

THE NEW HAMBURG OBSERVATORY.

IN the United States the science of astronomy has enjoyed for many years the advantage of liberal financial support, and the erection of a new observatory on an imposing scale is no very uncommon occurrence. In Europe it is otherwise, and the establishment of a new observatory is a notable event. We welcome it as such, and watch its development with special interest.

The old observatory at Hamburg was founded in the year 1825. Its first director was C. Rümker, and the excellence of his services may be judged from the fact that the present staff is engaged upon a re-reduction of the catalogue which he formed. In 1900 it was decided to remove the observatory to a distance from the town, and the necessary funds were voted by the municipality for its equipment. The new site is at Bergedorf, about twelve miles south-east of the old

equipment—at least two equatorials, for instance, and a meridian circle—into one main building. The same building contained, under the same roof, the working rooms of the astronomers, and often—most objectionable feature of all—the residence of the director, and perhaps of an assistant as well. The new Hamburg Observatory carries modern ideas to their logical conclusion. The isolation of the instruments reduces mutual obstruction to a minimum, makes it possible to design each building solely to the advantage of the instrument it contains, and to a great extent removes the risk of fire, an ever-present danger in climates drier than our own.

The old-fashioned astronomer would expect a serious disadvantage in the weakening of central control. But this defect is avoided by a complete system of telephonic communication between the several buildings. The central offices of the observatory contain in a cellar six standard clocks. These are con-

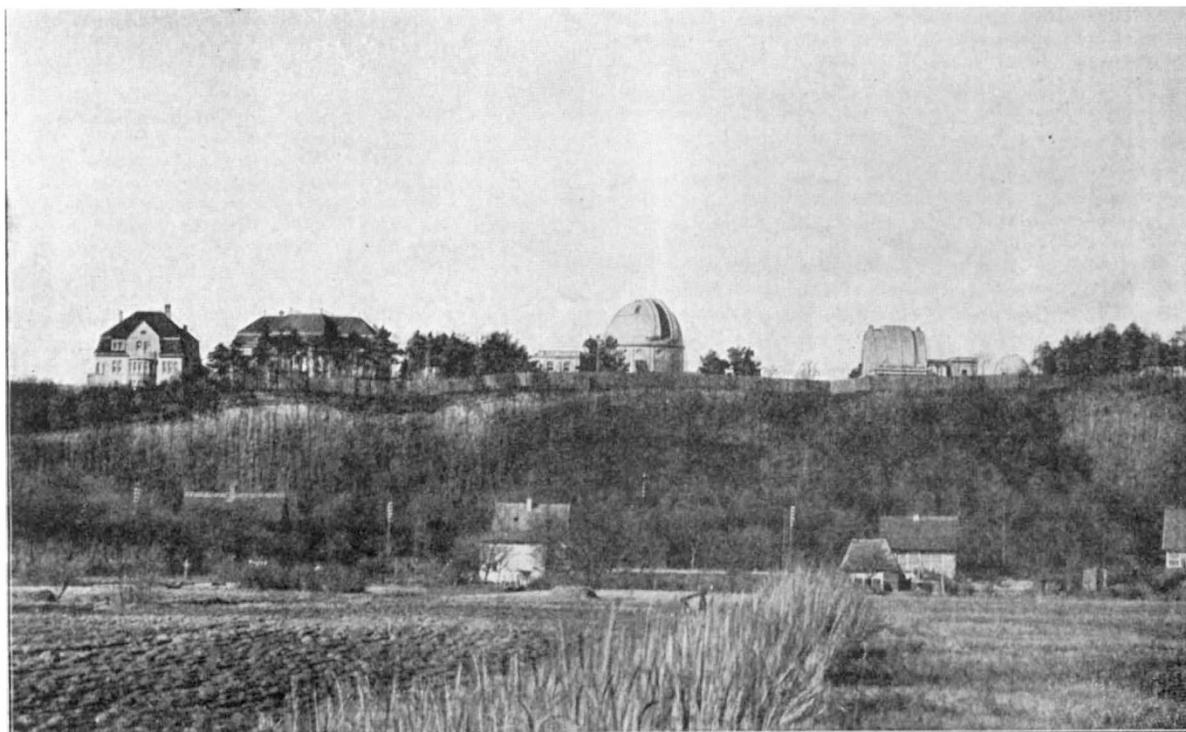


FIG. 1.—The New Hamburg Observatory at Bergedorf: View from the South.

