

## THE COLABA OBSERVATORY

THE latest administration report of the India Meteorological Department publishes pictures of a barometer and a rain gauge, two century-old instruments in use at the Colaba Observatory.

The Colaba Observatory at Bombay was erected in 1826, its site having been earmarked for it three years earlier, under the direction of the East India Company. Mr. Curnin was the first Astronomer. But it was not until 1841 that the observatory became an active centre when on the recommendation of the Royal Society, systematic observations began and the observatory was associated in research on meteorology and magnetism and also in time signal work. Thus it is that the current year is regarded as the centenary year of the Colaba Observatory.

In 1865 a committee of enquiry, set up by Government, recommended the installation of full equipments for magnetic and meteorological work, comprising the latest type of recording instruments and the appointment of a full-time and fully qualified officer to direct the work of the observatory. These recommendations were at once acted upon and Mr. C. Chambers was appointed Superintendent in 1865. The fruitfulness of the observatory under Mr. Chambers' direction is apparent from the large number of papers published by him in scientific journals, and by the volumes issued from the observatory during the years 1865 to 1894 which contain valuable contributions to the sciences of terrestrial magnetism and meteorology.

On the death of Mr. Chambers in 1896, Dr. N. A. F. Moos succeeded him. In 1898 a seismograph was set up to take part in the programme of observations started by the seismological committee of the British Association. In 1899 the control of the observatory passed from the Government of Bombay to the Government of India.

Owing to the decision to electrify the Bombay City at the beginning of 1900 and the consequent risk of disturbing the magnetic records obtained at the observatory, it became necessary to remove the magnetic work from Colaba to a place free from artificial disturbances. A new magnetic observatory was consequently built at Alibag and the magnetic work was permanently shifted to that place in 1906. By that time Colaba had the creditable record of more than 60 years of continuous magnetic records and in 1910, Dr. Moos published a comprehensive study of the whole, for the period 1846-1905 under the title "Colaba Magnetic Data", and this has remained a mine of information for later workers in the subject.

In 1930 regular observations on atmospheric electricity and potential gradient began to be taken. Studies of the changes of electric field associated with the movement of thunder-clouds and monsoon clouds have been made. The phenomenon of "earth-currents" has been investigated. Seismological work has been considerably extended and a quarterly Seismological bulletin containing the analysed data of the seismograms of all the Indian observatories is being issued from Colaba since 1937.

The observatories at Colaba and Alibag function as a centre for geophysical research in India. Their activities are directed to obtaining regular records of the phenomena of terrestrial magnetism, meteorology, seismology and atmospheric electricity, to the reduction and discussion of recorded facts and observations and to the publication of the results obtained. Star observations are taken for the purpose of time-keeping and the rating of marine chronometers. The observatory is equipped with various magnetic, meteorological, astronomical and seismological instruments.

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## CENTENARIES

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### Mendenhall, Thomas Corwin (1841-1924)

THOMAS CORWIN MENDENHALL, an American physicist, was born on a farm in Ohio, 4 October, 1841. He was largely self-educated. After leaving school in 1861, he taught mathematics and physics in various schools and became professor at the Ohio Agricultural and Mechanical College in 1873. In 1878 he was appointed professor of physics at the Imperial University of Tokyo. In 1881 he took up a similar appointment in the Ohio State University. In 1884 he joined the scientific staff of the Federal Government and retired in 1904.

While at Tokyo he established a physical laboratory and a meteorological observatory.

He also measured the absolute force of gravity at Tokyo and its relative value in relation to that at Fujiyama. From these data, he determined the mean density of the earth and his value was considered best.

He invented an improved portable apparatus for the measurement of gravity. He was the first to propose the use of the ring pendulum for measuring the absolute force of gravity.

Though not a University man, he was given many honorary degrees and medals of learned societies. He was elected president of the American Association for the Advancement of Science in 1889.

Mendenhall died at Ravenna, Ohio, 22 March, 1924.



**Hunt, Charles Wallace (1841-1911)**

**C**HARLES WALLACE HUNT, an American engineer, was born at Candor, 13 October, 1841. After receiving his early education in the local institutions and serving in the war department for a short period he purchased a small coal business in 1868.

