

experience have demonstrated this truth, which is now clearly realised. Methods owing their origin to the pioneer investigations of Freud, Jung, and others are now being widely used even by workers who do not necessarily agree with the theoretical views held by these writers.

We may now consider the way in which the medical problems of the war have affected the outlook of psychology. It seems certain that after the war greater emphasis will be laid upon the importance of instinctive and emotional factors and upon the power of non-rational beliefs to influence conduct. "Individual" and "social" psychology can no longer be regarded as separate departments. The rather exclusively intellectualistic viewpoint of psychology will be enormously modified and supplemented. In justice to psychology it should be pointed out that in the years preceding the war the beginning of this change of aspect in England was clearly apparent in the writings of such workers as Hart, Ernest Jones, McDougall, Shand, Trotter, and Graham Wallas.

This newer psychology, if properly taught, will be of distinct help to medical men in enabling them to deal more scientifically with the enormous and daily increasing number of mental and nervous disorders which are attributable, directly and indirectly, to the war.

In conclusion brief reference should be made to another problem the urgency of which is great, but towards the solution of which almost nothing has yet been attempted in our own country. We refer to the scientific selection and training of persons for important tasks demanding special innate and acquired aptitudes and capacities. The war has demonstrated, and is demonstrating, in a depressingly convincing way the ease with which square pegs may be placed—and kept—in round holes. The physical capacities of recruits for the Army have usually been tested before they have been allotted to their special work; but in scarcely any case has there been any scientific attempt to determine how far they are mentally fitted for the exacting tasks allotted to them.

As this article is being written an instructive contrast comes to hand from the Surgeon-General's Office at Washington. In the *Psychological Review* for March, 1918, Major Robert M. Yerkes describes "the history of the organising of psychological military service" in the United States. We may mention here one point of interest. The lowest 10 per cent. and the highest 5 per cent. discovered in the psychological examination of recruits were subjected to a searching individual examination, on the basis of which a special report was made to the medical officer. The example of such a rational attempt to discover the incompetent and the specially competent before, and not after, valuable time has been wasted may be recommended to the consideration of all who are anxious to further the best employment of our human resources.

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THE TOTAL SOLAR ECLIPSE OF JUNE 8, 1918.

OBSERVATIONS of the solar eclipse of June 8 appear to have been very successful on the whole, notwithstanding the general prevalence of cloudy conditions along the path of totality, extending from the State of Washington to Florida. Preliminary accounts of the work of the parties of observers from the Lick and Mount Wilson observatories are given in the August issue of the *Publications of the Astronomical Society of the Pacific* (vol. xxx., No. 176), and of those from the Yerkes and numerous other observatories in the August-September issue of *Popular Astronomy* (vol. xxvi., No. 7).

Prof. Campbell's party was located at Goldendale, Washington, and on an otherwise completely cloudy day the sun was seen in a perfectly clear gap from less than a minute before totality to a few seconds after the end of totality. With a lens of 6-in. aperture and 40-ft. focal length, pointed directly at the sun, photographs of the corona were obtained which are described as surpassing in definition any previously obtained by the Lick observers. The corona was remarkable for the sheaths of streamers which surrounded all the principal prominences, and Prof. Campbell remarks that "it seems impossible to question that the forces in the sun responsible for the prominences are the forces which are responsible for the coronal streamers situated near the prominences." Excellent photographs of the corona were also obtained with other instruments, and streamers to the east of the sun were recorded to about three solar diameters. Special cameras were employed for registering the brighter stars in the region near the sun for the purpose of testing the Einstein effect, and as stars fainter than 8th magnitude are shown on the plates it is possible that measurements may lead to important results. A spectrogram obtained with a three-prism spectrograph, showing the spectrum of the corona east and west of the sun, with iron comparisons, was taken for the accurate determination of the wave-length of the well-known green line of "coronium," and a preliminary measurement has shown that the wave-length differs very little from 5303.0 Å. With a single-prism spectrograph, the well-known coronal lines 3601, 3987, 4086, 4231, and 5303 were photographed, and seven other bright lines were suspected. On these plates the coronal spectrum only extends 6 or 7 minutes of arc from the edge of the sun, and no absorption lines appear in this region; the inner corona thus appears to be radiating its own light, and does not reflect sufficient sunlight to impress the Fraunhofer lines on its continuous spectrum. The irregular distribution of "coronium" was successfully recorded by the use of an objective-grating adjusted for the green line in the third order spectrum. Five observers gave attention to the "shadow band" phenomena at the beginning and end of totality, with results which appear to be more definite and accordant than on any previous occasion. With reference to the

origin of these bands, Prof. Campbell considers that the rapid cutting off of the sun's rays before totality, and the reverse process following totality, may conceivably produce temperature or density gradients in the earth's atmosphere which may be favourable to effects upon the solar rays analogous to diffraction.

