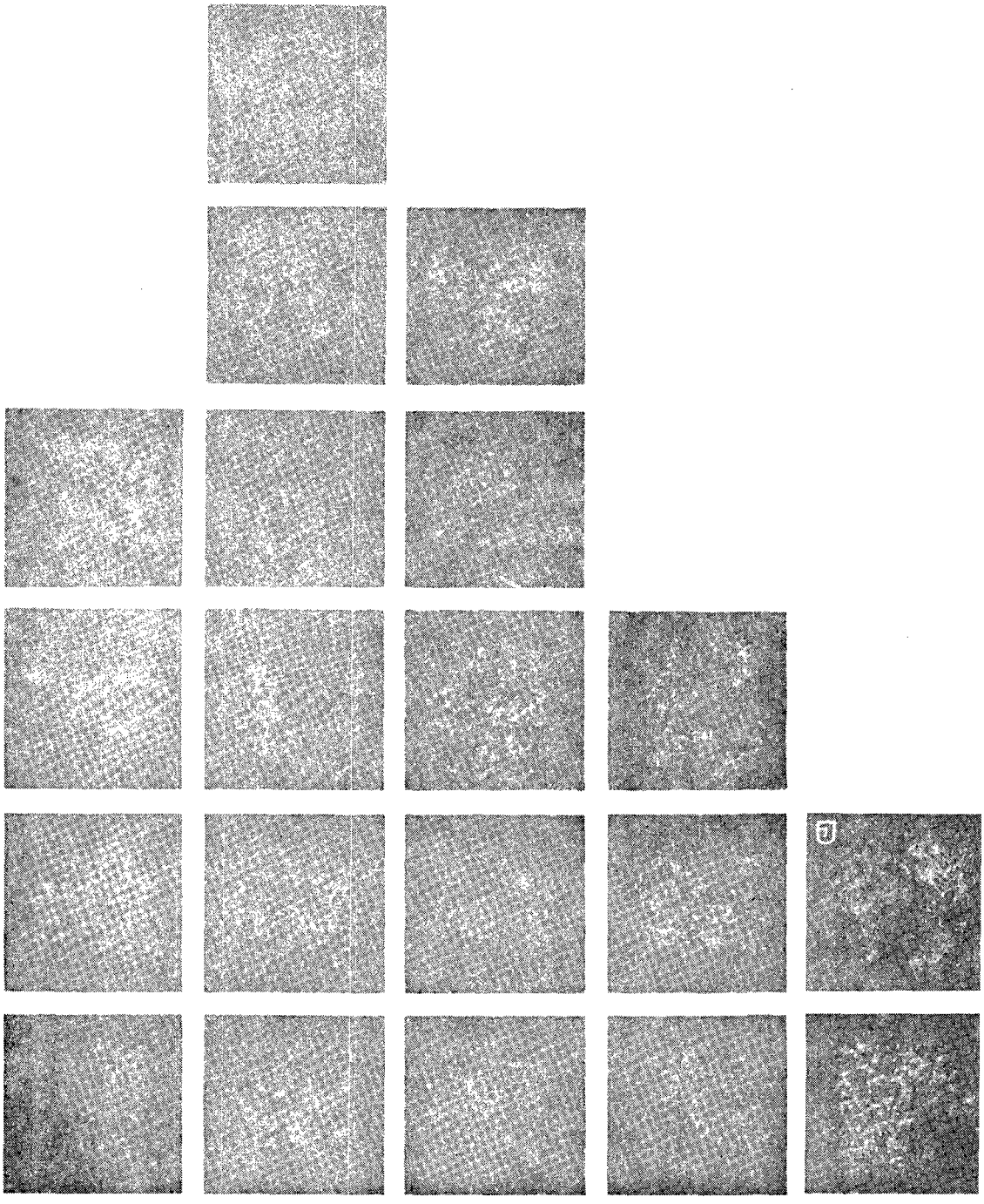
神経化学

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神 経 化 学 懇 話 会

—神経化学文献—

凡例

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Pharmacol. Rev.
Physiol. Rev.

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Biochemistry (USSR)
Canad. J. Biochem. Physiol.
Hoppe-Seylers Z. physiol. Chem.
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J. Cell Biol.
J. Histochem. Cytochem.
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Pharmacological:

Biochem. Pharmacol.
Brit. J. Pharmacol.
*J. Pharmacol. exp. Ther. 144 (2-3); 145 (1-3)
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Physiological:

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Amer. J. Physiol.
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J. gen. Physiol.
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Arch. Neurol.
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Brain
Brit. J. Psychiat.
Clin. chim. Acta
*Dtsch. Z. Nervenheilk. 186
Electroenceph. clin. Neurophysiol.
*Encephale ..... LIII (4)
Endocrinology
Epilepsia
Exp. Neurol.
Fortschr. Neurol. Psychiat.
J. clin. Endocr.
*J. clin. Invest. 43-44
*J. Endocr. 31

J. nerv. ment. Dis.
J. Neuropsychiat.
Nervenarzt
*Neurology (Minneap.) 15
*Psychiat. et Neurol. 125; 147 (3, 5-6); 148 (2, 4); 149 (1)
Schweiz. Arch. Neurol. Psychiat.

