electrical stimulation of the fibers produced no electrical or mechanical response in the muscle. However, the histological changes characteristic of denervation, and the spontaneous fibrillation that usually accompanies this procedure, were markedly depressed in the vicinity of the reinnervation site.

S. Langer (Boston) discussed the relation between the potencies of certain sympathomimetic agents and the slopes of their dose-response curves, using the contraction of the cat nictitating membrane as a measure. The less-potent amines had showed steeper dose-response curves; he suggested that this effect resulted from the fact that the large doses, needed to obtain any response, saturated possible sites of uptake of catecholamine, and that this saturation then caused hypersensitivity to any norepinephrine subsequently released by the drug.

Evidence was presented by A. Pellegrino de Iraldi and L. Zieher (Buenos Aires) that dopamine exists in various tissues in an extraneuronal pool that is not lost after sympathetic denervation and which is largely unaffected by reserpine; this finding also suggests that dopamine may have many functions in the body other than serving as a precursor for norepinephrine and epinephrine. They had found the highest concentration of dopamine in any rat tissue in the pineal gland (29.9 μg/g), as well as very high levels in the caudate nucleus, the retina, the superior cervical ganglia, the adrenal gland, and the hypothalamus.

J. Daly, C. R. Creveling, and B. Witkop (Bethesda) described a rapid method of screening new compounds for ability to release norepinephrine from the heart. Mice are injected intravenously with tritiated norepinephrine; much of this is taken up by the sympathetic nerves in the heart and can be liberated by releasing agents administered 1 hour later. By use of this technique 3,5-dihydroxy-4-methoxyphenethylamine had been shown to be highly potent in releasing cardiac norepinephrine.

Direct evidence that the catecholamine content of certain brain regions is regulated by circulating steroid hormones was presented by A. O. Donoso, F. J. E. Stefano, and A. M. Biscardi (Buenos Aires). Rats were killed at various times during the vaginal estrous cycle, and their hypothalami were divided into anterior, middle, and posterior portions and assayed for norepinephrine. The level of norepinephrine in the anterior hypothalamus proved to be greatest during proestrus and fell markedly with the onset of estrus. The catecholamine content of the other hypothalamic regions was unrelated to the estrous cycle. Castration markedly increased the norepinephrine level of the anterior hypothalamus; this increase was detectable 10 days after surgery and was maximal 20 days after. Treatment with estrogen or testosterone alone did not reverse this effect of castration, but levels of norepinephrine were altered by combinations of estrogen and progesterone.

F. C. Iturriza (La Plata) described adrenergic innervation of the cells in the pars intermedia of the toad pituitary that store melanocyte-stimulating hormone (MSH). Several years ago William Etkin had demonstrated that the dispersion of pigment granules in amphibian melanophores that follows hypophysial stalk section was not terminated by regeneration of the hypophysial portal system. Restoration of the central inhibition of release of MSH required a much longer period, the length of which coincided with the time needed for regrowth of the adrenergic innervation of the pars intermedia. He suggested that the brain inhibits release of MSH not by secreting a factor into the hypophyseal portal system but by direct neural control of the pituitary cells. Iturriza's studies showed that norepinephrine-containing nerve endings terminate directly on the MSH vesicles in the pituitary cells; they provided compelling evidence that the secretion of hypothalamic "releasing factors" or "inhibiting factors" into the pituitary portal system is not the only means whereby the brain controls endocrine function. At least three endocrine organs have now been described whose parenchymal cells receive direct, adrenergic innervation: the rat pineal gland, the toad adrenal medulla, and the toad pars intermedia. It has also been suggested that monoaminergic nerve endings terminate on the beta cells of the mammalian pancreas.

G. Rodriguez de Lores Arnaiz and L. Zieher (Buenos Aires) reported studies of the subcellular distribution of adenyl cyclase, norepinephrine, dopamine, and histamine in the rat brain. Both the enzyme and the amines were found in the nerve-ending fractions. The adenyl cyclase was localized to synaptic membranes, while the amines were concentrated in a "microsomal" fraction similar to that produced by ultracentrifugation of homogenates of peripheral sympathetic nerve endings.

