

THE BRUSSELS POPULAR ELECTRICAL LABORATORY.
BY DR. ALFRED GRADENWITZ.

Owing to the ever-increasing importance of the applications of electricity, it is small wonder that electrical laboratories should have been founded everywhere to afford a means of completing practical instruction. In fact, technical colleges and schools of all degrees are at present equipped with such laboratories.

However, the institute recently founded at Brussels by Dr. Robert Goldschmidt, the well-known inventor and scientist, is of an absolutely novel kind. Realizing the inadequacy of book study and oral explanation for conveying a thorough understanding of experimental electricity, Dr. Goldschmidt provides an opportunity for experiment accessible to the general public desirous of observing the electrical phenomena, which are so important for modern industry. To attain this end he has created a popular laboratory of remarkably clear and simple disposition where lay people, by starting from the most elementary facts, will be able to acquaint themselves with any scientific problems relating to electricity.

The original intention was to create some sort of museum of electrical invention and discovery, organized on similar lines to the general museums of painting, natural history, and industry. This, however, would have been quite insufficient, as the object of any

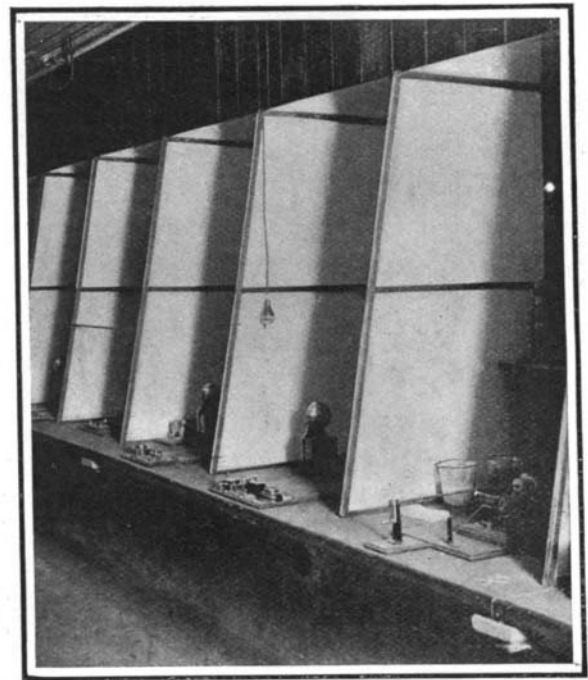
tion with the Popular Laboratory had to be designed and constructed especially for the purpose, and with a view to simplicity, safety, and solidity.

On the ground floor of the laboratory (which was opened on the occasion of the recent twenty-fifth anniversary of the foundation of the Society of Belgian Electricians) are installed apparatus for the fundamental experiments constituting the basis of modern electrical science. These are performed with relatively simple means. Visitors thus pass from the magnet stone to the properties of electro-magnets and the explanation of electro-motors, from the generation of static electricity by the friction of glass and wax on to the working of Wimshurst machines on similar principles and to induction coils; they then proceed to familiarize themselves with the phenomena of electrical discharge in various media (cathode and radium rays, etc.).

In the gallery are installed those apparatus which are required for the demonstration of the principles of electrical induction, alternate currents, and methods of electrical measurement.

Each apparatus installed in these two departments of the laboratory is located in a glass case, leaving free to the experimenter's hands only the instrument required for performing the experiment, and thus avoiding any unnecessary contact liable to endanger the apparatus. In three adjoining rooms are united the apparatus of precision and investigation as well as measuring instruments, the handling of which requires a thorough knowledge of all the preceding, comprising photometers, precision bridges, standards of measurement, galvanometers, wattmeters, etc.

On the ground floor in the center of the building are found such apparatus as will allow the visitor to familiarize himself with the most important measurements relating to motors and dyna-



Apparatus for demonstrating current effects.

performing it themselves. Should, however, somebody sufficiently well instructed wish to experiment himself, he would be allowed to do so under the supervision of an experienced operator.

To the laboratory is connected a lecture hall, behind which is installed a projector allowing visitors at any moment to inspect on the screen an extensive series of hundreds of views relating to scientific novelties. This is actuated by a push button.

