

chemistry. Twelve of the eighteen could not name the president of the American Chemical Society. Only six of them knew of the recent work on the atomic weight of lead; only two of the eighteen could name three important chemical discoveries of the last ten years. Bunsen, Scheele, Wöhler, Ramsay, Mendeljeff were, to most of the contestants, just names of chemists who had done something or other. Required to name five prominent living chemists, most of them named three or four of the members of the local chemistry staff. Some of the men named are, indeed, prominent chemists, but when a student indicates that four out of five of the world's prominent chemists are included amongst his instructors, he is showing a lack of viewpoint rather than an intelligent loyalty.

It is far from the purpose of this note to belittle the knowledge of these students. They are, in all probability, more intelligent than the average. The point is that they should have, after three years of study in the field of chemistry, some knowledge of the use of a chemistry library, and more than a naïve understanding of contemporary chemistry. Perhaps we have expected them to absorb general chemical information from the atmosphere of a chemistry department. The actual situation is that their views of chemistry are hedged in between the covers of some ten or twenty text-books. If this is the case, would it not be worth while to add to our chemistry curricula a few courses—call them what you will—aimed squarely at supplying that body of general chemical information not to be found in text-books? To teach chemistry is one thing; to teach men to be chemists is a greater task.

HARRY A. CURTIS

UNIVERSITY OF COLORADO,
BOULDER, COLO.

ANOTHER PHASE OF "ACADEMIC FREEDOM"

DURING the last few years there has been considerable agitation and many articles have been written upon the danger of loss of "academic freedom," by which is meant the right of college and university teachers to

think and express their thoughts without fear of losing their positions through the possible unpopularity of their own opinions. All who are associated in any way with education realize the danger of political and financial overshadowing of independent thought, especially when it is opposed to the established order of things. It is evident, however, that there are still some who do not grasp the essential difference between the clerical attitude toward education a hundred years ago and the scientific attitude toward education to-day. A hundred or more years ago the imparting of information and of established creed was believed to be the entire function of the institutions of learning. To-day we advocate the stimulation of active, progressive thought which questions established ideas and is anxious to have before the mind all possible theories in order to further stimulate thought and investigation. A recent incident shows, however, that such is not by any means the attitude of all who should be leaders in freedom of expression of thought, but who are not.

In the December twenty-ninth issue of *SCIENCE* of last year a short item entitled "1916 or 1816?" calls attention to the fact that a certain literary society in one of our universities was announcing a phrenological lecture with the title "Brains—How to Know and Handle Them." The author of the note says simply at the end of his quotation of the announcement: "Comments would seem superfluous." However, it seems that they were not to him "superfluous," since in the January nineteenth issue of the same journal, under the caption "Phrenology," the same writer says, "It is *gratifying* to report the receipt of the following communication," which was signed by the dean of one of the colleges of the university. The letter quoted brings out the information that the author of the notes in *SCIENCE* wrote twice to the university protesting against the giving of the announced lecture on "Brains," with the result that the university president requested the literary society to cancel the lecture, which was forthwith done.

Now the fundamental consideration in the above-mentioned incident is not whether phrenology is a science, or whether it has any scientific basis, or even whether intelligent people should take note of it, but rather it is a question of the advisability of preventing, so far as possible, the expression before college students of views not generally believed by scientists. This lecture, be it noted, had no special sanction of the university, but was a private venture by a group of students in one of their own organizations. Certain it is that a phrenologist has a right to be heard and students not only have a right to hear, but they should be urged to, rather than hindered from, a careful investigation into the errors of any system. If the scientific facts opposed to phrenology are not strong enough to convince people of the fallacies of the subject, then surely no one has a right to prevent the expression of such ideas; and if the scientific facts are all opposed to the phrenological interpretation, then the artificial opposition on basis of authority is entirely useless as well as entirely unscientific. It may be argued that phrenology is not a modern, scientific theory, but an outworn superstition and hence should be discouraged. Without doubt superstitions should be discouraged, not by power of authority, but by scientific facts. Moreover, that which seems to be an outworn superstition may, in another form, appear later as a scientific theory, as for instance, the idea of the transmutation of metals. A few years ago a lecture on the "Transmutation of Elements" would no doubt have found many objectors who would have said that students should not have such foolish ideas placed before them. Now, however, such a lecture would be listened to with great interest because some scientists of high reputation vouch for the possibility of such transmutation. No idea should be smothered except by facts, for all the authority in the world, without good foundation of fact, may be as entirely wrong as the unauthorized idea expressed by the least known student. Further than this also we must go. Any idea, no matter how foolish it may appear, is worthy

of attention as a means of stimulating thought and may even have a germ of truth which may develop into more truth by patient investigation. Let us demolish all superstitions as rapidly as possibly by the accumulation of scientific facts, but let us not hinder any propaganda by power of authority. College students should be encouraged to find out all the theories concerning any set of facts and then be led to a careful balancing of these by processes of logical thought.

ERNEST SHAW REYNOLDS

QUOTATIONS

WAR BREAD

THE public has been led to feel some anxiety concerning the effects of the present war bread upon national health and efficiency. Suggestion plays an inevitable part in such a connection. Certain untoward symptoms in individuals, for which some other tangible cause is not immediately evident, are liable just now to be ascribed on the slenderest evidence to the bread eaten. Once the belief in a deleterious influence has arisen, it is easy to understand how widely it may spread by suggestion. In the opinion of those best qualified to know, there would seem to be little basis for any such condemnation of the bread. It rests, nevertheless, with the food controller to obtain the best possible evidence concerning the facts, and we are glad to know that Lord Rhondda and the wheat commissioners have empowered a committee of the Royal Society to make a full and thorough investigation. This committee comprises some eminent medical consultants, as well as the physiologists who have been serving on the main food committee of the society. Its task is to decide whether the higher extraction of the grain can in itself be held responsible for any disturbance of health, and whether the admixture of other cereals with the wheat has produced a less digestible loaf, owing, for instance, to the associated difficulties in milling and baking.

Among other matters which are also engaging the attention of the committee is a greater tendency to "rope" in the bread, alleged to be due to the higher extraction of the grain. The