

conveniently divided into four sections dealing with solid, liquid and gaseous fuels respectively and with their analysis and calorimetry.

It is clearly printed and well illustrated with drawings, graphs and tables, and contains a deal of practical information on every section of the subject set out in a manner which should be

readily intelligible to the practical engineer and works officer. Its possession and the application of the information it contains should help to advance the cause of fuel economy: in this connexion we would again emphasise the desirability of the employment of full-time fuel economy experts by large firms. E. F. A.

Some Aspects of Eugenics

(1) **Constructive Eugenics and Rational Marriage**
By Dr. Morris Siegel. Pp. xiii+196. (Toronto: McClelland and Stewart, Ltd., 1934.) 2.50 dollars.

(2) **The Chemical Control of Conception**
By Dr. John R. Baker. With a Chapter by Dr. H. M. Carleton. Pp. x+173. (London: Chapman and Hall, Ltd., 1935.) 15s. net.

(1) **D**R. SIEGEL'S small volume has been written for the average reader who may wish to learn something about the science of eugenics. Following a short chapter on the laws of heredity, the author opens his main theme, which is that the number of defectives in proportion to sound stock in a population is steadily increasing, owing to the prevalence of what may be called faulty mating; and it is the author's object to indicate how it should be possible to ensure proper and suitable unions.

For the preservation of the race, it is essential in the author's opinion that steps be taken by society to prevent breeding from unhealthy stock. As it happens, in certain instances great men and great women have arisen from a bad stock, so that it is impossible to insist upon a wide programme of sterilisation as a general method of improving the human stock. Dr. Siegel therefore advocates an extensive educational programme which would involve the compulsory teaching of eugenics in higher schools, more extensive instruction in heredity and eugenics for medical students, post-graduate courses for the training of specialists and widespread propaganda. The author emphasises that good stock is not synonymous with the so-called upper classes, and quotes many instances of famous men and women who have risen from the masses.

Dr. Siegel's book is written in a popular manner, but suffers from the disadvantage that the political outlook is not always applicable to conditions in Great Britain.

(2) Touching on this subject from a different angle is the question of birth control, which may play an extremely important part in the future in regulating over-population and so the pressure of

peoples outwards, beyond their frontiers. Moreover, in modern civilisation it is often considered essential to control the frequency of births in families, or even to prevent them altogether. Chemical methods of contraception are frequently practised, but little scientific work has been carried out on the subject, so that Dr. Baker's book fills a distinct gap.

Dr. Baker uses the spermatozoa of the guinea pig on which to test the effect of contraceptives. The spermatozoa can be maintained alive in different fluids, such as phosphate or acetate glucose-saline, or a solution of egg white in saline or phosphate. The author has found that it is best to determine the lowest concentration in which a substance under test kills all the spermatozoa in a standard time rather than to find out how long the spermatozoa take to die in a standard concentration. Most substances have little or no effect upon spermatozoa in one-eighth of the concentration at which they immobilise every time. The most potent compounds found were certain quinones, which immobilise in a concentration of 1/512 per cent. At the end of the scale come resorcinol and chloral, which only immobilise in a concentration of 1 per cent. The alkaloids harmine and ethylharmol are weakly active: quinine salts are less potent. Human spermatozoa react in almost the same way as those of guinea pigs, but germicidal power is not a reliable indicator of spermicidal activities.

Unfortunately, however, the most active compounds are irritant to the vaginal wall. In fact, it appears that a really potent chemical contraceptive which is also devoid of any pathological effects has yet to be found. In the course of the experiments, it was noticed that certain of the compounds at certain concentrations stimulated the activity of the spermatozoa, and it is suggested that strychnine in dilute solution should be used in human beings where sterility is due to feeble motility of the spermatozoa. The book gives a detailed account of the experiments carried out and should be of the greatest value to all those engaged in investigating the usefulness of contraceptives.