of the actions that determine the displacement of the more or less permanent anticyclones, it is doubtful whether an occasional coincidence could be accepted as sufficient evidence to establish a relation. Some meteorologists, we believe, consider anticyclones to be comparatively inert masses, and others, on the contrary, as sources of action. They are remarkably persistent in position and character, and their variation of position from one period to another in south-western Europe is closely related to the abnormalities of weather. Where theoretical opinions differ so largely it is almost certain that it will require twenty-five to fifty years' data at the least to test the relation between the Abyssinian rainfall and the position of the anticyclone in south-western Europe or the adjacent Atlantic.

NEW PHYSICAL AND ENGINEERING DEPARTMENTS OF THE UNIVERSITY OF EDINBURGH.

THE new buildings for the natural philosophy (Prof. MacGregor) and engineering (Prof. Hudson Beare) departments of the University of Edinburgh were opened on October 16 by Dr. Andrew Carnegie in the presence of a large and influential gathering. The proceedings took place in the large lecture theatre of the natural philosophy department, and were presided over by the Chancellor, the Right Hon. A. J. Balfour. Part of an address entitled "A Plea for Science Teaching," delivered by Dr. Carnegie before declaring the buildings open, was printed in last week's NATURE (vol. lxxiv., p. 648).

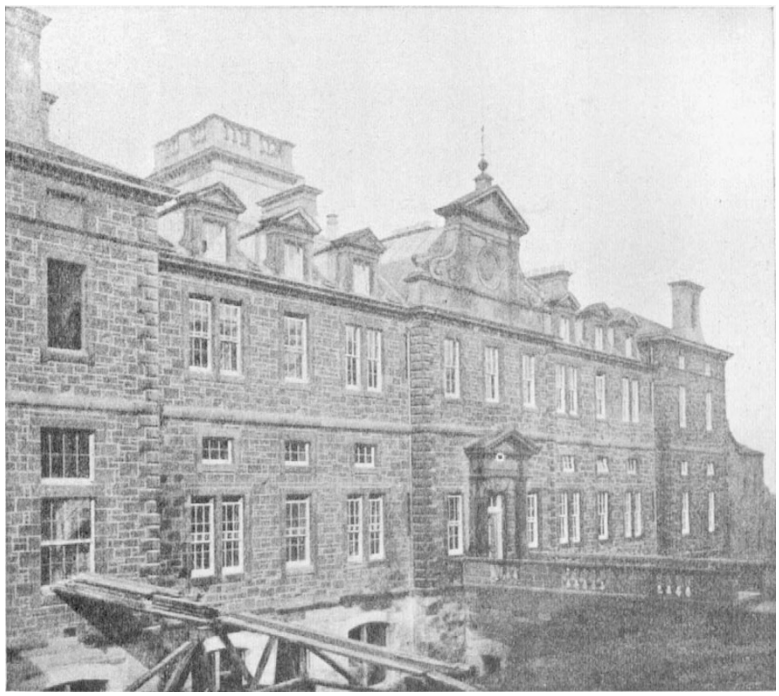

FIG. 1.—South front of new Natural Philosophy Buildings, University of Edinburgh.

The Chancellor then moved a vote of thanks to the benefactors. He was glad to have the opportunity of mentioning the work of the friends and admirers of the late Prof. Tait, who had instituted a fund to encourage research, which he hoped would make these walls illustrious to all time. No more fitting tribute to Prof. Tait's memory could possibly have been contrived. Though Prof. Tait worked in what he could hardly call a laboratory, ill-equipped and wholly inadequate to the work of modern research, yet he left a name which for all time would be associated with the great development of physical knowledge which marked the last fifty years of the recent century—a movement which he believed would be conducted with ever-increasing acceleration through the earlier years of the present century. He was glad also to have an opportunity of saying to Lord Elgin that the work he had done as chairman of the Carnegie Trust was a work for which he had earned the gratitude of every man interested in the fate of the Scottish universities, and in the maintenance of the position which Scotland had held for more than 150 years in the world of learning. Proceeding, the Chancellor referred to Dr. Carnegie, whose munificent beneficence to many great causes, and, so far as they were concerned, especially to the Scottish universities, was known, and was destined to leave a permanent mark and do permanent good in Scotland.

Sir William Turner, in seconding the motion, referred to the great kindness of Sir Donald Currie, who, he said, had taken a great weight off his mind when he told him he need not be under any difficulty in finding the money to hand over to the municipality for the site on November 11 two years ago. He also desired to thank Sir John Jackson for his generous gifts, and stated that before long he hoped they would be in a position to receive from him a very handsome addition to the Tait memorial fund.

Natural Philosophy Buildings.

The accompanying illustration (Fig. 1) shows the south front of this block of buildings. The building which has been transformed into a physical institute—the old surgical hospital of the infirmary—consisted of a main block 107 feet by 43 feet running nearly east and west, with wings at both ends 62 feet by 38 feet, and a block 71 feet by 51 feet running north towards the new engineering buildings, this north block including at its junction with the main building a tower 89 feet in height. The outer walls have been almost entirely utilised as they stood, with one important exception—on the southern side of the main building, by terracing the ground and piercing the lower part of the wall with large windows, the old dark basement rooms have been converted into lofty, well-lighted laboratories. The interior has been largely reconstructed, and all the floors are now concrete, supported on east and west steel girders.

