

at Leuré we have two avenues, one S. 23° E. and another N. 66° E. (Fig. 17), avenues therefore practically parallel to the two at Avebury, and doubtless used for the same purposes.

NORMAN LOCKYER.

A STUDY OF THE RIVER TRENT.¹

THIS little book is a clearly written popular account, in part amplified, and in part—rather unfortunately, we think—abbreviated, of the author's presidential address to the Lincolnshire Naturalists' Union. It deals with the geological structure and history of the Lindsey division of Lincolnshire, especially in relation to the vicissitudes, actual or supposed, of the river Trent.

The author is not the first, nor is he likely to be the last, to try conclusions with the intricate story of the Lincoln Gap, that sharp and sudden breach through the escarpment of the Lower Oolites by

are devoted to an exposition of Prof. Davis's work, and his very convenient terminology is explained with all necessary clearness, though the general reader for whom the book is written will no doubt be puzzled by the reference without the necessary definition to a "peneplain."

The author attributes over-much of the levelling of the great plains of the Jurassic clays to the Trent, and seems to imply that while these valleys were in process of formation the escarpments by which they are bounded stood where we now see them, a confusion which he shares with many recent writers, who fail to recognise that escarpments are incessantly receding. On the other hand, it is satisfactory to find that he takes due account of the possibility that the Trent may have been captured by the Humber drainage in pre-Glacial times, have been restored to its primeval course through the Lincoln Gap in consequence of an ice-barrier across the Humber, and again in post-Glacial times re-captured by the Humber



Photo.

The Ægir, Gainsborough, October 12, 1904. Showing the after-waves, locally called "The Whelps." From "The Shaping of the Lindsey and Trent."

E. W. Carter, Gainsborough.

which the little strike-river, the Witham, abruptly doubles across into the fenlands of the Oxford, Amphill, and Kimeridge clays, and so reaches the Wash.

Since the publication in 1862 of Jukes's epoch-marking paper on the river valleys of the south of Ireland, in which the cardinal principle of river-capture was enunciated, the Trent and its anomalous course has furnished a theme and an illustration to writers on our British rivers. Ramsey used it, Mr. Jukes Browne added much additional evidence and gave greater definiteness to our conceptions of the potentialities of river-adjustment, and Prof. Davis, in his splendid contribution to evolutionary potamology, adopted and amplified Mr. Jukes Browne's views. Still later Mr. Burton further extended the study of the Trent, and furnished data inaccessible except to a Trent-side resident. The earlier chapters of his book

system, though not so decisively but that in seasons of flood it swept again across from the old elbow of capture at Newark and discharged its waters into the Wash. The Romans controlled this propensity by the erection of extensive floodbanks, but the degenerate moderns neglected to keep them in repair, so that in 1795, and twice in more recent times, the river has temporarily re-occupied its old course.

The later history and activities of the Trent are well described, and a special word of commendation must be bestowed upon the splendid half-tone illustrations, and in particular the two pictures of the bore or Ægir ("Sea-tempest is the Jötun Ægir, a very dangerous Jötun; and now to this day, on our river Trent as I learn, the Nottingham bargemen, when the river is in a certain flooded state . . . call it *Eager*; they cry out 'Have a care, there is *Eager* coming.'"—Carlyle). These are, we think, the finest pictures of this phenomenon that we remember to have seen. The excellence of the half-tone illustra-

¹ "The Shaping of Lindsey by the Trent." By F. M. Burton. Pp. xii+59. (London: A. Brown and Sons, Ltd., 1907.) Price 2s. net.

tions stands in strong contrast to the very inadequate and unsatisfactory diagrams; that representing a section from the Trent valley to the coastal plain is about as misleading to the general reader as such a thing could be made; the vertical scale is nearly *one hundred times* the horizontal, and the dips are proportionately exaggerated, from the actual 2° or 3° to something like 65° or 70° . It is an aggravation of the offence to waste fine plate-paper on such a monstrosity.

Despite this and some minor blemishes the book is an interesting one, and should do something to stimulate an interest in the scientific study of the scenery of a region that is replete with beauty and charm.

THE SUN AND THE CLOCK.

