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A course in chemistry is now required in all the schools of the Pennsylvania State College. In the Schools of Agriculture, Engineering, Mines, Natural Science, and Home Economics, various specialized courses are given, while in the School of Liberal Arts only a course in general chemistry is required, though others may be elected. In order that all departments and schools of the college may be expanded in preparation for the development of the institution into the Pennsylvania State University, a campaign for $2,000,000 is now being carried on.

Glass Technology

By George W. Morey

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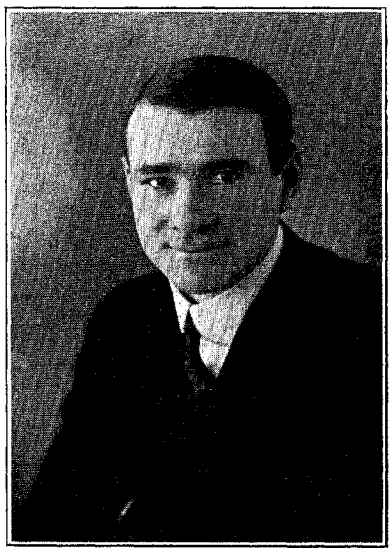
THE WAR period preceding that under review was marked by extraordinary activities in the field of glass technology, and it is to be expected that the period of business depression through which we have been passing should show a diminution in activity. While such a diminution has taken place and while no such developments as that of pyrex glass or the remarkable upbuilding of the optical glass industry during the war are to be chronicled, still the development of the industry has been steady and the technologic advances important.



GEORGE W. MOREY

In the line of fundamental research probably the most outstanding contribution has been the comprehensive paper by Adams and Williamson on the annealing of glass, for which the authors were awarded the Longstreth Medal by the Franklin Institute of Philadelphia. Glass annealing is an ever-present problem in all branches of the industry, the solution of which has been in the past groped for in the dark. It had not been realized that "slow cooling" was not sufficient to ensure good annealing; to be sure, slow cooling is essential at a certain stage in the process, but most commercial installations succeed in cooling ware too rapidly in its critical stage, and draw out the cooling to unnecessary lengths when the necessity for control has passed. Adams and Williamson have given a striking illustration of the possibilities in carefully controlled annealing. As is well known, optical glass must satisfy particularly rigid specifications in the matter of strain, and the type of glass known as borosilicate crown is particularly difficult to anneal. Yet by precise furnace control, guided by the very definite rules which they have given, they were able to anneal a slab of borosilicate crown 2 cm. (0.8 in.) thick in 4 hrs. and 50 min. from the time the cold glass was placed in the cold furnace. Annealing problems as difficult as this are not common in practice; yet it is not unusual for days to be given to poorly anneal the more tractable plate glass of the same thickness. By the application of scientific methods superior annealing could be obtained in less time, thereby releasing equipment, increasing production, and decreasing cost. Adams and Williamson's paper is noteworthy in that it not only discusses the annealing of glass from the scientific viewpoint, but also gives explicit detailed instructions for the annealing of various types of glass in various thicknesses. A noteworthy instance of the successful application of these results is the 40-in. reflector disk manufactured in this country during the past year, an achievement described in the June issue of THIS JOURNAL.