The account of the recent excavations of Tycho's observatory thus forms a valuable supplement to the description published by Tycho himself. The idea of seeking shelter from the wind, by erecting his large instruments a couple of feet below the level of the ground, was a good one, and on the small island the force of the wind was doubtless not a negligeable quantity, particularly as the observatory was situated almost at the highest point of the island, about 160 feet above the sea, which is visible in all directions except in the south-east. Picard remarked that except where some hills in Scania rise to an altitude of 11′, he had often seen the stars down to the very horizon, which he considered very surprising, as this was never possible at the Paris Observatory, although the latter was about 120 feet higher than the level of Tycho's observatory. But the example thus set by Tycho was not followed; for more than a hundred years the object seemed generally to be to get as near to the stars as possible by placing observatories on the top of towers and high buildings—and in the midst of crowded cities. The nineteenth century has reverted to Tycho Brahe's ideas by building observatories at some distance from cities and with the instruments at very moderate heights above the ground. Another idea of Tycho's, which was not adopted for several centuries, was to have a large staff of assistants, among whom the work of the observatory was divided. He had cherished the hope for many years that the institution founded by him would be made a permanent one and not come to an end with his own life. Unfortunately he did not succeed in getting this settled in the lifetime of his benefactor, King Frederic II., and when he finally found that not only was it hopeless to expect a permanent endowment, but that even some of the valuable grants he had enjoyed for years were taken from him, he resolved to try if some other monarch would carry out his favourite idea and found a public observatory on a large scale. But Tycho had been very many years in his grave before this was done anywhere.

J. L. E. DREYER.

TECHNICAL SCHOOLS FOR RURAL DISTRICTS.

ENCOURAGED by the success which has attended the work of her sister, the Countess of Warwick, at Bigods, near Dunmow, in Essex, the Duchess of Sutherland has boldly entered upon a scheme for providing a technical school in a still more remote rural district, viz. near Golspie, on their Dunrobin estate in Sutherlandshire. No provision for secondary and technical education in the Scotch Highlands at present exists, and the proposed school must meet a long-felt want. The draft scheme which has been drawn up by the Duchess with the cooperation of Prof. Meldola provides for the education of fifty pupils in the principles of those sciences which bear in any way upon the local industries, including agriculture. The pupils will be taken from the elementary schools and admitted only when fully qualified to take advantage of the secondary training offered by the Sutherland school. In view of the excellent character of the elementary teaching in the Scotch schools, there should be no difficulty in finding a constant supply of promising pupils, the more especially as the new school is intended for board and residence and caters for the four counties of Sutherland, Ross, Cromarty and Caithness. Like Bigods, the Sutherland technical school is to be mixed and the curriculum adapted to the requirements of boys and girls. As stated in the scheme :—

"It is impossible that education in the Highlands should continue on the present lines. There is practically no technical training whatever. The old form of 'classical' education is still persisted in, and often a whole school suffers for the sake of three or four clever pupils who win the bursaries which send them to the University, from whence they issue as clerks, doctors or ministers as the case may be. The others are left to drift into idleness or to go away south to add to the population of our already over-crowded cities. The overcrowding of the fisher class is undisputed, and the dearth of skilled masons, carpenters and artisans, or competent hand-workers in the north, apart from the homespun tweed industry, is remarkable. There have been many peripatetic technical classes carried on under the County Councils and School Boards in the north, but this is the first technical school of the kind that has been started in the Highlands. It should be the pioneer of much educational reform, and it is started with a great belief in its ultimate possibilities."

The scheme has been considered by many educationists and has been approved of by Lord Balfour of Burleigh, Mr. Struthers, of the Scotch Board of Education, Sir Swire Smith, Mr. James Baker, Prof. Magnus Maclean and others. Practical appreciation of her Grace's efforts in the cause of education has also been shown by the substantial support which the scheme has already received. The Duke of Sutherland has given the site for the building and land for the agricultural work close to Golspie, besides 5000*l.* towards the building and equipment fund. Mr. Andrew Carnegie contributes 5000*l.* to the same fund and Mrs. Carnegie two bursaries of 30*l.* each annually. The Duke and Duchess of Sutherland, the Dukes of Westminster and Portland, and Mr. James Coates, of Paisley, also contribute annual bursaries. The work thus commences under very good auspices and is worthy of the most cordial support by all who are interested in the welfare of Scotland. At the present time, when "official" educators are, as was said recently, whistling for the wind of popular opinion, the country may well be proud of the splendid examples set by the Countess of Warwick in Essex and by her sister in the Highlands of Scotland. As pioneers in the introduction of scientific education into rural districts the names of these ladies will be written large in the annals of our educational development.

A PERIODICAL FOR STATISTICAL BIOLOGISTS.[1]

THE receipt of the first part of the new periodical, *Biometrika*, calls for more than mere formal acknowledgment. The methods of investigating biological problems statistically may be looked upon as having their origin in this country, and the names of the editorial staff are those of the pioneers in this modern departure—Francis Galton, and Profs. W. F. R. Weldon and Karl Pearson, associated with Prof. C. B. Davenport, of the University of Chicago. The part received is prefaced by an editorial article setting forth the scope and defining the spirit of the publication and an article on biometry from the pen of Mr. Galton. An admirable figure of the Darwin statue in the University Museum at Oxford, reproduced from a photograph by Mrs. E. B. Poulton, forms an appropriate frontispiece, the motto "*Ignoramus, in hoc signo laboremus*," being printed below the illustration. The papers contributed to this first part are seven in number, including those already mentioned. Prof. Dr. F. Ludwig writes (in German) on problems and materials for variation statistics; Mr. A. O. Powys con-

[1] *Biometrika*. A Journal for the Statistical Study of Biological Problems. (Cambridge: University Press. New York: The Macmillan Company.) Price 10*s*.

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