ical industry between the United States and Germany alone in 1913 provided 5 per cent. of our total foreign business and 13.8 per cent. of our balance of trade for that year. Please bear in mind that I am not by any means attempting to claim all the credit for this for the chemist; all that I ask is that his claims to recognition for intelligent, active and effective collaboration in bringing about those stupendous results be not thrown aside as worthless and that he shall not be made the target of unjust criticism because in 1914 there was a shortage of about $600,000 or 7 per cent. in coal-tar dyes and because cotton dropped from 15 cents to 6 cents.

Much more could be said of the chemist and his contribution to the effective every day labor of this work-a-day world but time and space forbid. I am sure that this short sketch of the chemist's activities, his hopes, his aims and his work will serve to create a wider interest in him and will result in according to him the credit to which he is entitled, namely, that he pulls more than his own weight in our nation's boat.

BERNHARD C. HESSE

THE GRAY HERBARIUM

THE rebuilding of the Gray Herbarium, which has been in progress for some years, has just been finished by the completion of the main central section of the building. The original structure, the gift of Nathaniel Thayer in 1864—at which date Dr. Asa Gray gave his invaluable botanical collections to Harvard University—was a brick building and for its time substantial, but the entire interior finish, including the floors, the plant cases, book shelving, etc., was of wood. The building had become wholly inadequate for the growing collections and was far from being fireproof in any modern sense.

The complete rebuilding and considerable enlargement was begun in 1909 and has been carried out a section at a time. It has been effected through the generosity of members of the visiting committee. The initial step consisted in the erection of a substantial ell, known as the Kidder wing, the gift of Mr. Nathaniel T. Kidder, of Harvard, '82. This wing, completed in 1910, provided convenient shelving space in exceptionally secure cases for more than 300,000 sheets of herbarium specimens as well as a portion of the library, thus giving great relief from the congestion of the older building.

In 1910 the adjacent residence, formerly occupied by Dr. Gray, was moved to the opposite side of Garden Street, and in its place was built in 1911 the Library wing of the herbarium. This portion of the building, furnishing ample quarters for the convenient shelving of the library, with extensive provision for its growth, was given anonymously and was completed in 1912. Last year, however, the donor, Dr. George Golding Kennedy of the Harvard class of '64, kindly consented that his name might be announced in connection with the fiftieth aniversary of the graduation of his class.

This wing contains, besides the library, the private offices of the curator, Professor B. L. Robinson, and the librarian, Miss Mary A. Day, a room for maps, files and publications, and, in the basement, a press-room for the drying and preparation of specimens, a photographic dark-room, a staff-room and store room.

At the same time, the old and wholly inadequate laboratory and auditorium, which had formed the opposite wing of the earlier structure and had been built in 1871 by the gift of Horatio Hollis Hunnewell, were taken down and replaced by the George Robert White Laboratories of Systematic Botany, a wing of much greater capacity, well arranged, well lighted and provided with complete and highly perfected equipment for its purposes. This wing, the gift of Mr. George Robert White, of Boston, contains on the ground floor two laboratories, one used by the Harvard students in systematic botany, the other by the Radcliffe students. On the second floor, there is an instrument room, a "bundle-room" for the safe storage of collections awaiting study,

labeling, distribution as duplicates, etc., also Professor M. L. Fernald's private office, and finally a large and fully furnished room, which has been placed at the service of the New England Botanical Club for its extensive and valuable herbarium.

In 1912, by a second gift from Dr. George G. Kennedy, it was possible to carry out another highly important step in the general plan of reconstruction by rebuilding of the front portion of the original structure, raising it from one and a half to three stories in height and furnishing accommodations for an exceptionally convenient mounting room, a coat-room, a private office, a room for the collection of "box material" (*i. e.*, fruits, nuts, cones, etc., which from form and thickness can not be readily affixed to the ordinary herbarium sheets), and a room for the Pterydophyta and Gramineae.

As these successive additions were made to the earlier building, the collections both of specimens and books had been so far as possible removed from the old central portion to the surrounding new and fireproof wings. Early in 1914 the last part of the old building, namely the main central room, a story and a half structure, with narrow wooden gallery, was taken down, to be replaced by a structure of greater height and much more substantial construction. This final portion of the building is now completed. It and its steel furnishings have been the gift of Mr. White, Dr. Kennedy, Mrs. William G. Weld, Miss Susan Minns and Mr. John E. Thayer. As rebuilt this main room is furnished with two steel and glass galleries, of convenient breadth, each provided like the ground floor with a series of steel herbarium cases. The room is further furnished with blocks of table-topped cases, rising to counter height; also with large steel tables, covered with battleship linoleum and of height convenient for microscopic work and plant-dissection. The room is provided with copious north light, as well as overhead light. The well lighted basement of this section of the building has been furnished as a sorting room and to that end has been provided with thirty tables which together furnish room for more than two hundred piles of herbarium sheets and thus permit even the more complicated kinds of sorting without crowding or overlapping. These basement tables are made of "transite," a neat light gray stone-like material made of Portland cement and asbestos fiber.

