

INTERNATIONAL CONFERENCES

1. THIRD INTERNATIONAL CONFERENCE ON NEUROSECRETION

THE concept that the nerve cells function as glandular units to bring about homeostasis and differentiation through chemical means of an endocrine nature, is of recent origin due to workers like the Scharrers, Bargmann and Hanström. The first symposium on this aspect of biological study, known as Neurosecretion, was organised in Naples in 1953, bringing together the active workers in the field for the first time. The histological and functional aspects of neurosecretory cells were discussed and the outcome of the symposium was the general acceptance of neurosecretion as a fundamental phenomenon in animals. The second symposium held in Lund in Sweden in 1957 brought out the functional significance of the secretory neurons in greater detail and this helped to formulate the existence of a neuro-endocrine system in animals.

The third International Conference on neurosecretion was held in Bristol in England from 8th to 13th September 1961. About sixty delegates, drawn from twelve nations including India, participated in this symposium. This Conference was divided into five sections and the papers presented and discussed covered structural and physiological aspects of the secretory neurons in both vertebrates and invertebrates.

One of the major subjects presented to the meeting related to the ultra-structure of the neurosecretory systems, revealed by studies using the electron microscope. Bern, Nishioka and Hagadoorn (Berkeley) presented an account of their studies on the neurosecretory cells of the leech, the cockroach, *Aplysia* and the frog, and demonstrated the relation between the golgi apparatus and the cellular secretion and the presence of neurofibrils in these cells. Knowles (Birmingham) described the ultra-structure of the neurohaemal organs known as pericardial organs of *Squilla*; while B. Scharrer (New York) and E. Scharrer and Brown (New York) presented their observations on the fine structure of the neurosecretory cells of the insect *Leucophaea* and the earthworm *Lumbricus* respectively.

Notable contributions relating to the comparative histology and histochemistry of vertebrate neurosecretory systems were from Arvy (Jouy-en-Josses) on the enzymatic histochemistry of the cells and from Howe (London)

on the relation between arginine and neurosecretory colloids in the pituitary of mammals. The observable relationship between the neurosecretory activity, photoperiodism and the cyclical activity of the testes of the sparrow presented by Farner (Pullman) and Oksche (Kiel); the effect of dehydration on the development of hypothalamic centres controlling water metabolism by Rodeck (Datteln); the physiological changes in the neurosecretory system of the fish by Stahl and Leray (Marseille); and the demonstration of the distribution of the hormones oxytocin and vasopressin in the mammalian hypothalamic nuclei by Lederis (Bristol) formed some of the significant presentations revealing the physiology of the neurosecretory cells in vertebrates.

Three sessions were devoted to the papers on invertebrate neurosecretion. The histology and histophysiology of the system in Annelida were presented in the works of Herlant-Meewis (Brussels) who showed the relationship between regeneration and neurosecretory phenomena in *Eisenia*; of Clark, Clark and Ruston (Bristol) on similar phenomena in polychaets; of Clark (Bristol) who brought out evidences to show the influence of neurosecretion on growth and reproduction in polychaets; and of Hagadoorn (Berkeley) who described the neurosecretory phenomena in the leech *Theromyzon*.

Neurosecretion in insects were studied essentially from the histophysiological and embryological points of view. Lea (Vero Beach) and Thomsen (Copenhagen) described the cyclical activity of secretion as revealed by dark ground microscopy, in the median neurosecretory cells of the brain of the blowfly; Khan and Fraser (Glasgow) described the developmental history and influences of the neurosecretory cells of the brain in the embryos of the cockroach *Periplaneta*; and Nayar (Trivandrum) described the probable inhibitory effect of the juvenile hormone-extracts on the release of neurosecretory material into the blood of the cockroach comparable to conditions of hydration in insects. Arvy (Jouy-en-Josses) and Gabe (Paris) described the histochemistry of the neurosecretory cells and the corpora cardiaca of several insect groups. Highnam (Sheffield) presented a resume of his work on the desert locust demonstrating the influence of neurosecretory activity on the ovarian development and the initial experiments using radioisotopes to follow up the pathways of this influence.

