

contact must be set the decolorising effect of reductase, which persists when the cell is dead and is greatly increased at low pH values (for example, in wort). The influence of pH values has been accounted for by Fink and Weinfurter (*ibid.*, 47, pp. 89, 110, 124; 1930) by the fact that methylene blue is a base, the hydrochloride of which is soluble in neutral or in acid solutions. In alkaline solutions, however, the less soluble base is liberated and is available for adsorption. Thus, at pH 2.2 less than 1 per cent of the cells examined were properly stained, the remainder being pale-blue in colour, whilst at pH 4 a deeper shade of blue was obtained, increasing progressively in depth of colour until, at pH 8, all the cells were deep blue. The marked time-effect is illustrated by the increase in one case of from 5 per cent to 20 per cent of stained cells in 3 minutes (pH 2.6 to 6.8).

Yet another source of anomalous results was traced to the electrolyte-content of the medium in which the yeast is suspended. Thus, staining occurs more rapidly in distilled water than in tap-water, but a trace of electrolyte (for example, salt) added to the former

before the addition of the stain inhibits its action. It is not clear to what extent this is due to a corresponding change in pH value, since some substances, for example, dextrose and lævulose, have the effect of predisposing the yeast to staining. Maltose and glycerol are less effective in this respect, while mannitol is inactive. Electrolytes containing chlorides, iodides, thiocyanates, bromides, sulphates, nitrates, tartrates, citrates, and acetates act as inhibitors in decreasing order of efficiency, and it is suggested that their absence renders the yeast-walls more permeable to the stain.

Another important fact which emerges from these investigations is that one set of conditions cannot be formulated for all strains of yeast, so that there appears to be every reason why a study should be made of possible substitutes for methylene blue. In this connexion attention may be directed to the proposal of a 0.25 per cent solution of erythrosin by Devereux and Tanner (*Jour. Bact.*, 14, p. 217; 1927), and to the use by Tolstouhov of eosin-yellow for pH values above 3, and acid fuschin for pH 0.8-3.0.

International Eugenics Conference.

THE International Federation of Eugenic Organisations held a conference at the Larmer Tree Grounds, Tollard-Royal, Wiltshire, on Sept. 10-15. Eighteen countries maintain membership in the Federation, and many of them sent representatives. Among those present were Sir Bernard Mallet, of Great Britain; Dr. A. Ploetz and Prof. Rüdin, of Germany; Prof. Reichel, of Vienna; Dr. Heuyer, of Paris; Dr. Van Herverden, of Utrecht; Dr. J. A. Mjøen, of Oslo, and Dr. H. H. Laughlin, from the Eugenics Record Office, U.S.A. Mrs. C. B. S. Hodson acted as organiser and interpreter of the conference. One object of the conference was to co-ordinate research in different countries. Reports were received on eugenics and war, and on recent eugenic developments in various countries. Committees were formed or continued for the study of human heredity, race crossing, racial psychiatry, and the standardisation of anthropometrical measurements, physical and mental. Different conferences were held on the standardisation of human measurements, on race crossing, on racial psychiatry, and on human heredity. Miss Tildesley outlined proposals on behalf of English anthropologists for standardising measurements, and Miss B. Schieffelin discussed methods of measuring psychic differences.

In her report on the work of the American Eugenic Research Association on Mental Measurement, Miss Schieffelin pointed out that the search for any such thing as a measurement of hereditary mental endowment has proved a failure. A central clearing-house should be established so that all mental tests could be thoroughly classified and their value gauged. This clearing-house, which would of necessity be an expensive business, would be able to review the situation and plan future research. Workers would be able to apply to it for advice and should be able to obtain the existing position in relation to mental testing and its application to hereditary factors.

Prof. Rüdin outlined a scheme of research on racial psychiatry, and Prof. C. G. Seligman contributed some observations on Chinese and Japanese psychiatry. An afternoon was devoted to papers on human heredity.

A public meeting held in the Tythe Barn, Hinton St. Mary, at the invitation of Capt. Pitt-Rivers, on "The Urgency of Eugenic Reform", was attended by many local people. Sir Arthur Keith spoke on eugenics

from the evolutionary point of view; Prof. Ruggles Gates, on human heredity and segregation in racial crossing; Prof. Rüdin, on heredity of insanity; and Dr. C. J. Bond, on dangers of racial decay and the remedy.

Sir Arthur Keith, in his address, briefly traced the development of modern man from the time of *Pithecanthropus erectus* through the age of agriculture and showed how gradually the production of race was sacrificed for the accumulation of wealth. The new age, the eugenic age, is, it is hoped, to be one of constant race improvement. There are many difficulties in the way of execution of eugenics ideals, chief of which are human prejudice, emotion, and passion. The Church is falling into line, placing its blessing on attempts at racial improvement and paving the way for the more practical side which is the work of the eugenicist. The evolution of man is not, as some people imagine, at a standstill, for it is slowly but surely progressing, and must be directed by the knowledge of the eugenicist.

Dr. C. J. Bond emphasised the presence of a considerable element of mental and physical degeneracy in the general population. He pointed out that the remedy lay in first of all carrying out an exact ascertainment of the degree of mental and physical deterioration in the various social groups and then applying the principles of sterilisation and segregation. This would in course of time eliminate the defective and unstable members of society.

At another public meeting, cinema films showing various features of cell division and embryonic development were shown by Prof. Ruggles Gates, and Prof. Elton Mayo, of Harvard University, spoke on the physiology of efficiency.

Excursions were made to the surrounding country to view some of the numerous archaeological remains in this vicinity. Under the guidance of Mr. O. G. S. Crawford and Mr. St. George Gray, the ancient British village and Roman camp on Hod Hill, Ackling Dyke, Worbarrow, Stonehenge, Woodhenge, and other neolithic and later remains were visited. The numerous archaeological relics and models of excavations to be found in the Pitt-Rivers Museum at Farnham, Dorset, were also examined, as a preliminary to visiting some of the places from which they were excavated.