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DEVELOPING BRAIN

No. 5 October, 1964

We were very fortunate recently in having Dr. Burton L. White who is Research Associate in the Psychology Department at the Massachusetts Institute of Technology, speak to us on "Plasticity of Sensorimotor Development in Human Infants". I was reminded by his visit of the fact that we do not have as good a touch with those working in the field of human infant behavior as I hope we have with those working on the development of the brain and of behavior in animals. I would like to use this newsletter as a means of gathering together information on research workers investigating any phase of development in the human infant. I would, therefore, appreciate it if you would send me names and addresses of such persons so that we can incorpo rate the list in a future newsletter. For many of us the importance of studying animal behavior and development lies ultimately in the possibility of applying the knowledge gained with animals to clinical problems.

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steady potential of the brain during the ontogenetic development. Activitas Nervosa Superior, 6: 49-50, 1964. (3) Hassmannova, J., Myslivecek, J., Rokyta, R. and Zahlava, J., The influence of synaptically active substances on the responses of the auditory cortex during ontogenesis. Biochem. Pharm., 12 Suppl., 210, 1963. (4) Myslivecek, J. and Rokyta, R., Conditioned and "spontaneous" motor behaviour after elimination of the neocortex during the early postnatal period. Central and Peripheral Mechanisms of Motor Functions Proceedings of the Conference. E. Gutmann and P. Hnik, Eds., Czechoslovak Academy of Sciences, Prague, pp. 183-190, 1963. (5) Myslivecek, J. and Hassmannova, J., Quelques caractèristiques des corrèlations diencèphalo-corticales chez les Mammifères nouveaunès., J. Physiol., Paris, 55: 306-307, 1963. (6) Hassmannova, J. and Myslivecek, J., The ontogenetic development of convergence into the auditory cortex. Activitas Nervosa Superior, 6: 38-39, 1964. (7) Zahlava, J. and Myslivecek, J., Complex evaluation of higher nervous activity in dogs after perinatal destruction of auditory cortex. Activitas Nervosa Superior, 6: 40-41, 1964. (8) De Laey, P., Hooft, C., Timmermans, J. and Snoeck, J., Biochemical aspects of the Hartnup disease. Part I. Results of intravenous and oral tryptophan loading tests in a case of Hartnup disease. Ann. paediat., 202: 145-160, 1964. (9) Scott, T. G. and Barber, V. C., An enzyme histochemical and biochemical study of the effect of an inhibitor of cholesterol synthesis on myelinating mouse brain. J. Neurochem., 11: 423-429, 1964. (10) Pedersen, L. M., Tygstrup, I. and Pedersen, J., Congenital

malformations in newborn infants of diabetic women, Correlation with maternal diabetic vascular complications. The Lancet, 1: 1124-1126, 1964. (11) Kelly, J. W., Feagans, W. M., Parker, J. C. Jr. and Porterfield, J. M., Studies on the mechanism of trypan blue-induced congenital malformations. I. Dye fractions and fetal anomalies. Experimental and Molecular Pathology, 3: 262-278, 1964. (12) Sedlacek, J. and Votava, J., Significance of motor activity for development of the chick embryo. Rhysiologia Bohemoslovenica, 13: 274-280, 1964. (13) Sedlacek, J., Hlavackova, V. and Svehlova, M., New findings on the formation of the temporary connection in the prenatal and perinatal period in the guinea-pig. Physiologia Bohemoslovenica, 13: 268-273, 1964.

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CALLING ATTENTION TO:

P. K. Anokhin writes from the Academy of Medical Sciences USSR "in our laboratory of embryogensis we now have some new investigations related to systemogenetic development. We have some interesting results on living human fetus".

Dr. Lubor Jilek of Charles University, Institute of Physiology, has just spent 4 months at the Thudichum Psychiatric Research Laboratory at Galesburg. We found his presence stimulating and productive and hope that this contact will lead to closer collaboration with Czechoslovakian scientists interested in developing brain. As a beginning Drs. J. Myslivecek and J. Mourek will be spending some months with us in 1965.

Dr. Myslivecek is particularly interested in the development of behavior in the dog and has published many papers on this subject. Dr. Mourek has worked closely with Dr. Jilek on the biochemical changes which accompany stagnant hypoxia and anoxia in the developing rat brain. Such visiting scientists not only stimulate our thinking in the field of developing brain but bring us new techniques for use in our laboratory. Dr. Jilek in the course of his stay here set up simple classical conditioning experiments and trained two technicians in the day to day trials of the animals.