Prof. E. P. Lewis, who was associated with the Lick observers, employed a large quartz spectrograph, an objective prism with double-image prism for studying possible polarisation in the lines, and a double-image camera for investigating the integral polarisation of the corona. Strong polarisation of the corona was recorded to a distance greater than the solar diameter.

At Green River, Wyoming, where the Mount Wilson observers were stationed, the sun was partly covered by clouds during totality. A fairly good photograph of the corona, however, was secured by Mr. Ellerman with an 8-in. objective of 30-ft. focal length, and Dr. St. John was partially successful in his work on the spectrum of the corona. The scale of the spectrograph employed was 6 Å per millimetre in the region of the green line, and the slit coincided with the sun's equator on an image 2 cm. in diameter. An iron arc comparison impressed on the plate leads to the wave-length 5303'204, on Rowland's scale, for the green coronal line on the east limb of the sun, but the west limb was unfortunately obscured by clouds. If it be assumed that the rotation of the corona is of the same order as that of the chromosphere, the corrected wave-length becomes 5303'239. It is important to note that the photograph gave the impression that the green line might have appeared less simple with a stronger exposure. Some valuable records of the spectra of the prominences and upper chromosphere were also secured with a concave grating objective spectrograph.

The principal station occupied by the Yerkes observers was also at Green River, Wyoming. Prof. Barnard obtained photographs of the corona and prominences with a 6-in. lens of 60-ft. focal length, and others with a photographic objective of 12-in. aperture, which are stated to show the prominences with an excellence of definition rarely equalled. An extensive programme of spectroscopic work was planned by Prof. Frost, but the clouds were too dense to permit of successful results in all cases. The chief novelty was the use of a moving-picture camera for recording the successive changes in the chromospheric spectrum near the beginning and end of totality, the ordinary lens of this apparatus being replaced by an objective prism and a lens of 40-cm. focal length. Exposures were made at the rate of sixteen per second, and, in spite of some interference by clouds, many hundreds of interesting spectra were obtained. Photometric measures, and photographs of the coronal rings for measurement of the intensity and distribution of light within the corona, were obtained by Prof. Parkhurst.

An expedition from the Lowell Observatory, under the direction of Dr. V. M. Slipher, was

located near Syracuse, Kansas, and here also the sun was covered by thin cloud during totality. The large-scale photographs, however, show much delicate detail, and the shape of the corona is described as lying between the maximum and minimum types. Arches of coronal matter above the brighter prominences were conspicuous, apparently showing the influence of the prominences upon the structure of the corona, as also noted by Prof. Campbell. Numerous spectroscopic photographs were obtained, and one of those taken with a single prism shows the solar absorption lines in the outer corona in addition to the emission lines and continuous spectrum of the inner corona. A preliminary measure gave 5303'0 for the wave-length of the green line. Photographs of the green ring with a slitless instrument show that the irregularities have no relation to those of the hydrogen and helium rings, and there is no obvious correlation between the prominences and the inner corona.

Successful observations were also made by expeditions from the United States Naval Observatory, the Smithsonian Astrophysical Observatory, the Sproul Observatory, and other institutions. The only permanent observatory in the belt of totality was the Chamberlin Observatory at Denver, and it is unfortunate that the 20-in. refractor and other instruments assembled for the occasion could not be utilised on account of dense clouds.

MODERN STUDIES IN SCHOOLS.

THE report (Cd. 9036, price 9d. net) of the Committee appointed to inquire into the position of modern languages in the educational system of Great Britain, published shortly after that of the Committee on the position of natural science, which was summarised in *NATURE* of April 18, p. 135, was awaited with peculiar interest. It was expected to put new life into the modern sides of schools, so that modern language teaching should afford some gift which the study of languages can best provide. The questions really are: What is the part which the study of modern languages shall take in the creative life of the world, and what is its distinctive message? Without some high purpose the modern sides of schools must be dull and mechanical. We looked for inspiration, but have been disappointed. The members of the Committee are not themselves inspired with enthusiasm for the part that modern studies shall take—which the studies alone can take—in the uplifting of the world.

The truth is that with the authors of the report the study of modern languages is their second love. So we are met at the threshold with business and diplomacy. It is true that, later, the report seeks some higher purpose, but only half-heartedly and without the enthusiasm of conviction. Commerce, we are gravely told, "is one of the principal ends of education, if it is not the whole of it"; and the Committee has consulted a large number of commercial firms. But ideals which are springing into life, which it is the essential work of education to foster, may transform the whole of our commercial