A special hall is set apart for industrial men to exhibit their products free of charge, and a library containing the most important books, periodicals, and bibliographical files enables visitors to supplement by theoretical study the practical knowledge acquired in the laboratory.

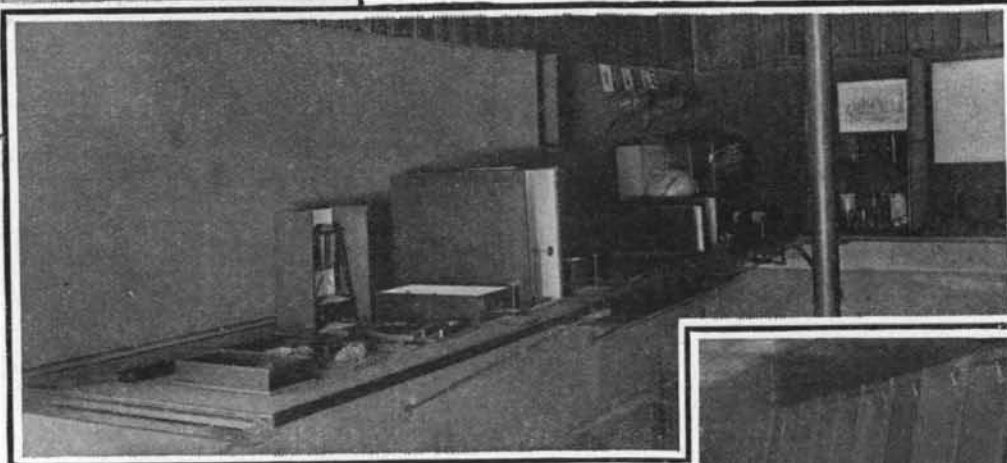
A mechanical workshop initiates those seeking such information in the construction of electrical apparatus. Finally, four small laboratories situated in the front building are to be placed at the disposal of specialists for use in original research work.



A row of static electrical machines.

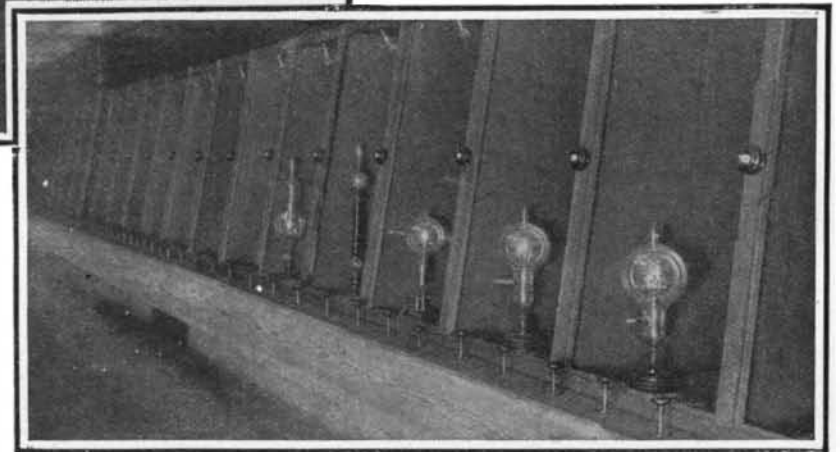
piece of apparatus exhibited would rarely be immediately apparent to the observer. What was to be shown was not the principle itself, but its demonstration, and the method of conducting an experiment, to demonstrate it, and the best means of teaching the student this is to let him conduct the experiment himself. This task was an extremely difficult one, entailing as it did a rational classification of experiments such as should render them comprehensible. In fact, the main defect of any previous attempts in the same direction (made at London, Berlin, and Munich) had been the lack of plan and co-ordination.

