

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."