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NEWS BOOKS:

Biochemistry and Behavior, Eiduson, S., Geller, E., Yuwiler, A. and Eiduson, B. (Eds.) Van Nostrand, Princeton, New Jersey, 1964.

Mental Deficiency of Different Origins, Internationsl Copenhagen Congress on the Scientific Study of Mental Retardation, Falkoner Alle 1[1], Copenhagen F., Denmark.

Proceedings of International Copenhagen Congress on the Scientific Study of Mental Retardation, International Copenhagen Congress on the Scientific Study of Mental Retardation, Falkoner Alle 1[1], Copenhagen F., Denmark.

Evolution of the Reactivity of the Central Nervous System of the Child by Using Photo-Stimulate Electrophysiological Methods, Hrbek, A. (Ed.) Statni Zdravotnicke Nakladatelstvi, Prague, 1964.

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No. 6 December, 1964

With a combination of French charm, the UNESCO facilities and the excellent papers presented it was inevitable that the Paris Meeting "REGIONAL MATURATION OF THE NERVOUS SYSTEM IN EARLY LIFE" December 3-5,

1964, would be successful. It was a closed meeting with only 30-40 participants. We found it of great value in giving us an opportunity to meet many French scientists interested in problems of developing brain. Since most of them spoke some English it was possible to discuss problems of mutual interest. We were well impressed with the laboratory facilities and staff which Dr. J. Scherrer Hopital de la Salpètriere, has for studying electrophysiological phenomena. We came away from this laboratory and also from the meeting with the feeling that we are missing a great deal of important electrophysiological papers which are published only in French and frequently in journals which are not readily available in this country. We are hopeful of obtaining competent translations of some of these papers. The proceedings of the meeting will be edited by Professor Minkowski, Professeur Agrègè, Centre de Recherches Biologiques Nèonatales, Clinique Obstètricale Baudelocque, 121 Boulevard de Port-Roval, Paris 14e, France, and will be published in book form. The program of the meeting follows: Thursday, 3 December, 9 a.m. I - Anatomy and histology:P.I. Yakovlev (Boston): Myelination as a macroparameter of maturation. Th. Rabinowicz (Lausanne) : Methods of establishing an atlas of the cortex of the premature child. J.P. Gruner (Strasbourg) : Synaptic maturation of the cerebral cortex in animals. Thursday, 3 December, 2 p.m. II - Cyto and histochemistry, neurochemistry: D. Richter (Carshalton) : Enzymic activity during the maturation of the nervous system. H. Hyden (Stockholm) : Micro-chemical

methods for the analysis of single neurons. M. McKhann (Palo Alto) : Biochemical studies of myelinization. R. E. Greenberg (Palo Alto) : Studies of a nerve growth-promoting protein. W. A. Himwich (Galesburg) : Phenylalanine loading in the newborn puppy : technics. Friday, 4 December, 9 a. m. 111 - Neurophysiology (1): J. P. Schadè (Amsterdam) : Physiological and biochemical patterns in the developing chick and rabbit brain. W. A. Himwich (Galesburg) : Amino acid content of various brain parts as related to neurophysiological and behavioral maturation. H. E. Himwich (Galesburg): EEG and brain monoamines during early development of the rabbit and cat. D. P. Purpura (New York) : Ontogenetic changes in membrane properties and synaptic activities of neurons in immature cerebral cortex. Friday, 4 December, 2 p. m. 111 - Neurophysiology (2) : R. Marty (Montpellier) : Postnatal maturation of the auditory system in the cat. J. Myslivecek (Pilsen) Induction of thalamo-cortical pathways in newborn mammals. R. Verley (Paris) : Regional aspects of electro-cortical activity in mammals at the onset of extra uterine life. W. F. Windle (New York) : Development of electrical brain activity (EEG) in the rhesus monkey. Saturday, 5 December, 9 a. m. 1V - Human electrophysiology: R. Ellingson (Omaha) : Methods of recording cortical-evoked responses in the human infant. C. Dreyfus-Brisac (Paris) : The organization of sleep in premature babies between 24 and 40 weeks of gestational age. A. H. Parmelee (Los Angeles) : Changes in the sleep patterns in premature infants as a function of brain maturation. Saturday, 5 December, 2 p. m. V - General discussion and conclusions :

A. Jost (Paris), L. van Bogaert (Anvers), J. Scherrer (Paris) and A. Minkowski (Paris) : CNS growth versus body growth; Clinical implications; Prospects in combined methodology.

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We are getting a good collection of the names of laboratories and scientists working in the field of the developing human brain. It is too long, however, to include in this newsletter and probably will appear in the February one.

