal. The proterozoic rocks have eroded some.—

Ripple marks and cross bedding are due to formation within minerals of minor minerals on thin planes.

Continental deposits are deposits formed by wind, such as the Rocky Mountains, these deposits are called stratification.

—magmas extrusively imbedded in the earth's crust.

A loess is made up of a yellowish-brown material which was peculiar to geologists.

A fossil is the historic record of the past geologic conditions of the world and the chief proof of the fact of evolution or the gradual descent of man caused by the decomposition of animals or plants in rocks under conditions favorable for preservation.

Even Bolivia may be found in young and old river valleys.

The ginkgo would have perished after the Mesozoic had it not been cultivated by the Chinese.

Trilobite is a good name because they have feelers.

Gradation is the desire of the earth to level itself.

Stages in development of streams may be compared to stages in children. In infancy they are gullies; in youth they have straight sides and narrow bottoms.

The Rockies were formed between the Cretaceous and the Plastaceous.

Relief features of the second order within the ocean basins are not much concerned with human nature.

If the La Placian hypothesis were true all planets would revolve around the sun once a year.

The agriculture is mostly mining.

WALDO S. GLOCK
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THE examples of student misinformation submitted by Professor Smyth will doubtless start an avalanche of *Outrageous Biology* from teachers who hitherto have scarcely dared admit what is possible from their students. From my own collection of some years, one which I alternately view with delight and despair, may I submit these gems?

The liver is a capillaraceous organ whose function is to produce a fluid used in digestion and reproduction. Its outlet is the arteries.

Breathing is rhythmic because it takes so long to take in a breath and so long to let it out and we have to rest between. This is controlled by valves, which are in turn regulated by a column of mercury 760 mm in height. Thus we see that when the system is in proper working condition breathing is rhythmic.

CLEMENTINA SPENCER MOMYER

THE RACIAL ORIGIN OF ALMSHOUSE PAUPERS IN THE UNITED STATES

IN an article under the above title which appeared in SCIENCE for October 31, Dr. Raymond Pearl says:

While on January 1, 1923, there were in almshouses 59.8 native-born white persons per 100,000 of the same class in the population, the corresponding figure for the foreign-born was 173.6. This is by some regarded as a fact of dread significance. Perhaps it is. To me it seems possibly only an interesting expression of the difficulties which the human organism finds in adapting itself to a new environment.

As an additional factor not to be overlooked I suggest that the native has relatives and old friends who would feel it a disgrace if he had to enter an almshouse and who prefer to help him along and even support him rather than endure it, while the foreign-

born left kin and early associates in another land. Such kin are apt to be poor and in any case are hardly likely to send money to support one who migrated to rich America. We can also remember the huge sums our government pays annually in pensions to Civil and Spanish war veterans and their widows, for these must keep many a native out of the poor-house, while a much lesser proportion of foreign-born are helped in that way.

ANITA NEWCOMB MCGEE
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INVESTIGATIONS OF MAGNETOSTRICTIVE PHENOMENA

IN compiling the data for the various tables to appear in the International Critical Tables under the heading of Magnetostriction it is desired that as complete a survey as possible be made of the literature. In the hope of uncovering all possible sources of materials bearing on the various phases of magnetostriction, this call is sent out asking any one who has reprints of articles covering any particular subdivision of the subject to please send reprints of their work to the undersigned and where reprints are not available will those who have made contributions to this field please send references to the same address?

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AMHERST COLLEGE,
AMHERST, MASS.

QUOTATIONS

POPULAR SCIENCE EXHIBITIONS

Now that the British Empire Exhibition has come to an end—for this year at any rate—it may be of interest to record some impressions of the manner in which the Royal Society's Exhibition of Pure Science, which was arranged in the government building, has appealed to the public, and of the extent to which it has fulfilled the objects with which it was organized.

The arrangement of this exhibition was undertaken by the Royal Society, at the request of the government, for the purpose of showing the essential part played by pure science among the multifarious interests and activities of the empire. Everywhere in the great exhibition the applications of science to industry were to be seen, but the fundamental work of scientific inquiry, in which many of them had their origin, would have been unrepresented unless some special effort had been made to bring it to the public notice. Accordingly, this exhibition, illustrating many aspects of purely scientific research at the present time, and indicating how industry has developed from similar inquiries in the past, was arranged.

The exhibition has not been without its humors. One was the difficulty of returning a satisfactory answer to the inquirer who, after spending some time in the galleries, said, "Yes, but how do you know there is an atom, and how do you know there are electrons inside it?"; and another, the problem presented by a visitor who, on observing that the Milne-Shaw seismograph has a rotating drum giving a record which has to be changed every twenty-four hours, asked, "What happens if there is an earthquake while you are changing the record?"

Nevertheless, it may be said that the exhibition has been an unqualified success. The public, non-scientific as well as scientific, has been really interested, and some, at least, must have gone away with a clearer understanding of the purposes for which men devote their lives to scientific experiment and inquiry. This success may be attributed largely to the policy adopted of making the exhibition a living one. The exhibits were contributed by scientific workers actually engaged in the researches represented, and supplemented where necessary to illustrate a subject fully, by instruments contributed by some of the leading makers. Wherever possible, actual demonstrations were given, and a scientific staff was in attendance throughout to carry out the demonstrations and to explain the exhibits. This policy was fully justified by the continued interest of visitors.

The handbook published in connection with the exhibition has been of great assistance. In this book is made available, for the small cost of a shilling, a series of non-technical articles on current scientific topics by leading authorities; and the best proof of its popularity is the fact that more than two thousand copies were disposed of, while its sale is increasing as it becomes better known, and is likely yet to continue now that the exhibition is closed.

The encouraging success which has met this attempt to present pure science in a less austere light than often surrounds it in the eyes of the general public, leads naturally to the inquiry as to whether a greater use can not be made of scientific exhibitions as a means to this end. Nothing but good can result from such efforts to spread a clear understanding of the true aims and purposes of science. That pure science is the modern expression of the elementary desire for knowledge—for the discovery of natural truths—that it is only by the disciplined quest in unknown fields that those benefits which science gives to the human race can accrue, is too little understood and too easily lost sight of, because of the very magnitude of the results themselves.

It ought to be possible to make an exhibition of this kind an annual event. The Scientific Products Exhibitions, organized by the British Science Guild in