Every experiment had to be designed with a view to its being accessible to everybody, in addition to forming part of a graduated course of inter-connected experiments. Most of the apparatus used in connec-

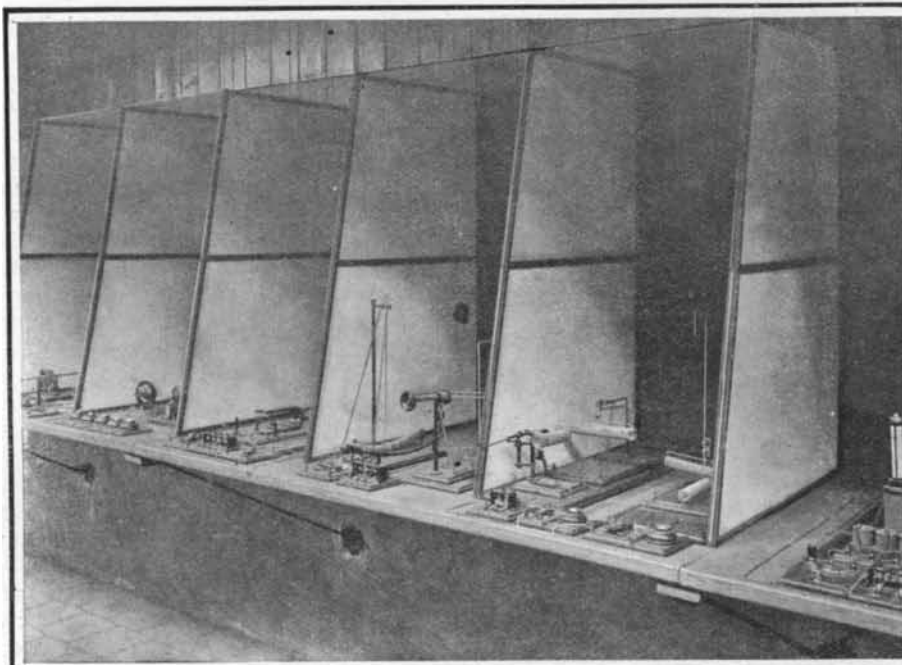


Apparatus for the study of natural and permanent magnets and terrestrial magnetism.

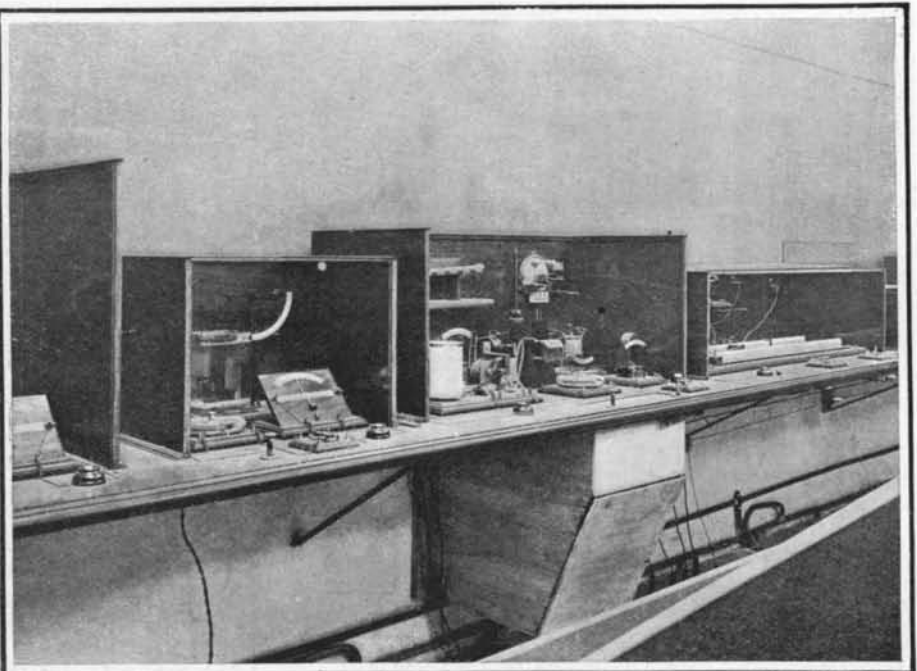
mos. These two departments are different in character from the two preceding. In fact, visitors here find themselves in a laboratory where measurements and tests are performed by competent men. By watching their work, they will be able to grasp the mechanism of the experiment without being capable of



Apparatus for the study of radiation phenomena.



Apparatus for demonstrating attraction and repulsion of charged conductors.



Electrical measurement apparatus.