observatory, and about 130 feet above the level of the Elbe. Work on the new institution has proceeded with great energy, and the observatory "Jahresbericht" for the year 1909 shows that the constructional part was practically complete at the end of that year. The report contains an excellent series of photographs of the several buildings in different stages of construction, and gives a good idea of what the observatory will be when it is in full working order.

The great feature in the plan of the new observatory is the complete isolation of the different instruments. Each has its own building, as shown in the illustration here reproduced. This is a principle to which we have long been tending, and here it is carried out with absolute and logical completeness. We are only too familiar with the old style of observatory building. Apart from separate structures, which are additions of a later date, it was usual to crowd the whole

connected with a switchboard on one wall of a room in the basement. Close by is a chronograph by means of which all the clocks can be compared *inter se* and with all the observing clocks of the establishment. The Hamburg observatory is responsible for an elaborate public time service. The necessary electrical arrangements for this are placed on another wall of the same basement room. It is very natural that the installation of this complicated system of wiring has occupied much time, the underground cables alone running to a total length of about 1400 yards. When to the low-voltage system required for the telephones and time service is added the provision for distributing electric light and power, it can be judged to what extent the efficiency of a modern observatory depends on the technical application of electricity. Modern advances in astronomy are often attributed to the spectroscope and the photographic plate. This rather overlooks the help derived from electrical power,

which has rendered the use of large-scale apparatus practically possible.

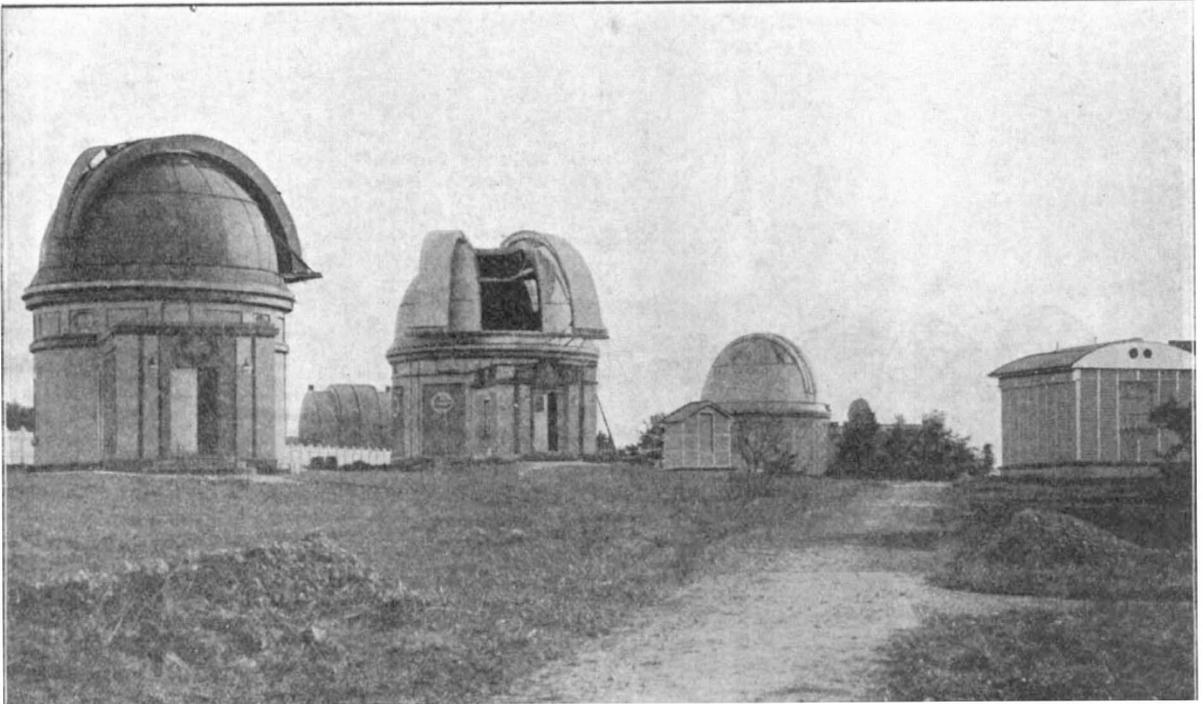
The new observatory will be powerfully equipped. The 10-inch Repsold-Merz equatorial has been moved from Hamburg, and is in working order. A 4-inch Repsold transit instrument remains for the present at Hamburg, and will be moved when the new institution is in a position to take over the time service. This will be the case when the installation of a new Repsold 7½-inch meridian circle is complete. The mounting of this fine instrument will embody the ideas of Sir David Gill. The roof is of iron and in the shape of a half-cylinder, the shutters rolling apart over the east and west ends. The whole is protected from the direct radiation of the sun by a louvred wooden covering. Special arrangements are made to control the instrumental errors. To the south is an adjustable horizontal collimator of the ordinary type; to the north is a lens focussed on the *mire*, which

