

| 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.

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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

written... he imagined, that perhaps a thermometer might be made of mercury. Having made such a thermometer, though still imperfect in several respects, the event answered his expectation, to his no small satisfaction." He invented a successful method for cleaning mercury and was the first to bring about the general use of mercury in thermometers. With the aid of his thermometer, he made a series of tests on liquids other than water and found that each had a fixed boiling point.

#### FAHRENHEIT SCALE.

First he worked with thermometers filled with spirit of wine. He took two fixed points. "The first, the lowest... is found by a mixture of ice, water and sal-ammoniac or sea-water; if the thermometer is dipped in this mixture, then the liquid falls to the point marked 0. This experiment succeeds better in winter than in summer." "The second is that point to which the alcohol expands if the thermometer be held in the mouth or armpit of a healthy person." He divided the interval first into 180 equal parts and later, into 96 parts. In 1724 he introduced a third point which corresponds to a mixture of ice and water alone. Later when he began to use mercury, he took, in the place of the temperature of the human body, the boiling point of water. On his scale, this happened to be at 212.

#### HONOURS.

Fahrenheit attained considerable celebrity by his investigation. In 1724 he was elected a Fellow of the Royal Society of London and contributed five short papers to the *Philosophical Transactions* of the Society. These papers have been reprinted in Heft 57 of Ostwald's *Klassiker*. One of these papers deals with a new form of hygrometer. He died in Holland on September 16, 1736.

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#### Pond, John (1766-1836).

JOHN POND, English astronomer royal, was born about 1767 in London. His early education was at Maidstone Grammar School, under the tuition of Wales, astronomer to Captain Cook's expedition. His University course was at Trinity College, Cambridge. Due to ill health, which attended

him almost through life, he spent several years abroad.

#### ENTERS ROYAL OBSERVATORY.

Pond's attention was directed to astronomy by Wales. Even when a boy, he detected some imperfection in the Greenwich instruments. Later in life, in the first decade of the nineteenth century, he got an altitude and azimuth circle of Troughton and undertook a series of observations from which he deduced that the quadrant then in use at Greenwich for the determination of declinations had changed its form since the time of Bradley. This brought his name to prominent notice among astronomers and led to his appointment as the head of the Royal Observatory. He soon gave up the quadrant and established a mural circle. "Mr. Pond saw, almost intuitively, the vast superiority of this over every other form of the declination instrument."

#### HIS CONTRIBUTIONS.

While at Cambridge, he missed the opportunity of acquiring that depth of mathematical knowledge which is necessary for the highest branches of theoretical astronomy. Hence, he devoted his official life mostly to observations and particularly to the determination of the places of fixed stars. Under Pond the instrumental equipment at Greenwich was completely changed. He published eight folio volumes of *Greenwich Observations*, translated Laplace's *Systeme du monde* and contributed thirty-one learned papers. His catalogue of 1,112 stars, published in 1833, had great value.

#### HONOURS.

Pond was elected to the Royal Society in 1807 and was appointed Astronomer Royal in 1811. He received many academic honours. As a mere handler of instruments, Mr. Troughton, one of the best critics in such a matter, used to say that Mr. Pond had, within his knowledge, no equal or rival except Captain Kater. The testimony of the Astronomical Society is even greater. "It is not too much to say that meridian sidereal observation (which excludes the Herschalian branch of astronomy) owes more to him than to all his countrymen put together since the time of Bradley."

He retired in 1835 and died at Blackheath on September 7, 1836, and was buried beside Halley in the churchyard at Lee.