Although the reconstruction has thus proceeded by sections, the building has lost nothing in unity, for the whole was carefully planned at the outset and each successive portion was built with due regard to its relation to the whole structure. In the whole process of building and furnishing there has been a strenuous effort to eliminate woodwork and all combustible materials. The building itself is of brick with floors and roof of reinforced concrete. All doors, jambs, sash and window frames are bronze, copper or steel-sheathed. There is no exposed woodwork in any part of the building, inside or out. As to the furnishing there has been the same attention to safety. All the plant cases, work tables, desks, book-shelving, files, wall cabinets, etc., built to order by the Art Metal Construction Company, of Jamestown, New York, are of steel, for the most part enameled in agreeable shades of gray-green or deep green with bright or oxidized brass trimmings. Even the waste-baskets are of metal. At some points in the furnishing it has seemed best and entirely safe to make certain concessions to comfort and sentiment. Thus the chairs are still of wood, the window-shades are still of linen (though they are on metal rollers), and in the curator's office some articles of wooden furniture formerly belonging to Dr. Gray are kept in consequence of association and sentiment. Furthermore, no substitute for wooden picture frames has been found, at least none which has proved esthetically agreeable. With these trifling exceptions, however, all combustible materials have been scrupulously avoided.

The herbarium itself, *i. e.*, the great collection of dried plants mounted on sheets of cardboard, would of course prove highly inflammable, but it is preserved in cases which form, as one may say, so many fire-tight compartments, so that even were a fire by some accident started it could not possibly spread.

Although the primary ideals followed in the rebuilding of the Gray Herbarium have been those of safety, permanence and convenience of arrangement, the resulting structure though architecturally plain is by no means homely. Indeed, its good proportions, dignified simplicity and obvious solidity give it a pleasing effect. It is a building to which the architect, Mr. W. L. Mowell, of Boston, has given a good balance, but it has purposely been kept from absolute symmetry from a feeling that such initial symmetry, if attempted, would render it much more difficult to make future additions, as these prove needful with the growth of the collections.

It is a notable fact that during the complete rebuilding of the establishment, the Gray Herbarium and its library have been open as usual for consultation. Though several reshelvings and transfers of materials from one section to another have of course been needful and demanded the care and attention of the staff from time to time, nevertheless the scientific work of the staff, students and visiting specialists has proceeded with surprisingly little interruption. The building has been continuously occupied and when it is borne in mind that much of the new structure has been built upon the old foundations, it will be seen by the many botanists for whom the earlier building had many pleasant sentiments and associations, that it is perpetuated rather than replaced by the new one.

ELISHA WILSON MORSE

ELISHA WILSON MORSE, formerly instructor in natural history at the Bussey Institution of Harvard University and well known for his contributions to the history of domesticated animals, died in Washington, D. C., on April 18, from pneumonia.

During the past few years Mr. Morse served as a specialist in animal husbandry in the U. S. Department of Agriculture. Aside from his official duties as an associate editor of the *Experiment Station Record* and later as a scientist in the U. S. Dairy Division, he was especially active in putting the foundations of animal breeding and feeding on firmer bases. He was one of the few who had a keen appreciation of the value of applying sound biological and statistical principles to the interpretation of feeding trials.

Mr. Morse was a graduate of the class of 1897 of Harvard University, an active member of the Biological Society of Washington, the American Society of Animal Nutrition, and the Boston Society of Natural History, and a regular contributor to several standard year books and encyclopedias.

LEWIS WILLIAM FETZER

SCIENTIFIC NOTES AND NEWS

THE presidency of the German Association of Scientific Men and Physicians, vacant by the death of Professor Eberhard Fraas, has been filled by the vice-president, Dr. F. von Müller, professor of internal medicine at Munich.

THE annual address before Sigma Xi and Phi Beta Kappa of the University of Illinois, which in previous years has been given during commencement week, will be given this year on May 4, by Dr. George Otis Smith, director of the U. S. Geological Survey. The subject is "Practical Ideals."

DR. JULIUS HIRSCHWALD, professor of geology and mineralogy in the Technical School at Berlin, has been given the doctorate of engineering by the Technical School of Dantzig, on the occasion of his seventieth birthday.

AT the meeting of the Entomological Society of France, on January 27, the committee appointed to nominate an honorary member in place of the late M. J. Perez reported that, while custom decreed the election of a Frenchman to fill this vacancy, it appeared to the committee as very proper, under existing conditions, to break away for once from the traditions and custom of the society and to give this honor to M. A. Lameere, professor in the University of Brussels, as an especial testimony of the sympathy and esteem of the society for one of the most eminent representatives of Belgian entomology.

DEAN EDWARD ORTON, JR., of the College of Engineering of the Ohio State University, has