

SOCIETY REPORTS

Physiological Meeting in the Department of Physiology, University of Singapore

On 17 March a meeting continuing throughout the day was held and attended by over 30 people. Seventeen papers were presented covering a wide range of topics. These were:—

1. AGE VARIATION IN THE SYMPATHETIC NERVE TRANSMITTER

By D.K. Frewin, J.G. Waterson and R.F. Whelan, University of Adelaide

Human arteries were studied using the Falck histochemical technique and specific catecholamine fluorescence was observed in the digital and gingival vessels of infants, children and young adults but not in the vessels from the older adults, suggesting that either the content of transmitter or the density of the nerve network diminishes with age.

2. ULTRASTRUCTURE OF THE URINARY BLADDER OF *RANA CANCRIVORA*

By Annie B. Elliott, Nanyang University

Reabsorption of water from the isolated urinary bladder of *Rana cancrivora* in response to neurohypophysial peptides was from 100 to 1000 times less responsive than bladders of other amphibia. However, electron microscope studies showed that after exposure to a high concentration of its own pituitary extract the bladder epithelium of *Rana cancrivora* showed cavities between the lateral margins of the cells, similar to those which have been reported in other amphibia after treatment with mammalian pituitary extracts.

3. NERVESIDE

By Tan Boon Hock, University of Singapore

Nerveside is a biologically active polypeptide first extracted and described by Toh in 1963. It has been purified and chemically characterized. An enzyme which rapidly inactivates nerveside has also been found. Nerveside may be a transmitter substance in the cerebral cortex.

4. THE NORMAL ELECTROENCEPHALOGRAM AND ITS DISTURBANCE IN PYRIDOXINE DEFICIENCY

By K.Y. Chan, University of Singapore

The normal E.E.G. in relation to age was described together with the E.E.G. of a baby with convulsions due to pyridoxine deficiency. The changes were gross with multiple spikes and high voltage slow wave discharges. The disorder

seems to be due to a disturbance of cerebral amino acid metabolism.

5. THE EFFECT OF TRICHLOROETHYLENE ON THE RESPIRATION OF COCKROACHES

By Lim Lian Chuan, Nanyang University

All doses of trichloroethylene (TCE) caused the oxygen consumption by roaches to increase during fumigation; but after fumigation, the oxygen consumption by anaesthetized insects showed no significant change. A high concentration of TCE depressed the oxygen consumption by tissue homogenates. When the cockroaches were in a state of hyperactivity while being fumigated they showed an increase in oxygen uptake and a higher mortality rate.

6. INDICES OF CORONARY ARTERY DISEASE

By Lt. Col. G. Crean, RAMC, Alexandra Medical Centre

It is important to have criteria on which to assess, in the absence of symptoms, the presence of coronary artery disease. Analysis of records of body weight, blood pressure and blood cholesterol concentration showed that body weight in excess of an hypothetical standard was associated with a relatively high incidence of ischaemic heart disease.

7. EFFECT OF ENVIRONMENTAL TEMPERATURE ON BONE FORMATION IN THE RAT

By Tan Pui Yong, University of Singapore

High environmental temperature impaired the growth rate of the body and bone. Provision of a higher intake of protein remedied this in respect of body growth, but the quality of bone was poor in rats living at 33°C both on a 20% or 40% protein diet. The deleterious effect on bone development of high environmental temperature was therefore due to factors other than protein deficiency.

8. IRON IN THE LACTATING MAMMARY GLAND OF THE RAT

By T.T. Loh, University of Malaya

Transfer of radio-iron from plasma to milk in lactating rats was found to be rapid and the mammary gland iron pool was inactive in respect

of iron secretion into the milk. Subcellular fractionation of the lactating mammary gland six hours after intravenous injection of Fe^{59} showed that most of the Fe^{59} was located in the supernatant, probably in association with the caseinogen inside the vacuoles of the epithelial cells.

9. THE ROLE OF PROLACTIN IN FISH PHYSIOLOGY

By T.J. Lam, University of Singapore

The ability of fish during migration to change from an environment of sea water to one of fresh water depends on the release of prolactin in the body. Laboratory investigations demonstrated that administration of prolactin allowed fish, when placed in fresh water, to maintain a relatively high osmotic pressure of the body fluids and to survive.

