

The ultimate aim of each country is to engage in all branches of the industry and to attain a balanced degree of activity in each branch.

Several factors, however, determine the status of individual countries and/or units within the industry. The most important of these are the extent to which the indigenous supply of crude petroleum is capable of fulfilling the demand for petroleum products within a country; problems of general industrial organization and the extent and influence of governmental

control or assistance. In turn, the degree to which governmental influence is exerted or withheld is based on the particular growth of the industry within each country. Far-reaching governmental control and stringent legislation will be found to operate in those countries where there has arisen progressive lack of balance between indigenous supply and home demand, lack of stabilization of markets through non-participation of lesser units, or other economic maladjustments.

The Bushman Skull

IN the course of a discussion of the significance of the Bushman skull (*Soölogiesa Navorsing v. die Nas. Mus., Bloemfontein*, 1, 3-4), Dr. T. F. Dreyer contends that the genus *Homo* at a very early date evolved along three independent lines—Neanderthal, the Eurasian and the Bushman. The Bushman, in the smallness and orthognathism of the face, the steepness of the forehead, and the flatness of the dorsal profile, shows features, in which it resembles the juvenile skull. It is here suggested that this 'fetalization' (Bolk) is not due to an adult retention of juvenile features, but is a precocious assumption of the adult. This explains the fact that a Bushman baby of about twelve months is already a Bushman, and differs distinctly from the babies of other races, as does the adult Bushman from other adults. This difference is thus due to the projection of adult features into the earlier ontogenetic stages.

The typical orthognathism of the Bushman skull, after a period of prognathism which lasts for some months after birth, is extreme up to six years and then is less pronounced in maturity. This is a result of two growth processes, the peak of jaw formation falling within the foetal period, while the upper face, correlated with the growth of the base of the brain, grows more rapidly during the first six years after birth. The cranial form, with characteristic bulging

of the forehead and flatness of the dorsal profile, is due to the differential growth of the roof and floor of the brain; there being a lack of growth of the anterior end of the base, while the roof grows very slowly during foetal life, very rapidly during the first two years after birth, and then keeps pace with the floor of the brain until maturity is reached.

Modern miscegenation with Bantu produces a small brain and a long face (Baralong), but early crosses of Bushman with a Hottentot-like race (Matjes River) produced a large brain with a small face. In both cases the proximate cause appears to be a disturbance in the functioning of the pituitary gland. The sella turcica in the Bush-Bantu is abnormally large—the first case recorded of hypertrophy of the pituitary in an African—while in Bush skulls the sella turcica is abnormally small.

Hybridization with the Bushman would thus seem to set up a disturbance of harmonic control, with the result that one or other set of racial characters becomes exaggerated. It remains to be determined whether the differences between the Bushman and other groups of *Homo sapiens* are of such a degree of importance that most important physiological disturbances result from hybridization, and are of sufficient weight to demand the separation of the race from *H. sapiens* as a distinct species.

Work of the Rothamsted Experimental Station

IN studying the annual report for 1935 of the Rothamsted Experimental Station*, it is impossible not to be impressed by the number and value of the experiments carried out at this institution in co-operation with various bodies and individuals. If the British farmer and his trading associates are averse to co-operation in commerce, they have not proved to be so in the field of research directed from Rothamsted. One of the fruits of bringing together producer and expert buyer has been progress in the direction of understanding 'quality', as applied to some agricultural products.

A series of fertilizer experiments, carried out with the help of the sugar-beet factories, and planned at the Statistical Department at Rothamsted, has the object of putting the manuring of this crop on a

sound and more accurate basis. Trials carried out in Great Britain indicate that this crop does not give the response to various manures that might be expected from Continental experience. In the trials directed from Rothamsted, not only is the effect of fertilizers carefully assessed, but also an elaborate examination of the soil is in progress, in order to correlate soil properties and fertilizer responses. This crop is also the subject of trials at Rothamsted and Woburn, arranged under the ægis of the Ministry of Agriculture and of the sugar-beet factories. These trials are designed to measure the effects of spacing, and of sulphate of ammonia applied at different spacings; the results at both centres indicate that nitrogen produces a greater effect in the narrower rows.

Useful information was gathered from conferences of growers of malting barley; these took the form

* Rothamsted Experimental Station: Lawes Agricultural Trust. Report for 1935. Pp. 279. (Harpenden: Rothamsted Experimental Station, 1936.) 2s. 6d.