Not satisfied with the clumsy methods used for handling coal, in 1872 he invented a system by which coal was unloaded from cars or barges by cars which rose to inclined elevated tracks over which they travelled by gravity to all parts of the storage area. The little cars dumped automatically and were returned to the barges by the energy stored in weights which were raised by the cars during the loaded runs. This system was such an immediate success that he floated a new company to develop and manufacture it.

He also so improved the storage plants that he was called upon to build many large coal terminals throughout the world. It is said that his invention reduced the cost of handling coal to one-tenth the prior cost. His methods have since been applied to other materials as well.

He then turned his attention to the manufacture of industrial railway system, in which he was the first to make the system of units which could be purchased and combined to form any desired arrangement of tracks about a factory. He also experimented on flexible rope which resulted in his paper on *Rope driving* which remained for many years the best work on the subject.

Hunt died on Staten Island, New York, 27 March, 1911.

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## SCIENCE NOTES AND NEWS

**Studies on the British White-flies.**—The recent publication by Dr. K. N. Trehan [*Trans. R. Ent. Soc., London*, 90, (22), 575] gives useful information on the species of British *Aleurodidae*. He gives a complete account of their morphology, habits and food-plants and discusses their systematic position and parasites. The author has given conclusive facts in proving the synonymy of some of the important species and his descriptions of the immature and adult stages of the various species throw light on their systematics and morphology. The comparative study of the various forms yielded two new species (*Proc. R. Ent. Soc., London*, (B) 7, 182). Besides, the author has also shown that colour variations exist even in the individuals of one and the same species (*Ind. J. Ent.*, 1, 71) and that the distribution of spines on the nymphs and pupæ, can in no way be considered a satisfactory taxonomic character. Both these characters, therefore, variable as they are, have no classificatory significance and cannot be adopted.

The importance of the 'vasiform orifice' and the genitalia has been thoroughly discussed and their reliability as significant diagnostic characters has been established. These characters have yielded valuable specific differences with the result that new species and genera have been erected and cases of doubtful nature have been properly dealt with. The entire work has been supplemented by the addition of keys for identification of adult as well as pupal characters.

It is believed that the paper under reference will prove of value in the investigations on Indian white-flies which demand our early attention. It is, therefore, hoped that the Imperial Council of Agricultural Research will take up this problem and provide necessary facilities with a view to investigating in detail the systematics and bionomics of the aleurodid fauna of India and compiling the available data about them on the lines similar to those adopted for the British white-flies. Since this group as a

whole, including as it does pests of cotton, sugarcane, citrus and castor, is of considerable economic importance, it is hoped that it will receive the early patronage of the Council.

K. G. BHANDARI.

**Nutrition Conference, Washington, 1941.**—The National Nutrition Conference for Defence, summoned by President Franklin D. Roosevelt which took place in May (26-28) at Washington provided an opportunity "to explore and define the nutrition problems and to map an immediate programme of action" (*Experiment Station Record*, 1941, 85, 1-4). The Conference was organised in nine sections among which the following may be mentioned: Research and National Nutrition Problems; Economic Policy and Social Responsibility as Related to Nutrition; Public Health and Radical Aspects of Nutrition; Nutrition for Workers in Defense Industries; Methods of Education in Nutrition; Professional Education in Nutrition and Nutrition Problems in Distribution and Processing of Foods. The Conference as a whole expressed its belief "that poor diets and undernourishment are widespread in this country" and that "while these conditions offer no grounds for alarmist statements, they are serious enough to be a genuine cause of weakness in the present national emergency and to warrant national attention and concerted action". The Conference urged the need for "vigorous and continuous research to add to our knowledge of the nutritional needs of individuals, the nutritional status of groups in the population, the nutritive content of everyday foods, and the effects of various methods of processing, storing, and cooking on their nutritive value". Section 1, relating to Research and National Nutrition Problems, dealt with all the principal lines of inquiry in the nutrition field. Sufficient information is available for formulating adequate dietaries at several cost levels, for recognizing several specific types of malnutrition, for conserving nutrients