(1) Dobiasova, M., Hahn, P. and Koldovsky, O., Changes in the occurrence of different lipid classes during postnatal development of the rat. Biochim, Biophys. Acta, 70: 711-713, 1963. (2) Verley, M.R. and Scherrer, J., Etude expèrimentale des rèlations entre rèactions motrices et rèactions électrocorticales aux stimulations au cours du dèvelopment postnatal du lapin. Rev. Neurol., 102: 311-315, 1960. (3) Garrigan, O.W. and Chargaff, E., Studies on the mucolipids and the cerebrosides of chicken brain during embryonic development. Biochim. Biophys. Acta, 70: 452-464, 1963. (4) Heron, W. and Anchel, H., Synchronous sensory bombardment of young rats : effects on the electroencephalogram. Science, 145: 946-947, 1964. (5) Gerritsen, T. and Waisman, H.A., Homocystinuria: Absence of cystathionine in the brain. Science, 145: 588, 1964. (6) Stern, G.M., Hall, J.M. and Robinson, D.C., Neonatal myasthenia gravis. Brit. Med. J. 2: 284-286, 1964. (7) Miller, J.A., Jr., Zakhary, R. and Miller, F.S., Hypothermia, asphyxia, and cardiac glycogen in guinea pigs. Science, 144: 1226-1227, 1964. (8) Shimoda, A., An electron

microscope study of the developing rat brain, concerned with the morphological basis of the blood-brain barrier. Acta Pathol. Japon., 13: 95-105, 1963. (9) Van den Berg, J. C. and van Kempen, G. M. J., Glutamate decarboxylase and -amino- butyrate transaminase in developing rat brain. Experientia, 20: 375, 1964. (10) Crain, S. M. and Bornstein, M. B., Bioelectric activity of neonatal mouse cerebral cortex during growth and differentiation in tissue culture. Exp. Neurol., 10: 425-450, 1964. (11) McMurray, W. C., Metabolism of phosphatides in developing rat brain-- 1. Incorporation of radioactive precursors. J. Neurochem., 11: 287-299, 1964. (12) Mares, P., Ontogenetic development of membrane potentials in telencephalic structures in the rat. Physiol. Bohemosloven., 13: 256-262, 1964. (13) Foote, J. L. and Agranoff, B. W., Fatty acids of the brain in phenylketonuria. J. Neurochem., 11: 589-594, 1964. (14) Wender, M. and Hierowski, M., Enzymatic mechanism of the protein biosynthesis in the developing nervous system. PROGRESS IN BRAIN RESEARCH, GROWTH AND MATURATION OF THE BRAIN, 4: 273-280, D. P. Purpura and J. P. Schadé, Eds., Amssterdam, Elsevier, 1964. (15) Fox, M. W., The ontogeny of behaviour and neurologic responses in the dog. Animal Behaviour, 12: 301-310, 1964. (16) von Euler, U., Larsson, Y. and Persson, B., Glucose tolerance in the neonatal period and during the first six months of life. Arch. Dis. Childh., 39: 393-396, 1964. (17) Peters, J. J., Vonderahe, A. R. and McDonough, J. J., Electrical changes in brain and eye of developing chick during hyperthermia. Am. J. Physiol.,

207: 260-264, 1964. (18) Purpura, D. P., Relationship of seizure susceptibility to morphologic and physiologic properties of normal and abnormal immature cortex. NEUROLOGICAL AND ELECTROENCEPHALOGRAPHIC CORRELATIVE STUDIES IN INFANT. pp. 117-157, p. Kellaway and I. Peterson, Eds., New York, Grune and Stratton, 1964. (19) Marty, R. and Chevreau, J., Maturation des réponses visuelles et édification du neuropile cortical. Compt. rend. soc. biol., 155: 705-707, 1961. (20) White, B. L., Castle, P. and Held, R., Observations on the development of visually-directed reaching. Child Develpm., 35: 349-364, 1964. (21) White, B. L. and Castle, P. W., Visual exploratory behavior following postnatal handling of human infants. Perceptual and Motor Skills, 18: 497-502, 1964. (22) Crain, S. M., Development of bioelectric activity during growth of neonatal mouse cerebral cortex in tissue culture. NEUROLOGICAL AND ELECTROENCEPHALOGRAPHIC CORRELATIVE STUDIES IN INFANT. pp. 12-26, P. Kellaway and I. Petersen, Eds., New York, Grune and Stratton, 1964. (23) Schepartz, B., Oxidation of L-amino acids in homogenates of immature brain. Biochim. Biophys. Acta, 53: 602-603, 1961.

(24) Schepartz, B., Oxidation of L-amino acids and incorporation into protein in homogenates of brain at two stages of development. J. Neurochem., 10: 825-829, 1963. (25) Rosen, M. G. and Satran, R., Neonatal electroencephalography: results of a pilot study. Am. J. Obstet. Gynecol., 89: 619-625, 1964.

