

The Greenwich Observatory

TWO HUNDRED AND FIFTY YEARS
SERVICE TO SCIENCE OF AS-
TRONOMY.

PROF. H. H. TURNER in "London
Observer."

For two centuries and a half Greenwich has been in the front rank of observatories, a world authority on practical astronomical questions, and a recognized reference in important calculations. The recent transformation of astronomy which has brought into being observatories of a new type and equipped Greenwich, which continues to turn out work of fundamental importance. To some attractive parts of astronomy it may have paid no heed, looking back through its history we can see that opportunities may have been missed in this way and others; but that it could afford to toss aside such valuables is after a sure mark of its greatness and success. It has shown something of that sturdy assurance which we like to associate with the personality of John Bull. Its history is nearly, but not quite, extensive with that of modern astronomy, and the exception is of importance. In those glorious days of two centuries ago, when Tycho Brahe in Denmark was laying foundations of our knowledge of the planetary movements and Galileo of the first using the telescope, England was not yet astronomically awake. It was to have a splendid mark in the genius of Newton, but before Halley discovered Newton, Greenwich Observatory had already been founded for a very practical purpose, which has been steadily in view ever since, viz., the making of such astronomical observations as would help sailors to find their position at sea—a terrible difficulty in these early days. A claim by a French impostor, Steur de Saint Pierre, that he could show how to solve the problem from the position of the moon among the stars, came to the King's ears, and he sought confirmation of so important claim.

Apparently there was then in England only one man to whom the matter could safely be referred, and he shared emphatically against the impostor. The elements of the moon and places of the stars were not sufficient known to should be the subject of study. Upon the King (Charles II) declared that he must have the requisite observations made for the sake of his sailors and directed Wren (who had just exchanged astronomy for architecture) to build the Greenwich Observatory. "Who is to take charge of the King was asked when the plan was completed. "Why, the man who told you it was required," promptly replied the King; and so the John Flamsteed became the first Astronomer Royal, with a fine house in Greenwich Park (which our present King visited on July 23) and with a salary of £100 a year, but with no assistants and no instruments to observe with!

His story was nearly repeated some fifty years later, when Airy was introduced as Director at the new Cambridge Observatory, and it was said, "I gave Airy nothing, a local habitation, and a name." Flamsteed was a man of energy, he bought his own instruments and industriously used them. And he almost at the outset, came one of those lost opportunities to which we have alluded. Newton had by the time written the "Principia," and Airy had published it at his own expense so that the world might not suffer from more dilatory methods. What a splendid combination might Flamsteed now have had between its first practical observer and its mighty theoretical genius! But alas! instead of this alliance there came a quarrel. Newton wanted Flamsteed's observations, but Flamsteed, having made them with his own instruments, considered them as his own property and resisted the quarrel. Halley, who had done such splendid service in eliciting the "Principia" from Newton, failed to bridge the new situation equally well; at any rate the breach became wider, and we can only guess at what cost us. Nevertheless, a sound beginning had been made; Flamsteed's observations, in spite of inevitable faults due to the novelty of the work, were a contribution of permanent value to astronomy.

Flamsteed himself, when he succeeded Flamsteed for a long term at Greenwich, did no better; indeed, he did not do nearly so well, for his nautical experience had given him a sympathy for such and approximate work, not enough at sea, but not suitable to a fixed observatory. But we owe to Airy so much in other ways that we can afford to forget the additional legs he might have left us. If not an accurate observer himself, at least he recognized the merits of Bradley's observations, and offered to resign in his favor though the offer was not accepted. When, nevertheless, Bradley died, he well and truly laid the foundations of our modern knowledge of the stars and planets. To Flamsteed, who followed him, it fell to sort out the sextant and the chronometer, both of which became essential to sailors. And the work of sailors, and surveyors too,

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PLAIN WOOL NAP BLANKETS—Buff, Pink and Blue grounds. Size 64 x 76 inches. Regular \$5.00 pair. Friday and Saturday... **\$4.25**

