

extreme velocity can be imagined from the great departure of those bright lines from the stable dark line F, seen below them, and not only that, but we can think out the explicit character of this prominence action. *They were really in this case, as already stated, smoke rings thrown up by enormous circum-solar action.*"

We thus see that after the lapse of thirty-five years these "lozenge" forms, as they were then called spectroscopically, have been caught in the mesh of the photographic plate.

For the search after intra-Mercurial planets two objectives of 10 cm. aperture and 4 metres focal length were used equatorially, and plates were exposed for 120 and 63 seconds. So far as the negatives have been examined, no unknown object has been detected, but it is interesting to remark that on both plates Mercury appears of the fifth or sixth magnitude eleven hours after inferior conjunction.

Successful measures were made of the brightness of the corona with a Weber photometer by Prof. Knopf, but the reductions are not yet quite complete.

one he has chosen, for in the course of some 300 octavo pages he traces the story of the district in which Pickering is situated from pre-Glacial times up to the date of his publication, including the geology, the archæology early and later, local legends and folklore; and very good miscellaneous reading he makes of it. The earlier sections, however, can scarcely be said to conform with his title-page, for it is admitted that for many thousands of years after the period of his second chapter no human being yet existed in Britain in the latitude of Pickering, and the town itself would, of course, be even later.

There is, however, no harm in this, and it must be confessed that the admirable material existing in the neighbourhood, and the masterly way in which much of it has been treated by competent hands, offer great temptations to include nature's story as well as man's. The Kirkdale cave is one of the best known of these natural features of the locality, and was exhaustively described by Dr. Buckland in 1822 before the Royal Society, in a paper which is a model of scientific analysis. The physical conformation of the country,



FIG. 1.—The Hamburg Observatory's Eclipse Camp in Souk-Ahras. The 20-metre coronagraph is on the right, and the twin equatorial planet-finder on the left.

Shadow bands were clearly seen, and the dimensions of those measured were about 50 cm. long and 4 cm. to 5 cm. broad.

W. J. S. LOCKYER.

THE STORY OF AN ENGLISH TOWN.¹

THE modern changes in literary methods and the demands of the reading public have altered the character of many classes of books, but none has been so much affected as that dealing with topography. The subsidised family history, the elaborate folding pedigrees, plates of armorial bearings or of equally uninteresting tombs of former magnates of the locality, have disappeared from such works, unless their intrinsic interest coincides with that of the subject of the book. Genealogists and students of family history are now provided with publications of their own, surely a change of a practical kind, and one which allows the substantive matter of a topographical work to take its real place. Even when the older fashion is cast aside for the new, however, there are many alternatives in the treatment of local history. Mr. Gordon Home may be said to be thorough in the

the hills around rising to a height of upwards of 1400 feet, naturally provides an admirable field for the observation of the action of ice, and here Mr. Home has taken full advantage of the survey made by Prof. Kendall, while the existence and behaviour of the glaciers in the valleys converging on Lake Pickering in the lesser Ice age are made very clear by the diagrams provided. Naturally enough, there is a good deal of elementary geology in these chapters, and Mr. Home at times also gives his imagination a somewhat free rein, but he does not confuse fact and imagination.

Coming to the later times, where geology gives place to archæological conditions, we are on surer ground; the relics are more plentiful and more directly comparable with similar remains in other localities and even other countries. Hypothesis and even imagination still have their uses, but the more abundant material should keep the student to the safer zone of comparative archæology. Here again, in the Barrow period, Mr. Home is fortunate in having masters of the craft to appeal to. Dr. Thurnam and Canon Greenwell have both provided ample matter for the story of man during the later Stone and early Bronze ages, and Mr. Home might have drawn upon them more largely with advantage to

¹ "The Evolution of an English Town; being the Story of the Ancient Town of Pickering in Yorkshire." By Gordon Home. Pp. xix+298. (London: J. M. Dent and Co., 1905.) Price 10s. 6d. net.

his book. A few figures of some of the urns and other relics found by Canon Greenwell in the barrows of the North Riding would have formed more instructive illustrations than the somewhat scrappy and heterogeneous plate of "prehistoric weapons" that faces p. 34. A plate of urns in the Pickering Museum is, indeed, given further on, but it lacks typological qualities. Much has been done during the last few years towards the classification of barrow remains, more especially in the case of the pottery, and there should be no difficulty in presenting a series from so rich a district as Pickering on a plan more in accordance with the results of recent research. In spite of such occasional lapses Mr. Home carries the reader through the story with considerable skill and vivacity. A later chapter will probably be found the most interesting to the general reader, that dealing with local legends, witchcraft, and folklore. Here