Two papers dealt with neurosecretion in crustaceans. Bliss (New York) described the complex endocrinological control of locomotor activity in the crab *Gecarcinus*; and Menon (Trivandrum) gave an account of the neurosecretory cells of the branchiopod *Streptocephalus* recognising the existence of two specific structures as storage centres, one like a sinus gland within the eyestalk with the neurosecretory cells within the brain, and the other the frontal organs hitherto attributed with a varied function.

Prabhu (Trivandrum) described the neurosecretory system of the millipede *Jonespeltis* giving an account of the cells, their distribution and seasonal variations together with an account of a double storage centre in the connective body and the cerebral gland. Naisse (Brussels) gave an account of the neurosecretory cells and their structure and distribution in the opilionids.

In addition to these contributions, brief reports on research topics were also presented, in two afternoon sessions, covering aspects of neurosecretory histology and physiology in both vertebrates and invertebrates.

The Conference terminated with a closing address by E. Scharrer (New York). He stressed the significance of the neurosecretory cells in the organisation and physiology of the nervous system of animals and pointed out that the basic pattern of the neuro-endocrine system in animals is that of the glandular neurons and connected storage organs. In reply to a statement by de Robertis (Buenos Aires) made earlier in the Conference that nerve cells are all capable of producing substances and so all neurons are neurosecretory cells, he affirmed that though neurons can elaborate the neurohumours facilitating neuronal transmission, the neurosecretory cells do form a distinctive category of neurons both in their anatomy and physiology. They have to be dealt with separately as essential endocrine units.

The proceedings of the symposium will be published as Memoir No. 12 of the Society for Endocrinology.

As the host institution, the University of Bristol was courteous and friendly. Drs. Clark and Heller as the Organising Secretaries endeared themselves to all who participated in the symposium. There was a high degree of informality in the Conference. Most valuable of all was the chance to meet and talk with workers from the different parts of the globe and the exchange of ideas with the people was indeed rewarding. Especially enjoyable was the

trip to Avebury, where in a charming setting of old Britain of the times of Queen Elizabeth I in the Avebury Manor, the delegates were accorded a lordly reception by Sir Francis and Lady Knowles.

K. K. NAYAR.

2. FIRST INTERNATIONAL CONFERENCE ON PROTOZOOLOGY

Under the joint auspices of the Society of Protozoologists and the Czechoslovak Academy of Sciences, the First International Conference on Protozoology was held in the Hotel International, Prague, Czechoslovakia, from August 22nd to 31st, 1961. It was attended by over 200 protozoologists from several countries, including U.S.A., U.S.S.R., U.K., West and East Germany, France, Poland, Rumania, Hungary, Czechoslovakia, Japan and Egypt. A particularly large contingent of senior protozoologists came from U.S.S.R. including Professors Moshkovski, Cheissin and Poljanski. Prof. Garnham came from U.K. But the largest number was from U.S.A. and included Von Brand, Hutner, Trager, Tartar, Corliss and many others. India was represented by Prof. B. R. Seshachar and a number of younger workers.

The Conference was opened on the afternoon of August 22nd by Prof. I. Malek, Vice-President of the Czechoslovak Academy of Sciences. The languages of the Conference were Czech, Russian, English, French and German. Simultaneous translation facilities were available.

The morning session of the first working day was devoted to papers on the Taxonomy of Protozoa. It was clear that with the increasing knowledge of the Protozoa made available by the employment of newer techniques, some of the older views in regard to taxonomic relationships of Protozoan groups would merit revision. This was particularly well brought out by a number of workers like Corliss, Moshkovski and Honigberg. The afternoon session was devoted to papers on the Genetics of Protozoa. Siegel's paper on gene function and sexuality in *Paramecium bursaria* revealed that sexuality in this species was governed by genes at two loci and that immaturity, adolescence and maturity were expressions of these genes. The second day was devoted to papers on biochemistry of Protozoa and began with a talk by Von Brand on Achievements and goals in Protozoan biochemistry. Hutner's discussion on the role of Carbohydrates in the nutrition of Ciliates and flagellates was followed by a number of papers on the metabolic requirements of Protozoa,

notably by Johnson, Seaman, Schmoller, Trager and Provasoli. The cytology of Protozoa was dealt with in the morning session on the 25th August with papers by Dutta, Hawes, Seshachar and Tuffran. Raikov dealt with the problem of nuclear dualism in ciliates. The afternoon of that day was devoted to biophysics and a number of papers by Zeuthen and his colleagues from Copenhagen on Synchronization methods by temperature and other shocks were read, followed by papers on X-ray irradiation by Wichterman and Daniels. Dryl of Warsaw gave illustrations of movement of Paramecia in electromagnetic fields.