LAST week a Bill was introduced into Parliament by Mr. R. Pearce, M.P., having for its object the better accommodation of the hours of business to the hours of daylight, to be accomplished by a device which, though simple in appearance, would in practice prove very troublesome. Custom and habit have so arranged the hours of the working day that the general tendency is to use more hours in the afternoon than in the morning. This unequal division is attended with many inconveniences, one of which is that we use artificial light for more hours than would be necessary if we would consent to divide our time more symmetrically with reference to the sun's meridian passage. It is not impossible but that greater economy and more healthy conditions for labour might follow, and so far as this is the purpose of the Bill, which owes its initiative to Mr. Willett, we can all sympathise. It would be an evident advantage to employ sunlight, which costs nothing, in the place of gas and electricity, which are expensive luxuries, and it is probable that it is this obvious benefit which has enlisted the good will of many well-known authorities to what on close examination seems to be rather a childish measure.

Mr. Pearce, who holds a brief for Mr. Willett, is anxious to begin the day earlier; he does not propose to curtail the hours of labour in any way, but simply to shift the hands of the clock so that for part of the year noon on the clock dial would not coincide with the transit of the mean sun. Since it is the clock and not the sun that regulates all affairs of business or pleasure, suitable arrangements could be made, but whether those proposed by the Bill are the most satisfactory is an open question. The Bill provides that on each of the first four Sundays in April standard time shall be advanced twenty minutes, making the clock gain on the sun eighty minutes in the course of the month. Ordinary office hours would therefore begin at 8.40 a.m. instead of ten o'clock, and, of course, end at 3.40 p.m. instead of five o'clock; as reckoned by the mean sun. In this way there would be approximately symmetrical distribution of the day on both sides of the meridian. In winter, when we use all the daylight available, nothing is gained by advancing the clock on solar time, and it is proposed to bring the clock and sun again into coincidence by putting standard time back twenty minutes on each of the first four Sundays in September.

This pushing the hands to and fro on the dial is, we are told, the whole cost of the scheme. Unfortunately, that statement is misleading. The hour chosen for this abrupt dislocation of continuity is two o'clock in the morning, an hour when very few people would care to make the necessary adjustment, and many a man on arriving at the station on Monday morning would find that his train had been gone

twenty minutes, or that he had to wait twenty minutes before it was due, according as the time of the year was spring or autumn. This continual interruption of uniformity would be intolerable. One can more easily accommodate himself to a burden, however grievous, if the pressure be constant, than to the petty irritation arising from frequent change.

But we would seriously ask the supporters of Mr. Willett's scheme where is the necessity for this aggravating policy of perpetual alteration? We suspect, if we could get at the truth, that this constant interference is a concession to inherited instinct, and a desire not to depose the sun too hurriedly from that position of preeminence which he has hitherto enjoyed. The author of the scheme manifests a cautious hesitancy lest some mischief should arise from separating the clock and the sun by too great an interval, and thinks to appease the possible objections of more conservative minds by pointing out that it is only for half a year that the clock is wrong. It looks as though he were afraid of his own measure, for what possible advantage can accrue from putting the clock back in September? If the measure be wise and acceptable, why not boldly alter the time one hour by one and a final interruption? In summer we should get nearly the same advantage as that claimed for this policy of pin-pricks, and in winter we should be no worse off.

It is quite a different question to ask, is such a measure desirable? or, further, whether the proposed remedy is the most judicious? It might be more satisfactory to effect some change in our habits and customs more in line with those that obtain on the Continent or in India. The hours of business or of social functions may in those countries be dictated by a desire to avoid heat and glare, but the point is that we should do well to follow the example of those who have considered the sun as a factor in regulating their affairs. Such ends cannot, however, be accomplished by legislative action, but by the decision of Society with a big S. To ask a man to dine at six instead of at eight would be a drastic revolution that few would feel themselves competent to inaugurate.

The Astronomer Royal has raised a point of great importance, at the same time hinting that the authors of the scheme have thought too much of the convenience of their own order and too little of that of the great majority of the public, whose daily life begins far earlier than Mr. Willett seems to imagine. Where life is strenuous, in factory or workshop, in dock or on railway, toilers quit their homes soon after five o'clock by the sun. It is easy to conceive that earlier rising would entail a hardship. Those who minister to the comfort of Mr. Willett and his class accomplish much before the more leisured day begins. The handling of perishable articles and the distribution of food in great centres of population goes on all night. To shorten that night by an hour or more to get the same amount of work done in a shorter time would tax resources to breaking point.

There is, too, another consideration which is not without its weight. England has succeeded in securing the recognition of the Greenwich meridian as the origin of time throughout the world, and with something like uniformity time is reckoned from that meridian. Is it desirable to commence an agitation which involves a breach, though only nominal, of that uniformity? We have admitted that there are some advantages to be derived from the adoption of the scheme, but when weighed against the disadvantages arising from a fretful disorganisation, it may be "better to suffer the ills we have than fly to others we know not of."