C. Munoz (Santiago) described techniques for relating the actions of centrally acting drugs to brain norepinephrine by studying their effects on the electroencephalogram. The area under the EEG tracing is integrated, and its modification by adrenergic drugs can be measured; synergisms and antagonisms can be demonstrated between related compounds.

Axelrod summarized present knowledge of the fate of norepinephrine and of its modifications by drugs. U. Trendelenburg (Boston) described the hypersensitivity to norepinephrine that follows sympathetic denervation or decentralization, reviewing present knowledge of the different mechanisms of these two processes. Trendelenburg and Axelrod agreed that the most important mechanism for terminating the action of "free" norepinephrine involves reuptake of the amine into sympathetic nerve endings; loss of this uptake process is mainly responsible for the hypersensitivity that follows denervation.

Marthe Vogt (Babraham) summarized current information on the role of dopamine in the basal ganglia of the brain. It was demonstrated that electrical stimulation of the substantia nigra causes the liberation of dopamine into the cerebrospinal fluid.

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Forthcoming Events

November

17–19. **Work Evaluation Units**, 3rd natl. conf., Washington, D.C. (J. E. Acker, Jr., Cardiac Work Evaluation Clinic, Knoxville, Tenn.)

17–20. American **Anthropological** Assoc., 65th annual mtg., Pittsburgh, Pa. (A. Spoehr, Dept. of Anthropology, Univ. of Pittsburgh, Pittsburgh 15213)

17–20. **Audiology**, 8th intern. congr., Mexico, D.F. (P. Berruecos Tellez, Av. Progresso 141 A, Mexico 18, D.F.)

18. Properties of **Anodized Metals and Semiconductors**, symp., Northern Electric Laboratories, Ottawa, Ont., Canada. (J. A. McDonald, Solid State Development, Northern Electric Co., R&D Labs., Box 3511, Station C, Ottawa)

18–19. **Dyslexia**, natl. conf., Philadelphia, Pa. (V. T. Keeney, 1601 Spring Garden St., Philadelphia 19130)

19. Stabilization of **Engineering and Scientific Employment in Industry**, natl. symp., San Jose State College, San Jose,

Calif. (Manpower Research Group, Center for Interdisciplinary Studies, San Jose State College, San Jose, Calif.)

20–22. **Water Resources**, 2nd annual conf., Univ. of Chicago, Chicago, Ill. (American Water Resources Assoc., P.O. Box 434, Urbana, Ill. 61801)

21–23. American Physical Soc., Div. of **Fluid Dynamics**, mtg., Stanford Univ., Palo Alto, Calif. (R. J. Emrich, Dept. of Physics, Lehigh Univ., Bethlehem, Pa.)

21–24. Communications in Science: **Documentation and Automation**, Ciba Foundation symp., London, England. (Ciba, 41 Portland Pl., London, W.1)

21–24. Central American **Geologists**, 2nd conf., Guatemala City, Guatemala. (G. Dengo, Central American Inst. of Research and Industrial Technology, Apt. Postal 1552, Guatemala City)

21–25. **Radioisotope Tracers** in Industry and Geophysics, symp., Prague, Czechoslovakia. (J. H. Kane, Conferences Branch, Div. of Technical Information, U.S. Atomic Energy Commission, Washington, D.C. 20545)

22. **Manufacturing Chemists** Assoc., 16th semiannual mtg. and midyear conf., New York, N.Y. (The Association, 1825 Connecticut Ave., NW, Washington, D.C.)

