Memories of a School Inspector. Thirty-five Years in Lancashire and Suffolk. By A. J. Swinburne. Pp. 274. (Snape Priory, Saxmundham: Published by the Author; London: M'Dougall, n.d.) Price 2*s.* 6*d.* net.

THIS story of thirty-five years' work as a Government inspector of elementary schools is concerned chiefly with anecdotes of encounters with a great variety of characters. Educational questions of importance are touched upon lightly here and there, but the object of the book appears to provide entertaining reading for leisure hours.

LETTERS TO THE EDITOR.

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Microscope Stands.

MICROSCOPISTS will have experienced a feeling of satisfaction that, what they might anticipate would be a carefully reasoned consideration of the respective merits of Continental and English microscopes, had been provided for them in the issue of NATURE of December 21 last, but their satisfaction must have been considerably modified when they had finished reading the article in question. The subject is admittedly one of considerable difficulty, but no good purpose is to be served by giving the opinions of those, if one may judge from the opinions expressed, who are only able to see from the point of view of the producer, the user not being considered. Apparently the intention is to state the matter from each side: the first and second sections, therefore, treat of the characteristics and advantages of the English and Continental types respectively, while the third and concluding section would presumably be a careful comparison of these two types. In point of fact, the latter is nothing but a eulogy of the productions of Continental houses, and, if the concluding sentence is to be accepted, there is nothing left for English producers but to retire from the field and leave them in undisputed possession.

The opening statement of the claims for superiority in the English stand is fairly set out; in fact, as no particular opinion is expressed on the merits or demerits of this type of instrument other than to indicate its good points, little can be urged against it. The controversial part is mainly confined to that in which the provision of sprung bearings and controlling screws is set forth as an advantage, but I shall have occasion to refer to this further when considering the claims of the Continental type.

The second part of the article is headed "A Defence of the Continental Form." The first point raised, that the short Continental microscopes are more convenient in use, applies only when the instrument is used in a vertical position: but it should have been pointed out that this shortness is dependent on the optical tube length, which is shorter than in the English type.

The mechanical stages on the best Continental stands are all that could be wished, and the claims made under that head are quite justifiable.

The substage arrangements might easily be the subject of criticism, as in most Continental types they are far too cramped, and there is not sufficient latitude to allow of the easy manipulation of the various substage fittings. At the same time it must be admitted that in all but a very few cases a fine adjustment motion to the substage fittings is not necessary. But this is not because the Continental types are of necessity better made, as the paragraph in question somewhat implies, but because, in general, an achromatic condenser, even of the finest optical construction, does not focus within such narrow limits that a fine adjustment motion is necessary. A well-made rackwork will, in fact, give a sufficient degree of accuracy.

As to the horseshoe foot, this has little to recommend it when compared with the English tripod. It is true that there are three points of support, but they are not sufficiently far apart, and are not in the position in relation to the centre of gravity to ensure rigidity and firmness in any position. For photomicrography no well-designed stand should require clamping to its base at all, and the best of Continental microscopes, even those especially designed for the purpose, are so unstable that they will not stand alone when horizontal, much less retain any degree of stability in that position. The method of clamping down is usually such that the instrument is under considerable strain and tension, and certainly should any vibration be set up it will feel the effects of this to the utmost. The statement that clamping down is necessary with the larger stands of English make is not in accordance with the facts; I have recently had a microscope made by a leading English maker which is even more stable in the horizontal than the vertical position, and I should certainly consider that any clamp when using this instrument would be superfluous.

The large body tube of the Continental stands is a point distinctly in their favour, and one which some English makers have wisely thought fit to imitate.

As to the sensitiveness of the fine adjustment, this is perhaps a controversial point, the degree of sensitiveness required depending to a large extent on the user. As one becomes more expert, it is realised that such extreme slowness of movement is not required, but that it is necessary for the movement to be absolutely precise. Slowness of the fine adjustment motion which is claimed as a characteristic of the Continental type has at least been equalled for many years by an English maker. One well-known English fine adjustment moves the body tube 1/25,000th of an inch per division of the milled head, and this is practically the same as that provided in one of the newest of Continental instruments.

As to the relative merits of ground-in as compared with sprung motions, there is no doubt, from the point of view of the ordinary microscope user, that the ground-in fittings are preferable, but this does not of necessity apply to those who use their instruments with great care and who are quite capable of making the necessary adjustments which the sprung fittings provide. When once a ground-in fitting has become loose from wear there is nothing to do but to return it to the maker for replacement, whereas with the sprung fittings, by careful use, they can be adjusted from time to time and the instrument kept in perfect working order. However, this point has been more or less settled in favour of the ground-in method, as leading English makers are now providing (and some of them have done so for several years) instruments in which all their fittings are ground. So far, the respective claims of the English and Continental stands are fairly well set out, although much of the information given is to be found in makers' catalogues; but it is when we come to that part of the article headed "English and Continental Microscopes," and in which, therefore, we look for a careful comparison of the merits and demerits of the two types, that astonishing claims are made. While it is scarcely possible to consider fully the question of the evolution of the microscope, it must at once be said that the statements made are not strictly in accordance with the real facts.

The modern Continental microscope, whatever its advantages or disadvantages, has been evolved largely as the result of a consideration of the English model. Here we are told that the present-day English microscope is a degenerate form of what was originally a complicated and massive piece of mechanism, the multiplicity of racks and screws of which were a source of delight to *dilettanti*, while the modern Continental instrument is an evolution from an exceedingly simple, and by inference highly satisfactory, design. To put it plainly, this is not the fact; the refinements on a modern Continental stand have almost entirely been borrowed or copied from more perfect English models. We are told that the serious worker in science has not the time to play with the large variety of fittings in the English stand, while the *dilettante* is content to manipulate these, with the result that he is both "physically and mentally exhausted." In any case, if the user of a microscope requires an instrument that will deal with a large number of objects in a given time, it would be quite easy to devise some mechanical arrangement. Fortunately, there are still