

possess any knowledge of the subject. We are not disposed to be critical on a work published with such evidently good intentions. The physiological portions of the text are good, and if thoroughly taught to students and understood by them will place them far above the ordinary standpoint of the medical student of the day. The more purely anatomical descriptions would have been improved if written more for the plates than they have been. The plates themselves will be found extremely useful. We should have preferred that the amount of enlargement of the figures was always given; structures also like those figured at A on Plate xxiv. should be clearly defined as only diagrammatic representations, and a little greater attention to correctness of outline might fairly have been bestowed on the figures representing parts of the skeleton. The letterpress is accompanied by a pretty copious index to the plates, which might even still with advantage be greatly enlarged. This book in the hands of an intelligent teacher will be found most useful and instructive, and it may be made the text from which to preach many a most important practical lesson. Take the short paragraph headed Salivary Glands, how much human suffering might be avoided by a right comprehension of the facts therein stated.

Electric Transmission of Power. By Paget Higgs, LL.D., D.Sc. (London: E. and F. N. Spon, 1879.)

ONE of the important practical questions which an engineer continually has to face is the transmission of power from the place where the power is generated to the spot where the power is needed. Where the distance is great, belts and shafting are not only wasteful but impracticable, and hydraulic or pneumatic transmission is called into play. Here, again, great distances cannot be surmounted without great loss of power, and hence from time to time many wistful glances have been turned in the direction of electricity. It is only to-day, however, that, amid the manifold applications of electricity, its employment as an economical means of transmitting power has become a question of practical importance.

At the Loan Collection of Scientific Apparatus exhibited at South Kensington in 1876, two small magneto-electric machines made by Gramme were to be seen illustrating this electric transmission of power. The mechanical work expended in one machine was converted into electricity, conducted over a considerable space, and transformed again into mechanical work by the other machine. The amount of power practically reclaimable by such an arrangement, as shown by recent experiments quoted in the little work before us, "may amount to 48 per cent. of that expended in the first instance. This amount of reclaimed power is indubitably superior to that obtained with compressed air, and approaches the practical efficiency of hydraulic transmission" (p. 85). With great distances the relative efficiency of electric transmission must be still more marked, besides the advantage that the conductor, having nothing to burst or give way, can be led in any direction or freely moved whilst transmitting many horse-power. Already in France ploughing has been done by electricity with advantage, and where natural sources of power, as waterfalls or tidal action, exist in any neighbourhood, the extreme value to a community of this novel application of electricity is sufficiently obvious. Municipal authorities might find in the water supply of a town an unexpected source of income. For where there is a continuous supply of water under considerable pressure, as is the case in an increasing number of our large towns, baths and washhouses might be erected in the lower parts of the town, and the energy possessed by the water converted into electricity and distributed for sale as power, whilst the matter of the water would of course remain equally serviceable for the purposes intended.

To those interested in the general question of the electric transmission of power we do not know any better

guide than Prof. Ayrton's admirable lecture on this subject before the British Association. To the student the work before us will be found useful for more extended reference, as it gives the salient features of the investigations by Mascart, Hopkinson, Siemens, Houston and Thomson, and others, on the efficiency of various dynamo-electric machines. But we regret that Dr. Higgs has issued this book with such precipitate haste, for, as it stands, it is a most slovenly piece of patchwork, and to be of real use to the public it must be in part rewritten and the facts presented in a more intelligible and orderly sequence.

W. F. B.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

Sun-Spots in Earnest

THE communications in NATURE, vol. xx. p. 625, regarding the note of Prof. Piazzi Smyth, NATURE, vol. xx. p. 602, induce me to send an extract from my observing-book on those spots, together with some observations of them by Herr Hartwig, assistant to the observatory.

My observations of the sun are made with a rather small telescope, aperture of object-glass by Reinfelder and Hertel, of Munich, 74mm., with Merz polarisation eye-piece, power 55, images very fine, colourless.

1879.

M.T. Strassb.

h. m.

October	6	...	0 0	No spot on the sun.
"	7	...	0 10	On the following limb two great regions of faculae, with extremely narrow black spots in them.
"	8	...	1 0	The group of faculae, seen yesterday, contains to-day three great spots, with double nuclei; besides that there is a fourth system of three or four smaller spots with penumbra.

I did not look at the sun on the following days. The observations of Herr Hartwig are made by projection and with the heliometer of the observatory. By this instrument the polar and equatorial diameter of the sun has been measured every day since April, 1876, clouds permitting. It was during this series of micrometric measurements that Herr Hartwig made his remarks.

				Sid. T. Strassb.
October	6-7	...	12 50	The sun appears without spots.
"	7-8	...	12 25	Sun without spots; very bad definition.
"	8-9	...	12 10	Beautiful group of spots near the following limb.
"	10-11	...	12 15	Same group of spots, as seen the day before yesterday. Four very great spots; the following, which had two nuclei, like the others, has to-day three.
"	12-13	...	13 10	Double spot on the middle of the disk; group of spots on the following limb.

Afterwards the clouds did not permit the sun to be seen for a week. It appears from these observations, that this first great display of solar activity after the minimum of spots, entered the disk October 6-7; it passed off, a. Mr. Christie remarks, October 21.

A. WINNECKE

Strassburg Observatory

Subject-Indexes

MOST of those engaged in scientific work will probably agree with the views on this subject put forth by Mr. Wheatley in NATURE, vol. xx. p. 627. There can be little doubt that a complete subject-index of scientific literature, in the sense in which it is generally understood, could not be compiled, and the result of an attempt to do so would be as useless as it