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No. 7 February

In the October newsletter I requested a list of laboratories doing research in human development. Through the courtesy of Dr. Helen Gee we obtained the following list made up mainly of participants in a Conference on Research Methodology in Parent-Child Interaction held October 12-14, 1964 at the Department of Pediatrics, Upstate Medical Center, Syracuse, New York.

Ainsworth, Mary, Associate Professor, Department of Psychology, Johns Hopkins University, Baltimore, Maryland.

Baldwin, Alfred, Professor and Director, Department of Child Development and Family Relationships, New York State College of Home Economics, Cornell University, Ithaca, New York.

Baumrind, Diana, Project Director, USPHS Project., Institute of Human Development, University of California, Berkeley, California.

Bayley, Nancy, Institute of Human Development, Edward Chace Tolman Hall, University of California, Berkeley 4, California.

Bell, Richard Q., Psychology Laboratory, National Institute of Mental Health, Bethesda 14, Maryland.

Birns, Beverly, Department of Psychiatry, Albert Einstein College of Medicine, Yeshiva University, New York 61, New York.

Brazelton, T. Berry, M. D., 51 Brattle Street, Cambridge 38, Massachusetts.

Bridger, Wagner H., M. D., Department of Psychiatry, Albert Einstein College of Medicine, Yeshiva University, New York 61, New York.

Caldwell, Bettye M., Research Associate, Department of Pediatrics Upstate Medical Center, Syracuse, New York.

Caudill, William, Laboratory of Socio-environmental Studies, National Institute of Mental Health, Bethesda 14, Maryland.

Chess, Stella, M. D., Department of Psychiatry, New York Medical College New York, New York - 10029.

Crowell, David H., Pacific Biomedical Research Center, University of Hawaii, Honolulu, Hawaii.

Eddy, Evelyn, M. D., Associate Professor of Pediatrics, Upstate Medical Center, State University of New York, Syracuse, New York.

Gee, Helen, H., Behavioral Sciences Consultant. National Institute of Child Health and Human Development, Bethesda, Maryland - 20014.

Gewirtz, Jacob, Research Psychologist, Laboratory of Psychology, National Institute of Mental Health, Bethesda 14, Maryland.

Gleser, Goldine, Associate Professor, University of Cincinnati, Cincinnati, Ohio.

Greenberg, Nahman H., M. D., Assistant Professor, Department of Psychiatry, University of Illinois Medical Center, 912 S. Wood St., Chicago, Illinois - 60612.

Harding, John S., Professor, Dept. of Child Development and Family Relationships, Cornell University, Ithaca, New York.

Hersher, Leonard, Asst. Professor, Department of Pediatrics, Upstate Medical Center, Syracuse, New York.

Hess, Robert, Chairman, Committee on Human Development, University of Chicago, Chicago, Illinois.

Lipton, Earle L., Assistant Professor, Department of Pediatrics, Upstate Medical Center, Syracuse, New York.

Moss, Howard A., Chief, Section on Parent-Infant Behavior, National Institute of Mental Health, Bethesda, Maryland - 20014.

Parmalee, Arthur, University of California at Los Angeles, Department of Pediatrics, Los Angeles, California.

Pavenstedt, Eleanor, M. D., Associate Professor, Department of Psychiatry, Boston University, Boston 18, Massachusetts.

Rheingold, Harriet L., Department of Psychology, University of North Carolina, Chapel Hill, North Carolina.

Ricciuti, Henry N., Professor, Department of Child Development and Family Relationships, Cornell University, Ithaca, New York.

Richmond, Julius B., M. D., Professor and Chairman, Department of Pediatrics, Upstate Medical Center, Syracuse, New York.

Sander, Louis W., M. D., Associate Professor of Psychiatry, Boston University, Boston, Massachusetts.

Santostefano, Sebastian, Associate Professor, Clark University, Worcester, Mass. - 01604 Schaefer, Earl S., Laboratory of Psychology, National

Institute of Mental Health, Bethesda, Maryland - 20014.

Sears, Robert R., Dean, Humanities and Sciences, Stanford University, Stanford, California.

Steinschneider, Assistant Professor, Department of Pediatrics, Upstate Medical Center, Syracuse, New York, 13210.

Yarrow, Leon J., Director, Child Research Project, Family and Child Services of Washington, D. C., 929 L Street N. W., Washington, D. C.

Weinstein, Helen, Laboratory of Socio-environmental Studies, National Institute of Mental Health, Bethesda, Maryland.

Witmer, Helen, Director of Division of Research, Social Security Adminis., Department of Health, Education and Welfare, Children's Bureau, Washington, D. C.

