

hope of success could be entertained and the site was abandoned as another dry hole after 260 ft. had been added to that depth.

Both these reports are admirably produced, and apart from including maps, plans, structural data and detailed well-logs, the geophysical, palaeontological and petrological details obtained from the well-samples recovered are fully documented. Notwithstanding that both these Queensland projects merely add to the discouragingly long list of failures to find commercial oilpools in Australia, at least one success has to be recorded. With the start of a pipeline from the Moonie field to Brisbane, what is described as "... the beginning of the end of a long and arduous undertaking to produce Australia's first commercial oilfield" has undoubtedly given a fillip to oil exploration at least in this part of the Continent. According

to *The Australian Mineral Industry* (16, No. 1, September 1963), the Moonie pipeline is to be equipped with one pumping station on the oilfield and it will initially be capable of delivering up to 10 000 barrels of crude oil per day. Should future developments and discoveries warrant it, the capacity of the line can be boosted to 57 000 barrels per day; this would necessitate erection of three more pumping stations. There is definitely some hope in the Moonie area because one well, Moonie No. 17, produced oil at the rate of 1,891 barrels per day through a ½-in. choke during a production test on two zones, an upper and a lower; it is the second of 15 successful wells in this field to produce from these zones. A gas production rate of 213,000 ft.³ per day, also proved, lends further encouragement to continue the search.

H. B. MILNER

DOMESTIC FOOD CONSUMPTION AND EXPENDITURE IN BRITAIN, 1961

THE pattern of food supplies in 1961 was broadly similar to that in 1960, but some trends in the level of supply of individual commodities continued. Thus supplies of milk, cream, cheese and eggs moving into consumption again increased while those of fish and flour continued to decline. Total supplies of meat rose to 128 lb. (edible weight) per head. The total level of supply of butter was almost as great as in 1958 and resulted in a curtailment of demand for margarine. Supplies of potatoes were slightly greater than in the previous year, but those of most fresh fruits and vegetables declined. These facts are given in the annual report of the National Food Survey Committee entitled *Domestic Food Consumption and Expenditure, 1961**.

The Report is the twelfth of an annual series introduced in 1950 relating to consumption, expenditure and nutrition of private households in Great Britain. Evidence is also presented that, between 1956 and 1961, differences associated with social class and household composition have narrowed. Food expenditure increased at slightly higher

rates in the lower income groups (including pensioner households) and in large families.

In one of the two special investigations, the report shows that the average numbers of earners and the average net income per household together with the food expenditure per person were slightly lower in families including an expectant mother than in those without. Also the differences in type of diet between larger and smaller households were accentuated when the housewife was pregnant. The other special investigation examines the impact on the demand for carcass meat of the expansion of the poultry industry between 1956 and 1961. This shows that since 1959 the consumption of carcass meat has not decreased in spite of increased consumption of poultry.

Apart from tables containing extensive data relating to consumption, nutrition and expenditure, the appendixes include an account of the methods used in conducting the survey and analysing the results. Although the National Food Survey is primarily intended to provide information for the Government, its findings should be of interest to all who are interested in nutritional and dietary matters and production of food for the home market. D. PEARSON

* Ministry of Agriculture, Fisheries and Food. *Domestic Food Consumption and Expenditure, 1961*—Annual Report of the National Food Survey Committee. Pp. viii+124. (London: H.M.S.O., 1963.) 8s. 6d. net.

TOOTH REPLACEMENT IN THE MAMMAL-LIKE REPTILES

IN any attempt to derive the mammals from the reptiles, one of the problems encountered in the past has been the virtual impossibility of reconciling the apparently different methods of tooth replacement found in these two classes. Thus Dr. A. W. Crompton's recent analysis of the situation in some of the most mammalian of the mammal-like reptiles, the cynodonts, is of considerable interest, for he demonstrates that within this small group both types of dentition are represented*.

From a more complete series of developmental stages than has hitherto been known, Dr. Crompton confirms in *Thrinaxodon* Parrington's contention that the teeth are replaced alternately, and he shows further that the wave of replacement passes from back to front along both the odd and even teeth, exactly as in typical reptiles. This is despite the mammalian appearance of the teeth themselves. In the gomphodont cynodonts, on the other hand, Crompton observes that in contrast to the situation in *Thrinaxodon*, the replacement is from front to back, while there is no sign of an alternate succession. This latter dentition therefore parallels that seen in the mammals.

* *Annals of the South African Museum*, 46, Part 20: *Tooth Replacement in the Cynodont Thrinaxodon Iorhinus Seeley*. By A. W. Crompton. Pp. 479-521. (Cape Town: South African Museum, 1963.) 75 cents.

Crompton's observations thus help to confirm the theory recently postulated by Edmund on tooth replacement patterns (*Contrib. Roy. Ontario Mus., Life Sci. Div.*, 52, 1; 1960). He suggests that impulses travel along the dental lamina initiating the development of successive tooth germs, and where consecutive impulses are spaced at a distance of twice that between tooth germs, then a fully alternate dentition results. If, however, there is slightly more than this distance between impulses, there is a time lag before the more anterior teeth appear, so that the wave of replacement of both odd and even teeth will appear to be from back to front of the jaw. If the interval is less than twice this distance, then the wave will appear to travel in the reverse direction.

Edmund further believes that each animal possesses more than one generation of teeth, or *Zahnreihe*, and, again using Edmund's theory, Crompton shows that in *Thrinaxodon* there is an endless succession of *Zahnreihen*, while in the gomphodont cynodonts there are only two, part of the second being suppressed. It is this reduction of *Zahnreihen* which accounts for the lack of an alternate succession in the gomphodont cynodonts, as it does in the mammals where part of the second *Zahnreihe* is also sup-