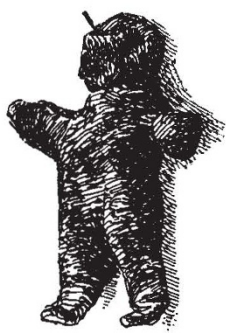


FIG. 1.—Relic of witchcraft found in the neighbourhood of Pickering. The figure was made of pitch, beeswax, bullock's blood, hog's lard, and fat from a bullock's heart. It was used for casting spells on people, the pin being stuck in the figure where the "ill-cast" was required to fall. From "The Evolution of an English Town."

there is ample material for a considerable volume, for it is certain that where Mr. Home has gleaned so much there must exist a vast harvest for the trained student. The figure from this chapter reproduced here has been used in sympathetic magic, the universal practice of which Mr. Frazer treats in "The Golden Bough." Traces of Scandinavian importations are frequent, and some of the survivals in local custom have the flavour of a much more remote age. A good deal has already been done in this direction for Cleveland, but it is evidently a fruitful soil and well worth careful and exhaustive treatment. There are some admirable photographic reproductions of the very remarkable, and in some cases beautiful, wall paintings in Pickering Church, and the

story of the regulations of the Duchy of Lancaster during Plantagenet and later times is full of quaint customs and interesting matter. The book as a whole has a cheerful air, and may well lead some who are unacquainted with the beauties and interest of Cleveland to pay Pickering a visit.

A few points may be worth the author's consideration if his book should reach a second impression. He seems to be unaware (p. 30) that the Bateman collection of sepulchral urns is now in the museum at Sheffield, and a detailed catalogue was published by the curator in 1899; on p. 45 he states that bronze spearheads have been found in round barrows near Pickering, which seems unlikely; and on p. 48 he figures a quern of a known Roman type in the Bronze age section. On p. 57 an unfortunate slip makes *data* singular instead of plural.

THE GROWTH OF BEET-SUGAR IN ENGLAND.

LORD DENBIGH'S motion in the House of Lords on Monday night, asking for a rebate on the present excise duty on any sugar made in this country from beets during a certain limited period, raises two interesting questions. On one of them—the

desirability of the State incurring expenditure in order to establish a new industry in the country—we have little to say in these columns; we may be content to point out that it is possible for a Government department to teach the community businesses previously unappreciated. This very beet-sugar manufacture has been introduced into the United States by the action of their Department of Agriculture, with the result that the production has grown to 210,000 tons of sugar in 1904-5 as compared with 20,000 tons ten years earlier.

The other point in dispute is the possibility of growing satisfactory sugar-beet in this country, with its greater rainfall and lower sunshine than the typical Continental centres of sugar production. However, the experiments, organised for so many years by Mr. Sigmund Stein, of Liverpool, and latterly by Lord Denbigh himself, have amply demonstrated that over the east and south-east of England larger crops of sugar-beet can be grown than in Germany without any loss of quality, either as regards the proportion of sugar in the root or its quotient of purity. American experience also shows how adaptable the sugar-beet is to wide diversities of soil and climate.

The English farmer requires but little education in the management of the crop, since the cultivation it requires differs but little from that of the mangel, though the cost per acre is slightly greater. We may take it as settled by numerous experiments extending over many seasons now that the farmer would be prepared to grow sugar-beet in quantity, provided a price were offered approaching that which is paid by the foreign factories, that is, from 16s. to 20s. per ton of roots. How far the manufacture would be profitable at those rates can only be settled by trial on a commercial scale; a factory must be erected in a suitable district and given a fair working test for two or three years.

While the data available show prospects of a reasonable return on the capital that would be required, one or two difficulties suggest themselves which cannot be resolved except by actual working. The first lies in the provision of labour; the process of manufacture must be practically completed in three months after harvest, and it is doubtful whether labourers could be obtained in this country to work three or four months in the factory and the rest of the time on the land. The other doubtful point is whether the necessary scientific control, for sugar-making from beet is a very specialised piece of chemistry, can be obtained cheaply enough here. Lord Denbigh practically asks the State for a little assistance to get these points settled; with a rebate of the excise duty, equivalent to a bonus of 2s. 6d. per cwt. on sugar manufactured from beet grown in England, there is a sufficient margin of profit in sight to draw the capital required for the first factory, and a very few years would suffice to demonstrate whether the business would be possible without artificial assistance, or whether the experiment must be dropped.

Without doubt, the establishment of a beet-sugar industry would give the farmer an additional outlet in many parts of the country; it would, however, not work the semi-revolution in agriculture which has resulted from it in many other places. The English farmer already practises intensive agriculture, and the mangel crop, so integral an element in a rotation in the south of England, gives rise to the heavy manuring, the thorough cultivation, and the wealth of food for stock which have been the great benefits conferred by the sugar-beet on the agriculture of Germany and the north of France.