Dr. R. Schorr, the director, has expressed some disappointment at delays, particularly in completing the optical work. But in an undertaking of this magnitude something of the kind is inevitable, and we can only express admiration of the lines on which Dr. Schorr has designed the new institution, and the energy which is apparent in the progress already made.

H. C. P.

THE ANCIENT INHABITANTS OF THE NILE VALLEY.¹

SOME ten years ago, when Lord Cromer was building up a medical school in Cairo, the task of establishing the department of anatomy was entrusted to a junior fellow of St. John's College, Cambridge, Dr. Elliot Smith. The young professor reached Egypt at an interesting phase of the development of our knowledge of the ancient inhabitants of



Lippert Astrogaph.

Meridian Circle.

Reflector.

Mire. Refractor.

Transit Instrument.

FIG. 2.—The Main Buildings of the New Hamburg Observatory.

takes the form of a vertical collimator, as at the Cape Observatory. Still further to the north, on the same meridian, will be placed the 4-inch transit instrument, which will use the same *mire*. The two instruments are thus in line, and an independent check is possible by comparing them directly.

In addition, the observatory will possess a large refractor of 24-inch aperture, a reflector of 40-inch aperture and 10-feet focal length, and a photographic combination. The mounting of the refractor will be by Repsold, and the lens by Steinheil; some delay has been caused by the difficulty in obtaining the discs of suitable quality. The large mirror has been made by Zeiss. For the photographic combination the observatory is indebted to Herr Lippert. It will comprise a telescope of the normal astrogaphic type, and two short-focus photographic objectives of 12-inch aperture. This work has also been assigned to Zeiss.

that country. It was then becoming clearly recognised, thanks to the labours of Prof. Flinders Petrie and those associated with him, that certain of the burials were older than the dynasties, and that it had become possible to study the Egyptians of a pre-historic or predynastic period.

With the human remains of this ancient period Prof. Elliot Smith was soon brought in contact; in 1901 he had the good fortune to examine the bodies excavated by the Hearst Egyptian exploration of the University of California from a predynastic cemetery at Noga-ed-Deir, in upper Egypt; material which was particularly valuable because of the accurate manner in which it had been dated by Dr. G. A. Reisner. During the following years, amidst the onerous duties

¹ "The Archaeological Survey of Nubia." Report for 1907-8. Vol. ii., Report on the Human Remains, by Drs. G. Elliot Smith, F.R.S., and F. Wood Jones. Pp. 378+vi plans. Plates to accompany Vol. ii., pp. 9+xlix plates. (Cairo: National Printing Dept., 1910.) Price 2 L.E.