

## NATIONAL PHYSICAL LABORATORY.

OPENING OF NEW BUILDINGS FOR ELECTROTECHNICS  
AND PHOTOMETRY.

THE new buildings of the National Physical Laboratory for electrotechnics and photometry were opened on Monday, June 25, by Mr. Haldane, Secretary of State for War. A large company assembled at the invitation of Lord Rayleigh and the general board, and among those on the platform were Lord Rosse, Lord Kelvin, Sir John Wolfe Barry, Sir J. Lawrence, M.P., Sir John Brunner, M.P., Sir William White, Mr. Gavey, M. Hospitalier, Herr W. von Siemens, Prof. Semenza, M. Gerard, Sir Thos. Wrightson, and Sir Chas. Tupper.

Among the audience, numbering nearly six hundred, were representatives to the International Electrical Congress, now being held in London, from the American, German, French, Swiss, Italian, and other electrotechnical societies.

Lord Rayleigh presided, and in opening the proceedings said that the gathering marked another stage in the evolution of the institution, and they all hoped the new buildings would play a considerable part in the science of electrotechnics in this country.

The director, Dr. Glazebrook, then made a statement concerning the new extensions, and detailed the gifts which had been made towards equipment by numerous firms and individuals. The Chancellor of the Exchequer had asked Parliament for a grant of 5000*l.* last session for new buildings, and this year's grant towards the cost of the further extensions in the engineering, chemical, and metrological departments was 10,000*l.* The building in which they were assembled had cost only about 7000*l.*, largely owing to the liberal treatment accorded to the laboratory by the contractors, Messrs. Mowlem, and by Messrs. Mott and Hay, who gave their services as architects. The director expressed his indebtedness to the members of the staff, who had helped in designing and fitting up the building, especially to Mr. Paterson, Mr. Rayner, and Mr. Melsom, who had all given much time and careful thought to the plans.

Mr. Haldane then addressed the meeting and declared the laboratory open. The meeting terminated with votes of thanks to Mr. Haldane, proposed by Sir John Wolfe Barry and seconded by Sir John Brunner, M.P., and to the chairman, proposed by Mr. Gavey.

The objects of the new building are the provision of suitable accommodation for the rapidly extending work of the laboratory in electrotechnics and photometry. In the old building will remain all the fundamental-standard work relating to measurements of current, electromotive force, resistance, capacity, and inductance. The main portion of the new extension consists of a top-lighted shed, 120 feet by 50 feet, divided into two bays, each 25 feet wide. The southern bay is divided transversely, forming two rooms, each 60 feet by 25 feet. The inner of these has a glass ceiling, and the lights above are glazed with double glass, and face north. The space between the ceiling and the roof can be heated, and by means of a large fan artificial ventilation is provided. It is hoped by this means to maintain the temperature fairly uniform. This internal room is intended for resistance measurements. The other half of the same bay is designed for heavy-test work. Two

bed-plates are provided for machine testing, and arrangements have also been made for addition of a travelling crane.

The large bay to the north side, in which the ceremony was held, is for general electrotechnical testing. At the west end of this is the main switchboard, receiving power from the dynamo room, and also from the mains of the supply company, and distributing it to the machines in the building and to the batteries.

Near by is provided space for the special electrotechnical machine equipment. This includes a 5 kilo-watt motor-generator set for single or three-phase current, the frequency of which can be widely varied, another motor-generator of specially high efficiency for life-tests on lamps, and a third for transformer and high-tension experiments. The rest of the bay is assigned to experimental work, the western portion being reserved for alternating-current experiments, and the eastern portion for direct-current. The batteries are on the top floor of an annexe to the east of the main block, above the rooms reserved for photometry; thus the direct-current work requiring heavy currents will go on in the extreme eastern portion of the main bay.

Four new accumulator batteries are provided, and to charge these and furnish the additional power necessary for general work a 50 kilo-watt motor-generator has been provided in the power-house, driven from the supply mains of the local company. For ammeter-testing, currents up to 6000 amperes for an hour can be obtained by paralleling one of these batteries, and 10,000 amperes for short periods. A special 300-volt battery is reserved for photometric experiments.

The remainder of the new building is intended for photometry. On the ground floor is a large room for life-



FIG. 1.—New Buildings of the National Physical Laboratory.

tests of electric and gas lamps, and, above, a room for standard photometry and a specially arranged gallery for arc-lamp testing. A length of 90 feet is available for photometry of specially high candle-powers, and in the arc-lamp room a height of nearly 35 feet.

No money has been spent on unnecessary adornment of the buildings, marble and granite being conspicuous by their absence, but already the grounds have been planted with flowers and creepers, and the exterior, though plain, is by no means an eyesore.

After the opening ceremony the visitors proceeded to the old buildings and the garden, and inspected the various laboratories, where the assistants in charge explained the work of their own departments. The objects which appeared to attract most attention were the new ampere balance in the main electrical room, the various electric furnaces, the radiation pyrometers in the thermometric department, and the new measuring machines in the department of weights and measures.

A summary of the *Times* report of Mr. Haldane's address is subjoined.