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CALLING ATTENTION TO:

Dr. J. P. Schadè, editor of PROGRESS IN BRAIN RESEARCH, is at present making plans for a number of volumes in the series PROGRESS IN BRAIN RESEARCH on the subject "Developmental Neurology". Four or five volumes will contain surveys of all aspects of the developing brain. He would very much appreciate to be notified by scientists who would like to contribute to one of these volumes. Address : J. P. Schade, M. D., Ph. D., Netherlands Central Institute for Brain Research, 28 Ijdijk, Amsterdam (Havens-Oost), The Netherlands.

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The following interesting papers crossed my desk this week.

(1) Brady, J. P., Cotton, E. C., and Tooley, W. H. Chemoreflexes in the new-born infant:Effects of 100% oxygen on heart rate and ventilation. J. Physiol., 172: 332-341, 1964. (2) Broman, T. Blood-brain barrier damage in multiple sclerosis supravital test-observations. Acta Neurol. Scand., Suppl. 10, 40: 21-24, 1964. (3) Klee, A. The relationship between clinical evaluation of mental deterioration, psychological test results, and the cerebral metabolic rate of oxygen. Acta Neurol. Scand., 40: 337-345, 1964. (4) Davis, H. Enhancement of evoked cortical potentials in humans related to a task requiring a decision. Science, 145: 182-183, 1964. (5) Delahunt, C. S. and Lassen, L. J. Thalidomide syndrome in monkeys. Science, 146: 1300-1305, 1964.

No. 8 April

The Himwiches are off to Japan for a tour of various laboratories, some lectures, etc. I hope in the June newsletter to describe our experiences in Japan. From the large number of papers which I find in the literature from Japanese workers I feel sure that we will see many interesting things in the fields of neurophysiology and of developing brain.

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(1) Csillik, B., Joo, F., Kasa, P., Tomity, I. and Kalman, Gy. Development of acetylcholinesterase-active structures in the rat archicerebellar cortex. Acta Biol. Acad. Sci. hung., 15: 11-17, 1964. (2) Behrman, R. E., Seeds, A. E., Jr., Battaglia, F. C., Hellegers, A. E. and Bruns, P. D. The normal changes in mass and water content in fetal rhesus monkey and placenta throughout gestation. J. Pediat., 65: 38-44, 1964. (3) Hrbek, A. The development of electrophysiological reactivity in children and its changes in oligophrenics. Acta Univ. Carol. Med., 10: 45-64, 1964. (4) Joseph, N. R., Engel, M. B. and Catchpole, H. R. Chemical potentials and electrical potentials in biological systems. Nature, 203: 931-933, 1964. (5) Klopfer, P. H., Adams, D. K. and Klopfer, M. S. Maternal "imprinting" in goats. Proc. Nat. Acad. Sci., 52: 911-914, 1964. (6) Klopfer, P. H. and Hailman, J. P. Perceptual preferences and imprinting in chicks. Science, 145: 1333-1334, 1964. (7) Klopfer, P. H. and Hailman, J. P. Basic parameters of following and imprinting in precocial birds. Zeitschrift für Tierpsychologie. 21: 755-762, 1964.

(8) Weir, M. W. and DeFries, J. C. Prenatal maternal influence on behavior in mice: Evidence of a genetic basis. J. comp. physiol. Psychol., 58: 412-417, 1964. (9) Rawson, K. S. and Hartline, P. H. Telemetry of homing behavior by the deermouse, peromyscus. Science, 146: 1596-1598, 1964. (10) Norman, R. M., Tingey, A. H., Newman, C. G. H. and Ward, S. P. Tay-sachs disease with visceral involvement and its relation to gargoylism. Arch. Dis. Childh., 39: 634-640, 1964. (11) Donahue, S. A relationship between fine structure and function of blood vessels in the central nervous system of rabbit fetuses. Am. J. Anat., 115: 17-26, 1964. (12) Pritchard, E. T. and Nichol, N. E. Cholesterol esterase activity in developing rat brain. Biochim. Biophys. Acta, 84: 781-782, 1964. (13) Sudak, H. S. and Mass, J. W. Behavioral-neurochemical correlation in reactive and nonreactive strains of rats. Science, 146: 418-420, 1964. (14) Bennett, E. L., Diamond, M. C., Krech, D. and Rosenzweig, M. R. Chemical and anatomical plasticity of brain. Science, 146: 610-619, 1964. (15) Gianascol, A. J. and Yeager, C. L. Telemetry and child psychiatry: A psychosomatic approach. Psychosomatics, 5: 317-321, 1964. (16) Flexner, L. B., Flexner, J. B., Roberts, R. B. and De La Habe, G. Loss of recent memory in mice as related to regional inhibition of cerebral protein synthesis. Proc. Nat. Acad. Sci., 52: 1165-1169, 1964. (17) Young, R. D. Drug administration to neonatal rats: Effects on later emotionality and learning. Science, 143: 1055-1057, 1964. (18) Brady, J. P., Cotton, E. C. and Tooley, W. H. Che-

