

## ELECTRICAL DEVELOPMENTS IN MADRAS

IN a paper published in the *Electrician* of August 1, by J. Meek, the resident electrical engineer to the Madras Presidency, interesting projects are suggested about new developments in the Madras Presidency. This Presidency covers an area in South India of 142,000 square miles and supports a population of about 48 millions. An idea of the size may be obtained by comparison with that of England, which has an area of about 50,000 square miles and a population of about 38 millions. The people in the Presidency are mainly engaged in agriculture, and most of them live in villages. The capital, Madras City, has a population now approaching 800,000, but the next biggest town, Madura, has a population of less than 250,000. Four main languages are spoken—Tamil, Telugu, Canarese and Malayalani—and efforts are now being made by the Congress Government to introduce Hindi with the ultimate object of providing India with a common language. Among the educated classes English is widely spoken.

Some idea of the climate of Madras can be obtained from the following significant clause which usually appears in Madras Government electrical specifications: "The temperature in the shade will vary from 50° F. to 110° F. The max. temperature in the sun may be assumed to be 150° F. The relative humidity will vary from 60 to 80 per cent."

Although for the greater part of the year there is very little rain in most parts of the Presidency, there is considerable rainfall during the south-west and north-east monsoons, especially in the eastern and western Ghats, where more than 400 in. is registered in some places.

Until comparatively recently the only supply system of any importance was that of the Madras Electric Supply Corporation, which has held a licence from the Government for the generation and distribution of electricity in Madras City for the last

thirty-one years. This Corporation has a steam-turbine power station with a capacity of more than 53,000 kva. The Presidency has no coal or oil deposits but is fairly well provided with water-power in the south. In 1924 the Madras Government decided to take charge of all hydro-electric surveys and projects and bought back concessions previously granted to private concerns which had not been developed.

The Pykara Scheme in the Nilgiri Hills was taken up first. It is situated at a distance of 280 miles to the south-west of Madras. Pykara is a high head scheme with storage utilizing a fall of 3,000 feet. When the great Mettur Dam was built some years ago for irrigation control, hydro-electric pipes were left ready in the dam, and this development was the next to be taken up about five years ago. The present installed capacity of plant is 37,500 kva, operating on a head which varies from 60 to 160 feet. In addition to these schemes the Madras Government has provided two steam stations in the north. There are many miles of feeder lines and also a considerable mileage of 33 kv. and 11 kv. The length of these transmission lines has necessitated the introduction of synchronous condensers at Trichinopoly and Madras.

The demand for power has greatly exceeded the most optimistic estimates, and additional plant and extensions to lines and substations had to be installed several years in advance of the original programme.

The grid supplies power direct to many tea factories, ginning factories, oil mills, chemical works, and even to farmers in outlying districts. More than a thousand small pumping sets are connected to the systems for pumping water from wells into the fields. The ryot has found it cheaper and more convenient to water his fields by means of electricity than by using bullocks as his forefathers have been doing for centuries.

## UNIVERSITY OF THE WITWATERSRAND

### NEW ENGINEERING BUILDING

ON June 18 at the University of the Witwatersrand, Johannesburg, General the Right Hon. J. C. Smuts, Prime Minister of the Union of South Africa, opened the new Wolf and Hirsch Hillman Building, which forms an important and substantial addition to the accommodation provided for instruction in engineering. Its site, lying to the west of the central block and south of the older engineering block, stands higher than these, and in its lay-out this has been utilized to permit of the formation of terraces and rock-gardens and the provision in an economical manner of a range of garages.

The building consists of two wings running east and west, the larger, about 210 ft. long, being devoted to laboratories and placed on the north side so that it receives the maximum light. The shorter south wing, about 130 ft. in length, provides accommodation for a model analysis laboratory, drawing halls and lecture theatres. The east wing connecting these other two contains the entrance hall and staff offices.

The Department of Civil Engineering provides a four-year course for the degree of B.Sc. (Engineering) which is recognized by the Institution of Civil Engineers as exempting its holders from Sections A and B of its associate membership examination. In the Union, it offers a qualification for those entering the higher technical services of the Irrigation and Public Works Departments, National Road Board, South African Railways and Harbours and other equally important administrations and undertakings.

The new Hillman Building will greatly enhance its facilities by providing spacious and well-equipped laboratories with workshops and stores and ample accommodation for lectures. It has been designed to serve a threefold purpose: (i) to promote the course of training already referred to; (ii) to provide for research into fundamental problems of civil engineering; and (iii) to assist in the solution of problems arising in practice.