

THURSDAY, APRIL 25, 1872

A PHYSICAL OBSERVATORY

AT the last meeting of the Astronomical Society, a paper was read by Lieut.-Colonel Strange on "The Insufficiency of existing National Observatories." The title is perhaps suggestive of an attack on Greenwich, but this idea the paper at once dispels, the Royal Observatory, and the administration of its eminent director, being spoken of throughout in terms of the strongest approval, in which all astronomers must join.

The aim of the writer was to show that, though Greenwich provides most efficiently and amply for the elder Astronomy, it is now time for us to consider whether her younger sister should not also be permanently provided for. When Greenwich was founded the Physics of Astronomy, which now attract so much attention, had no existence. This department of science is entirely of modern growth; but it has already attained such wide proportions and so deep a significance that it cannot any longer with propriety be left to the chance cultivation of individual zeal. In putting forward these ideas, Colonel Strange has only given expression to what has been for some time in the thoughts of every one interested in astronomy and its correlated sciences. He is right in pointing out to the Astronomical Society that in this direction its influence can and ought now to be exerted. And he gives two very cogent reasons why this should be done at once. First, that the system of photoheliography, which has for some years been carried on at Kew by the zeal of individuals, and partly maintained by private means, has now been brought to a close. Second, that the Royal Commission on Science being now at work on the question of the advancement of science, the present opportunity is very favourable for bringing this matter forcibly before Government through that body—an opportunity which will probably not recur in a generation.

The discussion on the paper, as might be expected, was prolonged and animated. The Astronomer Royal, who spoke several times, was doubtful whether the object for which such an observatory was sought to be founded was sufficiently "secular" to ensure success; but on its being urged with great force and truth by Mr. De La Rue and Captain Toynbee—both connected officially with the Meteorological Office—that the study of the sun, as had been insisted on by Colonel Strange in his paper, must greatly aid meteorological research, Mr. Airy candidly admitted that if that pretension can be made good, there will exist a claim on behalf of Meteorology for the establishment of a Physical Observatory, similar to, and as "secular" as, that on behalf of Navigation on which Greenwich was founded.

It is certainly a little disheartening to find a great leader in science insisting so much on direct utilitarianism as the sole basis of national science, and withholding his testimony to the enormous moral and intellectual benefits of philosophical research, and even omitting all consideration of the indirect material results which have invariably followed vigorous and systematic study of natural phenomena of whatever kind. The average Englishman is prone enough to hug what in his untaught stupidity he

calls "practical ideas," and will not be improved by being told by one of the first of living philosophers that such ideas are the standard by which he should measure every proposal for advancement. But it is impossible to suppose that these are the ideas which the Astronomer Royal will on mature reflection apply to the question before us, when deliberately presented to him with a view to action.

It is to be hoped, indeed, that the late discussion will be followed by action. Our Royal Astronomical Society should be the acknowledged head of modern astronomical activity. It has higher functions to perform than those on which its energies have been rather too exclusively exercised—the reading, discussing, and publishing of detached dissertations. It should from time to time take stock of the territory it occupies, in order to see what encroachments need fencing off and what expansions are required. And, above all, it should constitute itself more than it does the guide and encouraging counsellor of the Government in matters which it must understand better than they. We hope to see it awake to its moral obligations in regard to the most important matter which has been so opportunely submitted to it. We do not hesitate to say that if by its interposition a well-equipped Observatory for Physical purposes should be established, this will be the greatest service it will have ever conferred on Astronomy, and not on Astronomy only, but on a vast sphere of scientific inquiry, not obviously, but still indisputably, connected therewith.

In Meteorology such an observatory would ultimately, if not immediately, create a revolution. Instead of the dreary columns of thermometer readings piled upon us by well-meaning but aimless industry, we shall see men of thought labouring to refer to the great source of all energy, the great maintainer of all harmony, the great exciter of all variation—to the sun itself—those phenomena, at present the most difficult in the universe to interpret, which hitherto it has been assumed that any one with 5% to spend on "a complete set of meteorological instruments" can help to elucidate.

Should the want now spoken of be made apparent to those who can supply it, there will be several important preliminary questions to deal with, such as (1) What should be the scope of such an observatory? (2) Should it be engrafted on Greenwich, or be independent? (3) Should Meteorology and Magnetism be engrafted on it and severed from existing connections? (4) Should a system of sun observations—the primary, though, of course, not the sole object of such an observatory—be extended to India and other British possessions, so as to ensure that continuity of facts on which Messrs. De La Rue, Balfour Stewart, and Loewy have laid so much stress in their striking memoirs on Solar Physics recently communicated to the Royal Society?

LANKESTER'S PHYSIOLOGY

Practical Physiology; being a School Manual of Health, &c. By Edwin Lankester, M.D., LL.D., F.R.S. Fifth Edition. Pp. 152. (London: Hardwicke, 1872.)

THE new title adopted by Dr. Lankester for this little work is somewhat misleading. It has nothing to do with Practical or Experimental Physiology, the sub-