The Government is keenly interested in the development of science, and a donation by the Chancellor of the Exchequer on a scale of double what was anticipated last year is an earnest of what it means. A contrast

may be made between the German and the British attitude towards science. Prussia began her emancipation by founding a university as an answer to the conqueror. Germany became the victor by the sheer might of thought and by the wonderful organisation which that might of thought enabled her to make the foundation of her future power. We, on the contrary, have always made the effort after material prosperity first, and when prosperity has been attained have strained after science. This is rather an outcome of the Anglo-Saxon temperament. There is an aversion in this land from anything that is abstract, a desire to do as much as possible by individual effort, and finally to turn to science and to the aid of thought and organisation for the completion rather than the foundation of the edifice. It is a good sign that brotherhood of science brings men of different races and different temperaments together. The possession of common conceptions and intellectual instruments, the passion for, and fascination of, common problems, the fact that the minds of men of the most varying temperaments and the most differing races are making toward a common point, has brought about a great intellectual common ground, and united men for the effort to accomplish a common task. The functions of the State are becoming more and more recognised, and more and more people in different parts of the world are beginning to feel that it is not merely the State, but the great individualities of which we are proud—individualities which form a common heritage. It is not merely Frenchmen who are proud of Laplace and Lavoisier, nor merely Germans who rejoice in the names of Weber, Helmholtz, Gauss, and Riemann, nor merely Englishmen who speak with pride of Newton and of Darwin. These and many other names belong to the world at large, are the inheritance of those who have drawn in the breath of the Time-Spirit to see it come forth again in the concentrated form of genius in conspicuous individuals too great to be the representatives of any one race, satisfied with being nothing less than the embodiment of the finest genius of humanity. In an ideal State, the ruler would take thought, not merely for the day, but for the morrow; but there is very little thought taken for the morrow in the government of almost any nation. What an infinite amount of friction would have been avoided, what an enormous quantity of waste would have been obviated, had there been only thinking organisation, plain principles not hurriedly to be departed from, at the root of policy! In the National Physical Laboratory we have a sign, a portent of the times, the evidence that we are advancing. But a few years ago and such an institution would have been impossible. We may look at it as a sign that we are coming into line with the rest of the world, and recognising that it is to science, and science in the main, that we must look for the means of maintaining ourselves in the vast competition of the world.

#### NOTES.

THE programme of events in connection with the international celebration of the coal-tar colour jubilee has now been definitely arranged. The steps leading up to the celebration have been described in these columns already (vol. lxxiii., p. 419). The celebration will be held on July 26 and 27. On the first day a meeting will take place at 11 a.m. at the Royal Institution for the presentation to Dr. W. H. Perkin of his portrait and bust, and in the evening a banquet has been arranged at the Whitehall Rooms, Hotel Metropole, when many distinguished guests are expected to be present. On July 27 a visit will be paid to the original works at Greenford Green, where mauve was first manufactured, and a garden-party will be held at Dr. Perkin's house. In the evening a soirée will take place at the Leathersellers' Hall, at the invitation of Dr. and Mrs. Perkin. The international committee arranging the ceremony includes distinguished representatives of science, especially chemical science, in France, Germany, and Switzerland, as well as in this

NO. 1913, VOL. 74]

country. Applications for tickets and invitations should be made to Dr. J. C. Cain, 28 Pembury Road, Clapton, N.E., who is acting as assistant honorary secretary to the executive committee.

We learn from the *Chemist and Druggist* that the Chemists' Club of New York has also decided to honour Dr. Perkin. At a meeting held on May 28 the committee (of which Prof. Chandler is chairman) reported in favour of the establishment of a library, probably to be known as the Perkin Library, and to cost 10,000l.; the appropriation of 1000l. for a Perkin medal and a token to Dr. Perkin; and a dinner on October 6, at which Dr. Perkin is expected to be present. The proposals were adopted. The Perkin medal is to be awarded annually to an American chemist for distinguished work in technical chemistry.

MUCH correspondence has appeared in the *Times* and other journals during the past week with reference to the Wireless Telegraphy Bill which has just passed its third reading in the House of Lords. The Bill is merely to extend the Act of 1904, a summary of which appeared in our columns at the time (vol. lxx., p. 349). The original Act expires in July of this year, but will now be extended to 1909. The extreme importance of wireless telegraphy for the purpose of national defence has been recognised from the very first, and in consequence exercise of control had to be placed in the hands of the Government, especially in view of the fact that—all claims to the contrary notwithstanding—it cannot be said that any system has yet been perfected which is completely immune from interference or cannot interfere with other systems. It is outside our province to enter into the legal dispute between the Marconi Company and Lloyd's, but it is to be hoped that a settlement will be arrived at which will give the public the full advantages in connection with shipping that wireless telegraphy affords.

PARAGRAPHS have appeared in the daily papers alluding to a "new disease" which was said to have appeared in Essex about ten days ago. Some children at Highwood, near Chelmsford, were found to be suffering from a rash on the hands, face, and neck, accompanied with great irritation of the eyes and skin. On inquiry it was found that the children had been playing with some caterpillars taken from the hawthorn hedges. Much amusing "newspaper science" has appeared, and the name *Plusia gama* (sic) has been applied to the insect. The caterpillars were undoubtedly those of the Gold-tail Moth (*Liparis auriflua*), which is now common on the hedges. It is a pretty creature, but the hairs which cover its body are very easily detached, and, being exceedingly fine, readily enter the soft skin of children, and thus set up inflammation. It is doubtful whether any poisonous secretion accompanies the hairs, or whether the painful injury is purely mechanical. The malady is well known to practical entomologists, most of whom have learnt by experience to banish *Liparis* from their breeding-cages. An allied species, *Liparis chryso-rhoea* (the Brown-tail Moth) is in some seasons abundant on bushes on the Essex coast, and is even a greater irritant than its congener, but it is one of our immigrant moths, and is not seen every year.

A VIOLENT shock of earthquake was felt yesterday, June 27, at 9.45 a.m. over the whole of South Wales. At Swansea a chimney was thrown down, while at Cardiff the Exchange and other big buildings were shaken. The shock lasted about three seconds. The earthquake was felt at Knighton at 9.46 a.m., and tremors were also experienced at Llandrindod Wells and in South Shropshire. A slight shock was felt at Abergavenny and Carmarthen,