23. Chemical Economics Div., Chemical Inst. of Canada, mtg. on **Internationalization of the Chemistry Industry** and Its Effect on Canada, Montreal, Quebec. (H. A. Bowler, Central Development Dept., Dotmar, 1155 Dorchester Blvd. W., Montreal 2)

26–4. **Pharmacy and Biochemistry**, 7th Pan American congr., Buenos Aires, Argentina. (Z. M. Lugones, Univ. of Buenos Aires, Calle Viamonte 444, Buenos Aires)

28–29. **Parkinson's Disease** Information and Research Center, 3rd research conf., College of Physicians and Surgeons, New York, N.Y. (M. D. Yahr, New York Neurological Inst., 710 W. 168 St., New York 10032)

28–30. American Soc. of **Hospital Pharmacists**, 1st annual midyear mtg., Washington, D.C. (J. A. Oddis, The Society, 4630 Montgomery Ave., NW, Washington 20014)

28–30. **Reticuloendothelial** Soc., 3rd natl. mtg., Natl. Institute of Health, Bethesda, Md. (M. Landy, Laboratory of Immunology, Natl. Inst. of Allergy and Infectious Diseases, NIH, Bethesda, Md. 20014)

28–1. **Aerospace Medicine**, intern. mtg., Sydney, Australia. (Secretariat, Aviation Medical Soc. of Australia, G.P.O. Box 1207, Sydney)

28–2. **Alkali Metal Coolants**—Corrosion Studies and System Operation Experience, Intern. Atomic Energy Agency symp., Vienna, Austria. (J. H. Kane, Conferences Branch, Div. of Technical Information, U.S. Atomic Energy Commission, Washington, D.C. 20545)

28–3. Methods of Preparing and Storing **Labelled Compounds**, 2nd intern. conf., Brussels, Belgium. (J. Sirchis, European Atomic Energy Community, 51-53 Rue Belliard, Brussels)

29–30. Treatment and Control of **Injection Waters**, 3rd biennial symp., Anaheim, Calif. (A. J. Bogart, Oilwell Research, Inc., 1539 W. 16 St., Long Beach, Calif. 90813)

December

1–2. **UNESCO**, 75th executive board session, Paris, France. (Pl. de Fontenoy, Paris 7)

1–3. **Medicine and Sociology**, intern. symp., East Berlin, Germany. (K. Winter, Hygiene-Institut Humboldt-Universität, Otto-Grotewohl-str. 1, 108 Berlin, East Germany)

1–8. **Heads of National Research Insts.**, mtg., Bangkok, Thailand. (U.N. Economic Commission for Asia and the Far East, Sala Santitham, Rajadamnern Ave., Bangkok)

2. American **Industrial Hygiene** Assoc., mtg., Metropolitan New York, New Jersey, Delaware sections, Sterling Forest, N.Y. (O. M. Banks, Shell Chemical Co., 110 W. 51 St., New York 10020)

2–3. Perspectives in **Leukemia**, symp., New Orleans, La. (W. Dameshek, Leukemia Society, 211 E. 43 St., New York 10017)

2–3. **Nuclear Power Stations Operation,** conf., Bern, Switzerland. (Swiss Assoc. for Atomic Energy, P.O. Box 2613, 3001 Bern)

3–4. **Space Flight,** conf., Bremen, Germany. (Secretariat, Hermann Oberth Soc., Fritz-Beindorff-allee 9, 3000 Hanover, West Germany)

3–8. American Acad. of **Dermatology and Syphilology,** 25th annual mtg., Miami Beach, Fla. (The Academy, 636 Church St., Evanston, Ill.)

3–11. **Aviation and Aerospace**, intern. exposition, New York, N.Y. (F. S. Doman, Aviation and Aerospace Exposition, Inc., 500 Fifth Ave., New York 10036)

4–7. American Inst. of **Chemical Engineers,** 59th annual mtg., Detroit, Mich. (E. B. Chriswell, California Research Corp., Room 807, 200 Bush St., San Francisco, Calif.)

4–8. American Inst. of **Chemical Engineers,** 59th annual mtg., Detroit, Mich. (R. E. Greenhaigh, Dow Corning Corp., Midland, Mich.)

5–7. **Antennas and Propagation**, intern. symp., Palo Alto, Calif. (R. L. Deadabrand, Radio Physics Laboratory, Stanford Research Inst., Menlo Park, Calif.)

