Miss K. was confined to her bed for three days, and the after-effects lasted for two weeks.

It was not necessary for her to handle the castor beans but merely to be in the room where they were dissected. In fact, in one instance a few beans were used in the laboratory in the morning from 10 to 12 when Miss K. was not present and was not aware of their being used. A few minutes after she came into the laboratory in the afternoon at one typical symptoms with sneezing and headache developed.

The castor bean plant had an effect similar to that of the bean. Within a few minutes after cutting the leaves and stems of a castor bean plant for histological purposes Miss K. suffered from a mild but typical attack.

Out of several hundred students the case mentioned is the only one of its type I have observed. It was noted, however, that one of the instructors suffered from a badly inflamed eye due to rubbing it with his fingers after dissecting some castor beans. Pammel, in discussing the castor oil bean in his manual of poisonous plants, states that "a case is known of a young lady whose eyes became inflamed when in contact with a mere trace of the material in the laboratory."

Effects from the castor bean similar to those described may be mistaken for colds or for attacks of hay fever produced by pollen.

WILLIAM J. ROBBINS
UNIVERSITY OF MISSOURI

QUOTATIONS

INDUSTRY AND CHEMICAL RESEARCH

WHY do clear-thinking, well-informed business men who hold the stock or compose the directorates of companies in our chemical engineering industries so frequently disparage a policy of research? An old riddle which is growing more perplexing as it ages! To regard a technical staff as a semi-liability at best, to dispense with it whenever storm clouds gather on the business horizon—such is altogether too frequently the creed of those who pass upon expenditures. No more clear-cut evidence of such folly, or rather the wisdom of the maintenance of research, has come to our attention recently than the remarkable story of achievement made by one of the great yeast companies. This story is at once an inspiration to the research worker and a rebuke to those whose first thought is to reduce the technical staff in time of financial difficulty.

A few years ago yeast was made by this particular company from a cereal mash on an enormous scale and in eleven plants. About one quarter of the grain was converted to yeast; from the mash alcoholic beverages and allied products were produced which yielded sufficient revenue to make possible a very low margin of profit on the yeast. Then came our entrance into the war. Edible cereals could no longer be used. Research found a manner of using oats as a substitute. Labor cost rose as high at 260 per cent. above the pre-war level. As an offset to this, research developed a process to increase the yield to a figure previously unheard of.

Then prohibition came, seemingly to cap the climax. Competition with industrial alcohol makers could not be met with the costly high-grade grain alcohol produced by this process. Yet without this market the cost of yeast must be substantially increased. Again after a real struggle on the part of the research staff in a comparatively unknown and poorly charted field of chemistry the answer was found—production from new materials with the evolution of no alcohol and of almost no other side products. The net result of its research, which was well paid for, enabled this company to maintain its retail prices at pre-war standards through years of rapidly shifting economic conditions. Its process reached an efficiency of practically 100 per cent. conversion of raw material to yeast. Its product was improved, its sales were increased, its research facilities developed to the highest point. And all this through a period when many firms were endeavoring to weather the storm by putting a sign over the laboratory door, "This Way Out."

We have cited other similar instances; we shall cite more. Research, despite the many kicks it has had, is alive and growing. Here is added justification for our contention that it is indispensable in trying as well as in prosperous periods. Properly directed, there is no better manner of insuring increased dividends.—*Chemical and Metallurgical Engineering.*

SCIENTIFIC BOOKS

Text-book of Agricultural Bacteriology. By F. LÖHNIS, Ph.D., U. S. Department of Agriculture, and E. B. FRED, Ph.D., University of Wisconsin. New York, McGraw-Hill Book Company, 1923, 283 pp., 10 plates, 66 illustrations in the text.

THIS work, as the authors indicate in their preface, is largely based upon the senior author's "Vorlesungen über landwirtschaftliche Bakteriologie," published in 1913, and representing the material collected during eleven years' experience in teaching and research at the University of Leipzig. It is, moreover, more than a translation of Löhnis's "Vorlesungen," representing a thorough revision and a rearrangement of the subject matter to make it more useful to the American and British reader.

Following an introduction which includes a survey of the history and scope of bacteriology, the authors pass to the main portion of the book which is divided