

### Zeiss Abbe Refractometer.

In an interesting note by Mr. Churcher communicated to the Physical Society of London (Proc. Roy. Soc., vol. xxx., part iii., April 15, 1918) on the occasion of my paper on refractometers, it is pointed out that it had been observed that the Zeiss Abbe refractometer fails when measurements are required of liquids having an index exceeding 1.52. This Mr. Churcher stated to be due to the substitution of a crown prism of refractive index 1.52 for D in the place of the dense flint prism formerly used as lower or illuminating prism.

The fact that Messrs. Zeiss had changed their procedure with regard to the material of this lower prism in certain instances was of great interest to me, and I have been on the look-out for an instrument having the singularities described. Hitherto I have been unable to find any Zeiss refractometer having the defect mentioned.

If, therefore, any other of your readers possess such an instrument, I should be greatly obliged if they would let me know; and if they are aware of any special purpose for which the instrument should have been so made, I should greatly appreciate it if they would communicate the information to me.

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### British Thermometers.

In an article printed in the catalogue of the British Scientific Products Exhibition (p. 47) I directed attention to the fact that Beckmann thermometers of British make were not then procurable. It will interest scientific workers to know that good thermometers of this type are now manufactured in this country, and may be procured through the ordinary dealers.

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### RESEARCH ON HEALTH AND DISEASE.

THE outbreak of influenza has directed attention to what ought to have been sufficiently clear before—namely, the vital necessity for much more attention being given to the provision of adequate scientific inquiry into the causes of diseases. The question, indeed, is all one with that of research on other scientific problems, and most of the remarks that follow apply, with the appropriate changes of titles, to scientific investigation in general.

The provision for matters relating to disease is closely linked with the establishment of the proposed Ministry of Health. Although a part of the activity of such a body would be the important one of co-ordinating the various departments and authorities connected with the health of the nation, it would be a fatal defect if the equally important one of making full and generous provision for advance by systematic research were left out of sight. Since the functions of the Ministry of Health must of necessity demand the assistance of many and various branches of science, it would seem that those at its head should be

men of the widest knowledge and sympathy. It is doubtful whether it would be the wisest thing for the Ministry to be given over entirely to the medical profession, as has been assumed in some quarters. The medical profession would, of course, be largely represented, but the most effective way of getting work done on any particular problem would be to appoint a special committee consisting of heads of laboratories and representatives of institutions where similar research is being carried on. These men would be in touch with the capacities in existence and the capabilities of those actually at work. Such committees should be able to advise the granting of funds by the various bodies having them at their disposal, such as the Department of Scientific and Industrial Research, the Medical Research Committee, and so on.

It is a question whether the Ministry of Health need itself finance research. The multiplication of departments doing this is apt to lead to overlapping and to waste of valuable resources. The grants made on the advice of the committees suggested above might well be limited to the payment of actual laboratory expenses, inclusive of assistance when necessary. The really important thing is that there should be men always at work and ready to take up problems of urgency when they appear. It is unnecessary in this place to insist on the fundamental importance of what is often called abstract research in science. It is but rarely that work directed to a definite limited practical object leads to really valuable permanent results. Take the case of influenza. The mere knowledge that the disease is associated with the presence of Pfeiffer's bacillus is not enough. We must know the conditions which are favourable to the growth and virulence of this organism, and again what changes in the body render it a prey to the attacks of this and other agents. All this implies a far greater knowledge of the general biology of micro-organisms and of the physiology of the animal body than we yet possess. Researches of this kind must always be provided for and in continuous, uninterrupted course. They lead to direct practical applications, frequently making special investigation unnecessary, or at least rendering such work comparatively simple.

But, as is universally agreed, the number of such workers at the disposal of the nation is grievously inadequate. Why is this the case? There can be no doubt that it is due to the fact that no permanent careers in sufficient number are open to men who are attracted to research work, especially when of a character not directly connected with immediate practical applications. This must be remedied and without delay. In that branch of science with which the writer is more particularly acquainted, it often happens that a man with talent for research is obliged to devote himself to medical practice because he can see no reasonable prospect of a future career to support himself and his family. The only way to remedy such a state of affairs is to provide permanent research posts at an adequate salary. Grants for limited periods are of no real use, and the Beit fellowships, valu-