7. **American Institute of the City of New York**, mtg., New York. (Mrs. G. E. Peterson, American Institute of the City of New York, 2 E. 63 St., New York 10021)

5–7. Theory and Application of **Gas Chromatography** in Industry and Medicine, Hahnemann Medical College, Philadelphia, Pa. (H. S. Kroman, Dept. of Medicine, Medical College and Hospital, 230 N. Broad St., Philadelphia 19102)

5–8. **Magnesium in Biophysiopathology and Therapeutics**, intern. congr., Buenos Aires, Argentina. (A. Vidal Freyre, Ayacucho 1427, Buenos Aires)

5–8. **Polarized Targets and Ion Sources,** intern. conf., Saclay, France. (A. Abragam, Direction de la Physique, Centre d'Etudes Nucleaires de Saclay, B.P. 2, Gif-sur-Yvette, Seine-et-Oise, France)

5–9. **Operating Metallurgy**, 2nd conf. and exposition, Philadelphia, Pa. (C. L. Hopkins, American Inst. of Mining, Metallurgical, and Petroleum Engineers, 345 E. 47 St., New York 10017)

6–7. **Unconventional Inertial Sensors,** symp., Washington, D.C. (J. W. Lindberg, AIR 53321G, Naval Air Systems Command, Washington, D.C. 20360)

7–9. **International Scientific Radio Union,** fall mtg., Palo Alto, Calif. (R. A. Helliwell, Radioscience Laboratory, Stanford Univ., Stanford, Calif. 94305)

8–11. **Rodents,** Indian symp., Calcutta. (D. W. Parrack, Johns Hopkins Univ. Center for Medical Research and Training, All-India Inst. of Hygiene and Public Health, 110 Chittaranjan Ave., Calcutta 12)

9–10. **Contractile Process,** symp., New York Heart Assoc., New York. (The Association, 10 Columbus Circle, New York 10019)

9–11. American Acad. of **Psychoanalysis,** mtg., New York, N.Y. (M. Carroll, The Academy, 125 E. 65 St., New York 10021)

12–14. **Air Pollution,** natl. conf., Washington, D.C. (A. C. Stern, Div. of Air Pollution, U.S. Public Health Service, Washington, D.C. 20201)

12–14. **Renal Failure,** 17th symp., Hahnemann Medical College, Philadelphia, Pa. (A. N. Brest, Section of Vascular Diseases and Renology, Hahnemann Medical College and Hospital, 230 N. Broad St., Philadelphia 19102)

12–17. **History of Oceanography,** intern. congr., Monte Carlo. (R. Novella, Villa Girasole, 16, boulevard de Suisse, Monaco)

12–19. **Heads of National Standards Institutes,** mtg., Bangkok, Thailand. (U.N., Economic Commission for Asia and the Far East, Sala Santitham, Rajadamnern Ave., Bangkok)

14–16. Fundamentals of **Gas-Surface Interactions,** symp., San Diego, Calif. (H. Saltsburgh, General Dynamics/General Atomic, P.O. Box 608, San Diego 92112)

14–16. **Fluid Logic and Amplification,** 2nd intern. conf., Cranfield, England. (H. Stephens, British Hydromechanics Research Assoc., South Rd., Harlow, Essex, England)

15–16. International **Brain Research** Organization, central council and executive committee, mtg., Paris, France. (UNESCO, Pl. de Fontenoy, Paris 7)

16–18. American **Psychoanalytic** Assoc., fall mtg., New York, N. Y. (American Psychoanalytic Assoc., 1 E. 57 St., New York 10022)

19–20. British **Biophysical** Soc., winter mtg., London, England. (W. Gratzer, Biophysics Dept., King's College, 26 Drury Lane, London W.C.2)

19–21. **Acceleration Biology,** Sunnyvale, Calif. (Univ. of California Extension, Berkeley 94720)

26–31. **American Assoc. for the Advancement of Science,** 133rd annual Washington, D.C. (R. L. Taylor, AAAS, 1515 Massachusetts Ave., Washington, D.C. 20005)

27–30. American **Astronomical** Soc., 123rd mtg., University of California, Los Angeles, (G. C. McVittie, American Astronomical Soc. Univ. of Illinois Observatory, Urbana)

28–30. **Econometric** Soc., winter mtg., San Francisco, Calif. (Box 1264, Yale Station, New Haven, Conn.)