The Conference broke up into two sections on the morning of the 26th August. One occupied itself with discussion of papers on the Ecology of Protozoa while the other was devoted to Taxoplasmosis. Dr. E. Lund showed a beautiful film of *Taxoplasma* living cultures, illustrating the morphology, movement and reproduction in the organism. The Conference recessed on Saturday afternoon and Sunday. A sight-seeing trip of Prague was organized for Saturday after-

noon and a whole day excursion to Kárlův-Vary and Mariánské-Lázně was arranged on Sunday.

The Conference reassembled on Monday the 28th August for a day's discussion on Electron microscopy of Protozoa. Following Ludvik's paper, those of Pyne, Pappas, Yagiu and others showed the Conference the great advances in our knowledge of the ultra-structure of Protozoa. The last two working days of the Conference, i.e., 29th and 30th August, were devoted to papers dealing with the structure, life-history and host-parasite relationships of parasitic Protozoa. With the formal final session on the 31st the Conference came to a close.

It was the unanimous opinion of all those present that the Conference was helpful in bringing together workers in different aspects of Protozoan structure, life-history and relationships. Prof. O. Jirovec and his colleagues of the Protozoology Laboratory, Czechoslovak Academy of Sciences, spared no pains to make the delegates comfortable and the first Conference on Protozoology a great success.

B. R. S.

VOSTOK II—RUSSIA'S SECOND MANNED SPACE-SHIP

ON August 6, 1961, at 9 am. Moscow Time, the Soviet Union launched a new space-ship "Vostok II" on a round-the-earth orbit with a man aboard. The pilot was Major Gherman Titov.

The tasks of the flight were: To study the effects on the human body of prolonged orbital flight and descent to the surface of the earth; to study man's work capacity during a sustained state of weightlessness.

The space-ship was put into an orbit close to the calculated one, with the following parameters: Minimum distance from the surface of the earth (at perigee) was 178 kilometres; maximum distance (at apogee) was 257 kilometres; the inclination of the orbit to the equator was 64 degrees 56 minutes.

The initial period of revolution of the space-ship was 88.6 minutes. Minus the weight of the last stage of the carrier-rocket the space-ship weighed 4,731 kilograms.

Two-way radio communications were maintained with cosmonaut Titov. The cosmonaut transmitted on frequencies of 15.765, 20.006, and 143.625 megahertz. A transmitter "signal" operating on frequency of 19.995 megahertz was also on board the space-ship. The systems on board sustaining the cosmonaut's vital activity

functioned normally. The cosmonaut felt well throughout the flight and the controlled flight proceeded successfully.

Upon the successful completion of its programme of scientific research, the space-ship, in accordance with the approved flight programme, came to land at a pre-assigned spot in the Soviet Union, near the place where the space-ship "Vostok I" piloted by Major Yuri Gagarin, landed on April 12, 1961.

"Vostok II" made over 17 circuits around the earth in 25 hours 18 minutes, covering a distance of over 700,000 kilometres.

In the landing of the space-ship at a pre-assigned spot, the effect of the rotation of the earth will have to be taken into account. The landing of the space-ship on Soviet soil could have been effected after its first round, or, if that is missed, the cosmonaut should wait for 24 hours, when the earth would have turned once under him,—before he could land at the pre-assigned spot in Soviet territory. Thus Vostok I with Major Gagarin landed after one orbital round, whereas the space dogs, Strelka and Belka, which Russia launched on August 19, 1960, spent 24 hours in the space-ship, making 17 complete orbits, before the capsule containing them was brought down.