moreflexes in the new-born infant: Effects of 100% oxygen on heart rate and ventilation. J. Physiol., 17: 332-341, 1964. (19) Tilney, N. L., Beattie, E. J., Jr. and Economou, S. G. The effect of neonatal thymectomy in the dog. J. Surg. Res., 5: 23-30, 1965. (20) Efron, M. L. and MacCready, R. A. Phenylketonuric families. J.A.M.A., 191: 391-392, 1965. (21) Hershenson, M., Munsinger, H. and Kessen, W. Preference for shapes of intermediate variability in the newborn human. Science, 147: 630-631, 1965. (22) Paasonen, M. K. and Kivalo, E. The inactivation of 5-hydroxytryptamine by blood platelets in mental deficiency with elevated serum 5-hydroxytryptamine, Psychopharmacologia, 3: 188-192, 1962. (23) Paasonen, M. K., Solatuntuir, E. and Kivalo, E. Monoamine oxidase activity of blood platelets and their ability to store 5-hydroxytryptamine in some mental deficiencies. Psychopharmacologia 6: 120-124, 1964. (24) Bonavita, V., Amore, G., Avellone, S. and Guarneri, R. Lactate dehydrogenase isoenzymes in the nervous tissue--V. The effect of x-rays on the enzyme of the developing and adult rat brain. J. Neurochem., 12: 37-43, 1965. (25) Cumings, J. N. Some lipid diseases of the brain. Proc. Roy. Soc. Med., 58: 21-28, 1965. (26) Tenjyson, V. M. and Pappas, G. D. Fine structure of the developing telencephalic and myelencephalic choroid plexus in the rabbit. J. Comp. Neur., 123: 379-412, 1964. (27) Alexander, G. and Williams, D. Maternal facilitation of sucking drive in newborn lambs. Science, 146: 665-666, 1964. (28) Solomons, G., Hardy, J. C. and Melrose, J. Auditory reactions of the neonate. The

Journal Lancet, 85: 17-21, 1965. (29) Altman, J. and Das, G. D. Autoradiographic examination of the effects of enriched environment on the rate of glial multiplication in the adult rat brain. Nature, 204: 1161-1163, 1964. (30) Sourkes, T. L., Wiseman-Distler, M. H., Moran, J. F., Murphy, G. F. and Saint Cyr, S. Comparative metabolism of D- and L-3, 4-dihydroxyphenylalanine in normal and pyridoxine-deficient rats. Biochem. J., 93: 469-474, 1964. (31) Schain, R. J., Copenhaver, J. H. and Carver, M. J. Inhibition by phenylalanine of the entry of 5-hydroxy-tryptophan-1-C^{14} into cerebrospinal fluid. Proc. Soc. Exp. Biol. Med., 118: 184-186, 1965. (32) Lynn, R. and Terry, R. D. Lipid histochemistry and electron microscopy in adult Niemann-Pick disease. Am. J. Med., 37: 987-994, 1964. (33) Emanuel, B., Padorr, M. P. and Swenson, O. Mongolism associated with Hirschsprung's disease. J. Pediat., 66: 437-439, 1965. (34) Van Duyne, C., Parker, H. R., Holm, L. W., Hirai, T. and Gallager, J. Metabolism of free fatty acids during perinatal life of lambs. Am. J. Obst. & Gynec., 91: 277-285, 1965. (35) Gayet, J. and Bonichon, A. Morphological differentiation and metabolism in the optic lobes of the chick embryo. In Regional Neurochemistry. Kety, S. S. and Elkes, J. (Eds.), Oxford, pgs. 135-150, Pergamon Press, 1961.

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NEW BOOKS:

Conference Proceedings: Prenatal Irradiation Effects on CNS Development and Postnatal Behavior. J. Werboff (Ed.), Conference held in Washington, D. C., on October 4, 5 and 6, 1963, under the spon-

sorship of the American Institute of Biological Sciences under Contract No. AT-(49-7) 1287 with the U.S. Atomic Energy Commission.