MISS' OVER-KNICKERS—Pleeced material in navy, to fit from 6 to 12 years; elastic at waist and legs. Reg. 95c. each. Friday and Saturday... **83c.**

CHILDREN'S PINAFOROS—White Cambric nicely finished with embroidery and pin tucks and frill at bottom. Reg. 70c. each. Friday and Saturday... **62c.**

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WOMEN'S OVER-KNICKERS—Pleeced lined, in Camel, Grey and Pink; finished with elastic at waist and legs. Reg. \$1.10 pair. Friday and Saturday... **97c.**

INFANTS' SACQUES—Pink and Pale Blue, fleeced material, trimmed with fancy loop stitch at neck, front and leaves. Reg. 95c. each. Friday and Saturday... **83c.**

was steadily kept in view by Pond, by Airy, by Christie, and by Dyson of the present day. Probably no one but himself knew what it cost our present Astronomer Royal to superintend the supply of chronometers to navies during the war. And he is now left with an anxious practical problem as regards the future of the chronometer, which is embarrassed by the introduction of wireless signals.

But, happily, the utilitarian needs which founded Greenwich Observatory, and which have throughout guided its career, have not controlled it entirely. Scientific activity is a sturdy plant which pushes aside attempts to confine it, so that the study of the moon's motion, undertaken at first for the benefit of sailors, has been pursued into refinements for its own sake; the few bright stars regarded by sailors have long ago grown into an extensive list of both bright and faint, of which not only the places have been determined, but the motions, too, and even the distances on the planets have also been drawn into the net. They are not scrutinized with a big telescope; they are measured with an accurate one. Greenwich has, indeed, one or two telescopes of respectable size, but the glory of the place has been throughout the transit circle and its predecessors—firmly mounted in the famous Greenwich meridian.

Reference has been made to the occasional neglect of opportunities. Besides the loss of Newton's alliance at the outset, there was at least one other case which has passed into common knowledge—the loss of the planet Neptune as an exclusive English discovery. But it is pleasant to be able to record a recent instance of a different kind. When Einstein propounded his astounding new theory, we were at war with his nation. Nevertheless, his work was carefully studied by Englishmen and it was pointed out by an Englishman that a specially good opportunity for testing the theory would occur at the time of the eclipse of 1919. It seemed at the time hopeless to make the necessary expeditions, but preparations were made nevertheless, so that when the Armistice suddenly came a prompt start could be made. The weather was propitious; good photographs were secured and Einstein was found to be right. It was a dramatic recognition of an enemy achievement, but, more than that, it is noteworthy that Greenwich made, instead of losing, the opportunity. It was the Astronomer Royal who first called attention to it; and it was at our Royal Observatory that the greater part of the work of preparation was undertaken. The credit may well wipe out more than one debt.



Slavery in the Sudan

While American investigators are submitting to the League of Nations their report on so-called slavery in Portuguese Africa, accounts of out-and-out slavery in British Africa reach Geneva. They are signed by Major Diggle, formerly an administrator in the Sudan, and issued by the Anti-Slavery and Aborigines' Protection Society. As reproduced by the London papers, his statement begins, "I went to the Sudan knowing nothing whatever about slavery; but, having lived there four years out of seven, mostly alone and in extremely close contact with the people, I could not fail to notice the appalling evidence of slavery." The Major continues: "Since my return to England about a year ago I have tried privately to get effective action taken, but unfortunately the official attitude is that very little can be done at present. "If the League of Nations' Slavery Commission could appoint a small committee of investigation, I would be willing to appear before them and give them personally some of my experiences in the Sudan as evidence of the efforts I have made to secure adequate reforms. The facts contained in this statement have already been brought formally to the notice of the administration by me while in the Sudan.

"The argument advanced by upholders of slavery that their masters took after them in their old age is, in my opinion, a demonstrable untruth so far as the locality in which I was stationed is concerned. The argument that slaves can obtain their freedom by asking for it is incorrect."

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