

ing" of live stock production may do more harm than good. If it is desirable to restrict or prohibit the production of alcohol from grain or potatoes on the ground that it involves a waste of food value, the same reason calls for restriction of the burning-up of these materials to produce roast pig. This means, of course, a limited meat supply. To some of us this may seem a hardship. Meat, however, is by no means the essential that we have been wont to suppose and partial deprivation of it is not inconsistent with high bodily efficiency. Certainly no patriotic citizen would wish to insist on his customary allowance of roast pig at the cost of the food supply of his brothers in the trenches.

H. P. ARMSBY

STATE COLLEGE, PA.,
June, 1917

A NEW CONTRIBUTION TO AMERICAN GEOLOGY

UNDER the heading "Work going on at Kilauea Volcano" there was published in *SCIENCE* of September 12, 1913, an account from Hawaii by Mr. Geo. Carroll Curtis, of the field work, circuit and kite camera surveys being conducted in the great active crater, in connection with the construction of a naturalistic model for the geological department of Harvard University.

After four years of continuous effort this work has been completed and installed in the university museum. While the size and time required distinguish it, the principles it involves of faithful and expressive reproduction of the earth surface is of special significance, as it seems to mark a distinct progress in the complex subject of representing our earth in true relief and character. A single glance at the great model is convincing, for in looking upon this vast collection of accurate data, one receives the impression that he is viewing the outdoor field itself! The model looks like the actual ground because it has been made like it, an immense amount of information never before collected having been incorporated from the special surveys. This is a signal triumph in the truthful interpretation of a splendid type of geological structure such as Kilauea

presents. It clearly indicates the novel and broad interest which awaits the earth sciences in the reproduction of their museum natural history specimens through the medium of serious work in land relief.

The longest time previously given to any work we have had of this nature, was two years, in the naturalistic reproduction of the coral island Bora Bora,¹ under the instigation of Alexander Agassiz. It was made to illustrate the typical "high coral island." This work, completed in 1907, was the first in the land where the necessary photographic survey and special field work were employed to truthfully reproduce a land form type, and marked the introduction of the naturalistic or landscape model in American exhibition. The character of the work was illustrated by the photographs made from it, bearing a surprising resemblance to those taken on the actual ground, a thing previously unlooked for in our land reliefs. This unique contribution to the progress of earth science is still considered the most complete exposition of a coral island known, and as the pioneer in naturalistic land relief (the completest expression which science and art can give of the earth's surface) will always remain a most significant piece of work.

The Kilauea model represents the progress of the intervening decade, in the new and developing art of the accurate reproduction of the surface of the planet, and is the culmination of the unique experience which has come through a training in both geology and in art, which Mr. Curtis has given to this profound though much misrepresented work of earth relief. Against precedent he has attempted to make a profession rather than a business of a work which calls for treatment adequate to the dignity of natural science. Valuable as may be the individual models to which Curtis has given so much time and study, it is in the establishment of a standard more in keeping with that called for by the natural sciences and by the meaning and interest of the face of our earth, that his most significant achieve-

¹ Darwin, "Structure and Distribution of Coral Reefs," p. 4.

ment lies. That this standard is to-day probably second to none is to be seen in the Kilauea model which presents several important innovations in the development of land relief, including the application of circuit panorama and aerial photography and the cycloramic background.

The Kilauea undertaking marks the advent of the American geologist into the work most complete and effective of any known for representation of the immense forms with which he deals. Some conception of what this subject, calling for the best that modern science and art can offer, has in store, may be had from statements of those who have visited the active volcano and maintain that a better comprehension of the huge crater may be obtained from the model in Cambridge than in Hawaii itself, owing to the vast dimensions of the Kilauea region. What is yet in store for the earth sciences through the naturalistic reproduction in relief of remaining great types of land form, should give some measure of the value of this contribution.

ROBERT W. SAYLES.

GEOLOGICAL SECTION,
HARVARD UNIVERSITY MUSEUM

BOTRYTIS AND SCLEROTINIA

CONNECTION has recently been established between an apparently undescribed species of *Sclerotinia* occurring in woods in the upper end of Van Cortlandt Park on the rootstocks of wild geranium and a species of *Botrytis* occurring on the roots and rootstocks of the same host. The field observations were made by the writer and the culture work was conducted in the New York Botanical Garden by Professor W. T. Horne. A joint paper will be offered on the subject in connection with the celebration of the fiftieth anniversary of the Torrey Botanical Club this fall. As it will be several months before this paper can appear in print, it was thought advisable to call attention to the facts at this time. While connection between *Botrytis* and *Sclerotinia* has been claimed by DeBary and predicted by more recent workers, this is one of the first and possibly the first case in which the connection has

been definitely established by culture experiments.

FRED J. SEAVER

THE NEW YORK BOTANICAL GARDEN

QUOTATIONS

A BRITISH REPORT ON INDUSTRIAL RESEARCH IN AMERICA

THE Advisory Council for Scientific and Industrial Research has issued the first of a series of papers in which, under the title of Science and Industry, it intends publishing information of value to manufacturers. The intention was announced in the report of the Committee of the Privy Council, of which an account appeared in these columns; and the present instalment by Mr. A. P. M. Fleming, of the British Westinghouse Company, on industrial research in the United States, is so full of information and practical suggestion that engineers will learn with regret that there is little prospect of further instalments appearing during the war.

The paper differs from much that issues from the Stationery Office in being essentially a practical work, not loaded with statistics and theoretical considerations. It is a plain statement of facts and practical suggestions very important to industry, set out for British manufacturers by one of their own body in such a way that what it describes and what it suggests can readily be understood; it is illustrated by 85 half-page or full-page blocks, and published—at the public cost—at the price of 1s. No appreciable expense either of time or brain-stuff or money stands between the message of the volume and the public for whom it is meant; and while there is no point in summarizing what can be easily acquired and digested, some of its facts and the consequences that they suggest are worth consideration.

The modern tendency of American manufacture to research may perhaps be seen most strikingly in what is being done by manufacturing and similar corporations themselves. Examples are to be found alike in the mechanical, electrical, and chemical industries, and are on every variety of scale, up to the £30,000 per year to which the Eastman Kodak Com-