The principal floor, entered directly from Drummond Street, contains the lecture theatre, apparatus rooms, library, professor's research rooms, &c. The lecture theatre, 45 feet long, 46 feet wide, and 32 feet in height, with seating accommodation for 250 students, is lit entirely from an opening in the roof, and is ventilated by an electric fan. The lecture table is 30 feet long, standing in an experimental area 15 feet wide; it is supplied with hot and cold water, high-pressure water, steam, gas, vacuum, air-blast, oxygen, and a number of electric circuits, and a heliostat has been placed in a window of the apparatus room so as to send a beam of sunlight along it. Opening off the lecture theatre is a preparation room with the necessary work benches; this room contains also the main switchboard, from which current will be distributed throughout the building from the town mains and from the accumulators. The apparatus room has a corridor entrance immediately opposite that of the preparation room; it is intended only for lecture apparatus. On the west side of the apparatus room provision has been made for a smaller lecture room, capable of accommodating about eighty students, and on the ground floor there is another small lecture room for the department of applied mathematics. The library and reading room is 37 feet by 29 feet, with a southern exposure, and opens off the entrance hall.

The upper floor and the ground floor are devoted to the laboratories and research rooms; the east wing of the upper floor is reserved for arts and science students, and the west wing for medical students. The junior arts and science laboratory has accommodation for forty-five students, and is fitted with tables, benches, and wall apparatus for introductory experimental work; on one side is a long gallery for optical work. The senior laboratory will accommodate forty students, and consists of three rooms for mechanical, thermal, and electrical work, two rooms for optical work, and two for sound. Between these two sets of laboratories is a research room for the chief laboratory assistant, and adjoining them is a small workshop with benches, lathe, glass-blowing table, &c.

On the ground floor are the research rooms; at present only five are to be fitted up; the remainder will be equipped and brought into use as funds permit. These rooms have firm concrete floors, have stone shelves built into the thick, solid walls, and are supplied with high- and low-pressure water, gas, electric currents, &c., and in certain of the rooms, by the use of copper and brass piping, and by other precautions, provision has been made for work with delicate electrical instruments. On this floor are also the accumulator room, a large workshop and forge room, and a constant-temperature room.

The tower, 89 feet in height, has been utilised for suspension of long wires, mercurial pressure-gauge, and other purposes requiring considerable height, and, lastly, on the roof a floor space, 24 feet by 12 feet, has been arranged for open-air experiments.

Engineering Buildings.

The accompanying illustration (Fig. 2) shows the west end of the block of buildings for the engineering department.

The building is T-shaped, the head of the T facing west. In the head of the T, on the ground floor, are provided large laboratories for the testing of materials (42 feet by 30 feet) and for hydraulics (51 feet by 30 feet). The first floor is devoted mainly to a laboratory for experimental work, which does not require heavy machinery (73 feet by 25 feet). On this floor are also a small lecture room, the departmental library, and the private rooms for the staff.

The back block of the building is also divided into two floors—the lower forms the lecture theatre and the upper the drawing office. The lecture theatre will seat about 120 students, and on the lecturer's table are all the needful appliances for experimental demonstrations, there being steam, gas, and electrical connections. There are also the necessary appliances for darkening the room in order to allow of the free use of lantern demonstrations. The drawing office is a fine room, about 45 feet square, lit entirely from the north and east, the roof being of the saw-tooth pattern, the floor space giving room for about sixty independent drawing tables. Special rooms have also been set aside for blue-print work and photography.

A workshop and heat laboratory (48 feet by 42 feet) has been provided for by roofing in and connecting to the main building a piece of ground lying in the north-east angle between the front and back blocks. The workshop and laboratory contains examples of all the ordinary machine-tools, gas-engines, steam-engines, and other plant for experimental research in connection with thermodynamics.

The building is heated by hot water and by steam; an independent boiler house has been constructed for this purpose, with two large boilers.

A considerable amount of additional apparatus has been installed in these new buildings. The testing laboratory now contains a 100-ton Buckton machine, with the necessary electric motor, pump, and accumulator; a 60,000-lb. Riehle machine; an Amsler 100-ton machine, specially designed for compression and bending work; and a complete installation for the testing of cements, mortars, &c.

In connection with the hydraulic laboratory, a water tower has been constructed at the south-east corner of the building; at the top of this tower is a large cast-iron tank holding about 10,000 gallons, and giving a head of 65 feet above the floor-level of the laboratory. The floor of the laboratory is on two different levels; on the upper level are placed the various turbines, water-wheels, and other hydraulic machines on which experimental investigations will be carried out. The water discharged from these machines passes into one or other of three rectangular channels formed in the floor, and the quantity is measured by allowing the water to pass over weirs. The water then flows into one or other of two large rectangular tanks, each 11 feet square by 5 feet deep, sunk below the lower floor-level of the laboratory, where it is measured again by floats, with rods moving in front of carefully graduated vertical scales. From these lower measuring tanks the water is lifted by an electrically driven 20 h.p. centrifugal pump back to the storage tank in the water tower. The hydraulic equipment includes a Venturi meter and other forms of meters, and a considerable amount of other apparatus for experimental work.

FIG. 2.—Entrance and West Front of new Engineering Department, University of Edinburgh.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—The geographical scholarship for 1906 has been awarded to Mr. N. de Lancey Davis, Jesus College.

Mr. J. A. Brown, New College, has been appointed demonstrator in the laboratory of the Wykeham professor of physics.

The following elections have been made at Jesus College:—to scholarships in natural science, G. I. Wishart, Wilson's Grammar School, London, S.E., and H. E. Jones, County School, Towyn; to exhibitions in natural science, R. Atkin, Nottingham High School, and A. D. Phoenix, Grove Park School, Wrexham.

CAMBRIDGE.—The following recommendations, contained in a report of the special board for mathematics on the mathematical tripos, received the sanction of the Senate at a congregation held on October 25:—(1) A student may be a candidate for part i. of the mathematical tripos