

rocks formed by the crystallisation of a dry magma at great depth? In discussing, on page 50, why the Cuddapahs never come in contact with the charnockites Sir Lewis gives two reasons. I suggest to him a third: the charnockites were intruded at such great depths that they were nowhere exposed at the surface up to the time of deposition of the Cuddapahs.

For the infra-plutonic zone the author has made a good case and many of us will agree to the probability of his eclogite shell. Its suggested influence in the causation of earthquakes is unconvincing.

Finally, Sir Lewis explains the manner in which he has divided India (unfortunately he heads his table 'Peninsular India') into regions and provinces for purposes of description. The three regions: Non-charnockitic, charnockitic and "extra-Peninsular provinces" give an unbalanced division so far as area is concerned, and especially so when we note that probably 95 per cent. of the work to date has been done in the non-charnockite region. From the metamorphic point of view it is not a petrological division and gives neither a picture of facies nor of grade. It is simply a convenient description of areas, the charnockitic region covering merely the southernmost tip of the Peninsula and the east coast, the non-charnockitic being the rest of the Peninsula.

The eighteen subdivisions, or provinces, are on an areal basis but they are grouped into types some of which are, at least in name, lithological: in the non-charnockitic

region there are the iron-ore provinces, the (manganese-ore)-marble provinces and the igneous provinces; in the charnockitic region there are the iron-ore provinces, (manganese-ore)-marble provinces and the garnetiferous provinces; the extra-Peninsular provinces are grouped (naturally) into the Himalayan and Burma occurrences. The grouping contains elements of lithological types, elements of facies and elements of areal distribution—a real hotch potch! Several of the groups contain common characteristics. It might just as well have been left entirely areal. However, classifications of this nature are entirely for clarity in description, and I would not advise the reader to give to it, at this stage, any other significance.

In conclusion I would suggest that as an appendix to the final part of the memoir the authorities on the different areas should be invited by Sir Lewis to express their opinions on his description of their respective areas and of his correlation, and so provide a completely balanced picture.

Correlations are undertaken by two types of people: those who are young and eager (I was rash enough to attempt one such some years ago) and those who, as they retire and leave the field to younger men, wish to leave behind them the fruits of their experience. Sir Lewis Fermor has left India, we wish him a long retirement and hope that he finds the time to put the finishing touches to his correlation.

J. A. DUNN.

### A Nutritional Survey of the Poorer Classes in Ceylon.\*

Dr. Nicholls gives a brief description of the various races inhabiting Ceylon; the three chief racial groups are the Sinhalese, Tamils and Moors. Education in Ceylon is compulsory and there are more than 3,000 schools and colleges. 12,737 boys and girls, aged 5-18 and belonging to various races and of various social origins, were weighed and measured. It was found that the height and weights means of children of the well-to-do classes were higher at all ages

than those of the middle and poorest classes, those of the poorest classes being the lowest. Averages in the various social classes were much the same in each racial group, and it may probably be assumed that the most important factor affecting development is diet. Investigation showed that the diet of children of the poorer classes in the vernacular schools is very deficient in quality.

A diet survey of 15 peasant families was carried out, intake of calories and proximate principles worked out as follows:—

\* By Lucius Nicholls, M.D., B.C., B.A., *Ceylon Journal of Science*, Vol. IV., Part I (April 21, 1936).

Protein (g)	Fat (g)	Carbohydrate(g)	Calories
55.5	32.0	365	1,942

The author suggests that "a diet of the value of about 2,200 calories is sufficient for the requirements of an agricultural labourer belonging to the smaller races of the tropics, provided the diet is well-balanced in necessary constituents."

Infantile mortality is high in Ceylon (176 per mille during the decade 1923-33). Among the most important causes of death are those entered in the returns as "debility" and "convulsions"; in the author's opinion, malnutrition is the basic cause of the majority of deaths entered under these heads. A large number of infantile deaths from a condition called "mandama" are registered; "mandama" is characterised by a papillar skin eruption, weakness of the limbs, and extreme wasting. Many patients with "mandama" have "sore-mouth", a condition now recognised to be due to diet deficiency, and eye signs and symptoms including xerophthalmia and keratomalacia. Dental carries and irregularities of the teeth were found to be more common in poor than in well-to-do children, and it seems probable that the high incidence of dental defects in the former is due to malnutrition.

The author discusses the relation between the recent malaria epidemic and nutrition. The epidemic was preceded by a drought, and after a partial failure of the rains of

the north-east monsoon, drought conditions continued during the greater part of the epidemic period. The conclusion seems to be that "even if the masses had been well fed and prosperous, there would have been an epidemic of malaria, but the vicious circle of malaria and destitution acting and reacting on one another would not have been established, and the mortality rate would have been lower. Convalescence would have been shorter, and probably the infectivity and relapse rates would have been less."

Hookworm is common in Ceylon. It is estimated that 90 per cent. of the lower classes in Ceylon are harbouring on an average about 90 hookworms, which will withdraw about 9 c.c. of blood daily from the host. The presence of hookworm in the intestine must increase diet requirements, particularly in respect of iron and first class protein, to make good the steady loss due to withdrawal of blood.

Dr. Nicholls' survey should be closely studied in India, for nutritional conditions in Ceylon do not greatly differ from those existing in many parts of India. Preliminary surveys have shown that the various food deficiency diseases occurring in Ceylon are also, as might be expected, common in South India.

The Ceylon survey re-emphasises the paramount importance of nutrition in relation to public health in the East.

W. R. A.

## CENTENARIES.

S. R. Ranganathan, M.A., L.T., F.L.S.

Fahrenheit, Gabriel Daniel (1686-1736).

**F**AHRENHEIT, the German Physicist, was born at Danzig on May 14, 1686. Having received his early education at Amsterdam, he travelled widely in England, Denmark and Sweden. His business was the manufacture of meteorological instruments; but he became deeply interested in physics, as a result of his close association with Olaf Romer, whom he probably visited in Copenhagen during 1709.

MERCURY THERMOMETER.

"Finding, in the history of the Royal Academy of Sciences, that M. Amontons had, by means of a thermometer of his own invention, discovered that water boils with a fixed degree of heat," Fahrenheit "was very desirous of making such another thermometer, to view with his own eyes this curious phenomenon of nature, and be convinced of the truth of the experiment. And recollecting what sagacious inquirers into nature had