

# Meetings

## Histochemistry of Nervous Transmission

An international symposium on the histochemistry of nervous transmission was organized under the sponsorship of the International Histochemical Committee and held in a congress center in Nokkala, some 8 miles west of Helsinki, Finland. At the meeting, held from 11 to 14 August 1970, an appropriate mood was admirably set in the opening address by Marthe Vogt of England, a pioneer in the field of neurotransmitter localization in the brain. She pointed out the necessity of localizing transmitter substances in the brain before endeavoring to understand such complex but important phenomena as sleep, arousal, aggression, pain, and sexual activity, all of which are dependent on synapses whose transmitters can be studied histochemically, physiologically, and pharmacologically.

The first session was dedicated to light-microscopic histochemistry of monoamine transmitter substances. The direct microscopic visualization of these transmitters by fluorescence induced by aqueous formaldehyde solution was discussed by A. K. Sakharova (U.S.S.R.). Refinements of this method have made it possible not only to discriminate between different amines and quantify them, as was shown by Gösta Jonsson of Sweden, but also to suggest the presence in the brain of an hitherto unknown new transmitter, as indicated by Anders Björklund (Sweden). The host couple Olavi and Liisa Eränkö reported spectrophotofluorimetric observations on a new monoamine-rich cell type that has features of both a nerve cell and a chromaffin cell.

The second session dealt with autoradiographic and immunohistochemical observations. Miriam Salpeter (United States) described sites of glutamate uptake by insect muscles. The paper given by Kjell Fuxe of Sweden may be mentioned as another example. He used the fluorescent antibody technique to localize dopamine beta-oxidase, the enzyme that converts dopamine into the trans-

mitter substance noradrenaline, and found it in adrenergic ganglion cell bodies but not in the peripheral nerve fibers or terminals.

A spirited discussion on the fine structural localization of monoamine transmitters dealt with the nature and transmitter content of different types of synaptic vesicles, especially those with a dense core. This was a session which had drawn speakers from widely separated laboratories such as P. H. Hashimoto of Japan, Amanda Pellegrino de Iraldi of Argentina, and Angelo Machado of Brazil.

Original new data on chromogranin, the specific satellite protein of the catecholamine-containing granules, were reported by the well-known authority on amines, Hermann Blaschko, of England, who recently had been able to localize this peculiar protein immunohistochemically in nerve cell cytoplasm. Release, uptake, storage, and metabolism of transmitter substances were discussed by other participants. Also included were observations on adrenal medulla, blood platelets, and mast cells.

A consideration of cholinergic nervous transmission included the subject of the histochemical localization of cholinesterases in nervous tissue, which was reviewed by Ann Silver of England and Peter Robinson of Australia. The possibility of making the transmitter substance—acetylcholine—itself visible in the electron microscope with the use of the Champy-Maillet zinc iodide-osmium technique was discussed by Konrad Akert (Switzerland). Alvin Burt (United States) presented a promising technique for the histochemical demonstration of choline acetyltransferase, the enzyme synthesizing acetylcholine. A lively discussion followed, during which Russell Barnett (United States) pointed out many potential pitfalls in acyl transferase techniques.

The last two sessions were concerned with autonomic innervation patterns, both in normal tissues or after experi-

mental procedures. Rich adrenergic innervation was observed by T. H. Schiebeler (Germany) in the heart valves; sympathetic reinnervation of tissues transplanted into the eye was reported by Torbjörn Malmfors of Sweden; and noradrenaline transport in sympathetic nerves was reported by D. Mayor of England.

The scientific program of the meeting was concluded by a time-lapse film, prepared by Geoffrey Burnstock and his Australian co-workers, on the formation of nerve-muscle relations in tissue cultures of smooth muscle and sympathetic nerves. Visualization of palpation of surrounding cells by the growing sympathetic nerve endings, undulating movements of the Schwann cells, and contractions of the smooth muscle beginning immediately after established nerve-muscle contact were both instructive and entertaining.

ROBERT L. HUNTER

*Department of Human Anatomy,  
University of California, Davis 95616*

## Forthcoming Events

### May

16-19. National Conf. on **Breast Cancer**, 2nd annual, Los Angeles, Calif. (R. N. Grant, American Cancer Soc., 219 E. 42 St., New York 10017)

16-19. **Illinois State Soc.**, Arlington Heights. (R. White, ISS, 360 N. Michigan Ave., Chicago, Ill. 60601)

16-19. American **Mining Congr.**, Pittsburgh, Pa. (Meetings Officer, AMC, 1100 Ring Bldg., Washington, D.C. 20036)

16-19. **International Pulp and Paper Instrumentation**, Philadelphia, Pa. (G. G. Eastwood, Engineering Research Dept., Kimberly-Clark Corp., Neenah, Wis. 54957)

16-19. National **Tuberculosis and Respiratory Disease Assoc.**, Los Angeles, Calif. (J. E. Perkins, NTRDA, 1740 Broadway, New York 10019)

16-20. American **Dermatological Assoc.**, Sky Top, Pa. (B. Kennedy, 1542 Tulane, New Orleans, La. 70112)

16-21. **Social Welfare, Human Aspirations and National Priorities**, 98th annual conf., Dallas, Tex. (J. R. Hoffer, Natl. Conf. on Social Welfare, 22 W. Gay St., Columbus, Ohio 43215)

16-22. American College of **Radiology**, 10th intern. congr., San Juan, P.R. (V. A. Marcial, Radiological Soc. of Puerto Rico, Univ. of Puerto Rico, Medical Sciences Campus, School of Medicine, San Juan)

17-19. National **Aerospace Electronics Conf.**, Dayton, Ohio. (P. J. Logus, Technical Program '71 NAECON, 265 Canterbury Dr., Dayton 45429)

17-19. **Instrument Soc. of America**, 14th annual, national power instrumentation symp., New York, N.Y. (P. J. Womel-