10. EFFECT OF ACUTE HAEMORRHAGE ON THE PLASMA CHOLINE LEVEL IN THE RABBIT

By D. Chan, University of Singapore

The concentration of free choline in plasma seems to remain constant within a fairly narrow range. When rabbits were bled there was a fall in the arterial blood pressure and this was associated with an increase in the plasma choline level which was sometimes very great.

11. INDUCTION OF OVULATION, ARTIFICIAL INSEMINATION AND EARLY DEVELOPMENT OF THE TADPOLES OF *RANA LIMNOCHARIS* BOIE

By Lee Soon Hock, Nanyang University

Ovulation of *Rana Limnocharis* was induced by intracoelomic injection of mature female pituitary glands. Ovulation occurred between 4 and 7 hours after injection. Induced ova were fertilized artificially by a sperm suspension prepared from macerated testes. Aging of eggs and sperms were found to reduce the fertility without affecting the hatchability and the rate of cleavage.

12. RESTING METABOLIC RATE AND ENERGY COST OF SOME COMMON DAILY ACTIVITIES OF CHINESE WOMEN IN THE THIRD TRIMESTER OF PREGNANCY

By B. Banerjee, University of Singapore

The energy expenditures of women in the third trimester of pregnancy and of non-pregnant and post-partum Chinese women were measured.

There was no significant difference in the energy expended by primiparae and multiparae

in any of the activities tested except while sitting at ease and standing. The resting metabolic rate and energy cost in different activities of the pregnant groups were significantly higher than those of the non-pregnant group.

13. THE ACTION OF NERVESIDE ON THE SMOOTH MUSCLE OF RABBIT AND GUINEA PIG INTESTINE

By Soh Ngoi May, University of Singapore

A method has been elaborated for recording simultaneously the contractions of the longitudinal and circular muscle layers of the isolated guinea-pig ileum and rabbit jejunum.

Nerveside caused contraction of the two muscle layers through its action on Auerbach's plexus, but did not stimulate sensory receptors in the mucosa.

14. GASTRIC ACID SECRETION IN CHINESE

By Fung Wye Poh, General Hospital, Singapore

Assays of acid secretion by the stomach have been measured in normal subjects and in patients with peptic ulcer or gastric carcinoma. The stimulated acid output was markedly lower in all the Chinese groups than has been reported from Western countries.

15. GENETIC ASSOCIATION OF CHRONIC DISEASES

By N. Saha, University of Singapore

An investigation is being made of the possible genetic association with chronic diseases, to examine Haldane's hypothesis that mutation is caused by chronic diseases. Incidences of ABO blood groups, G-6PD deficiency and abnormal haemoglobins in cases of syphilis are being studied in three ethnic groups. The results so far have been inconclusive.

16. A LOW-CALORIE COMBAT RATION TRIAL

By Lt. Col. D. Worsley, RAMC,
Medical Research Unit

When soldiers have to carry their own food the weight of the ration may be of critical importance under combat conditions. Trials have recently been made which investigated the effects on soldiers of living on a restricted intake of food appreciable length of time.

17. THE HAEMOGLOBIN CONCENTRATION AND BODY SIZE OF RATS

By G.R. Wadsworth, University of Singapore

The blood haemoglobin level changes with age. The haemoglobin level may be a function of size, rather than chronological age because rats

whose growth was restricted had a lower level than larger animals of the same age. Measurement of blood volume and body composition showed that a relatively low concentration of haemoglobin was due to a relatively large plasma volume.

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In bringing the meeting to a close Professor Whelan pointed out that this was not the first meeting of its kind to be held in Singapore, but that it was the first for a number of years.

He believed that this had been a very successful meeting, particularly in the participation of members of Nanyang University, of the University of Malaya in Kuala Lumpur and of some

clinical colleagues from the teaching hospital and the British Army.

In view of this success he suggested that the formation of a Physiological Society or, better still, a Physiological and Pharmacological Society should be considered. One of the purposes of such a Society would be the arrangement of regular meetings such as today at appropriate intervals, perhaps yearly.

On behalf of those present Professor Whelan thanked Professor Wadsworth for arranging the meeting, for making the facilities of his department available, and for so generously providing an excellent lunch in the Bali Restaurant.

He also thanked Mr. Henry Lee and his colleagues of the technical staff for their valuable assistance and also thanked the contributors for their papers.