Methods of Animal Experimentation. W. J. Gay (Ed.), Volume 1, Academic Press, New York, 1965, $13.75

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—ニュース—

“日米神経化学コンフェレンスに就いて”

今秋，日米科学協力会議の一環として“神経化学に関するコンフェレンス”が開かれます。期日は昭和40年10月10日より16日迄神奈川県・大磯ロング・ビーチ・ホテルで合宿して行われます。此の会議は，日米両国より各十名の参加者のみに限られた非公開の会議でありますが，日本側からは十数名のオブザーバーがこれに参加することが予定されています。会議の詳しい模様に就いては会議終予後公表されることになって居ります。

此の会議の日本側世話人は塚田教授(慶大)米国側の代表としてはウエルシュ教授(コロンビア大)です。来日を予定されている米人学者は下記の通りです。

DR. A. AMES, III., (Massachusetts General Hospital, Boston, Mass.)
DR. J. AXELROD., (National Institutes of Health, Bethesda, Md.)
DR. J. FOCH-PI., (McLean Hospital, Belmont, Mass.)
DR. A. LEJTHA., (N. Y. State Res. Inst. for Neurochem. & Drug Addition, N. Y.)
DR. M. G. LARRABEE., (Johns Hopkins University, Baltimore, Md.)
DR. O. H. LOWRY., (Washington University, St. Louis, Mo.)
DR. A. POPE., (McLean Hospital, Belmont, Mass.)
DR. E. S. SUTHERLAND., (Vanderbilt University, Nashville, Ten.)
DR. S. UDENFRIEND., (National Institutes of Health, Bethesda, Md.)
DR. H. WAELSCH., (Columbia University, New York, N. Y.)

猶会議の前后に大体次の様な予定で公開講演会が行われるので希望者は参加されたい。詳細については決まり次第お知らせします。

10月9日(土) 2：00P M. 於・東京・朝日新聞講堂
Dr. H. Waelsch ‥‥「脳のはたらきとその化学」

10月18日　月曜日　神経化学懇話会（於東京）

Dr. A. Ames, III	Dr. O. H. Lowry
Dr. J. Axelrod	Dr. H. Waelsch
Dr. M. G. Larrabee	

10月20日　水曜日　新潟大学脳神経研究会（於新潟）

Dr. J. Folch-Pi	Dr. A. Pope

10月22日　金曜日　生化学近畿地方会（於大阪又は京都）

Dr. J. Axelrod	Dr. S. Udenfriend
Dr. O. M. Lowry	Dr. H. Waelsch
Dr. E. W. Sutherland	

—神経化学研究施設の紹介—(1)

東京大学医学部脳研究所
——神経生化学部門——

I

東大脳研究所が発足したのは1936年3月であり，東大医学部付属研究施設として官制化されたのは1953年であるが，神経生化学部門が実際に発足したのは1961年7月である。現在脳研究所は神経解剖学，神経病理学，神経生理学，神経生化学，神経内科（神経学）医学心理学（遺伝生物学，犯罪学）の6部門から構成されている。詳しくは文献※を参照して頂きたい。

部門の数が比較的充実している割に，専任のスタッフは著しく不足している。脳研全体で教授5，助教授6，講師1，助手4という不自然な人員構成となっており，完全化がつよく望まれている。現在東大構内に150坪のスペースを有するにすぎないが1966年度末までに，医学部3号館が完成し各部門がおのおの150坪の研究スペースをもつ予定である。

※ 黒川正則（1963）東京大学医学部脳研究所のあゆみ：神経進歩7.637

II

神経生化学部門の専任職員は黒川正則（助教授）石川晋次（講師）小宮義璋（大学院学生）細田依佐（技術員）の4名のみであるが，この部門発足の歴史的いきさつから，東大精神医学教室，東大生化学教室に多くの協同研究者をえている。

1）精神医学教室関係……成瀬　浩・加藤誠・矢部　徹・宮本侃治・平山　皓・町山幸輝・[illegible]郎・坂本哲彦・永山素男・加藤尚彦・稲村博・須田茂雄・広橋紀子

2）生化学教室関係：織壁栄次・松井英男・村上　博・山下　哲

黒川はH. McILWAIN (London)，石川はA L. LEHNINNGER (Johns Hopkins, Maryland) の下に留学した。現在成瀬，宮本，織壁，松井は滞米中，町山は滞英中であり，また1965年以降中村，坂本が渡米の予定である。

III

当部門では神経系の生理化学的研究から酵素学的研究にわたって，いくつかの研究が行われているが，以下大別して紹介したい。

1）痙攣素因に関する研究：

優生に痙攣素因を遺伝するepマウスを用いた研究が主である。この近交系マウスでは，アセチルコリン，アミノ酸，アンモニア，アデニン・ヌクレオチドなどに種々の異常がみとめられるが，この中で痙攣素因，痙攣過程ともっとも密接に関係するのはアセチルコリン系であることが判明し，数年来研究の主眼はここに向けられてきた。アミノ酸の異常としてこれまでγ—アミノ酪酸の高値，グルタミン酸，アスパラギン酸の低値が量的に捉えられているので，これら

のグルタミン酸系アミノ酸の代謝回転について現在検討中である。

（主要論文）

Naruse H., Kato M., Kurokawa M., Haba R. and Yabe T. (1960) Metabolic defects in a convulsive strain of mouse : J. Neurochem. **5**, 359

Kurokawa M., Kato M. and Machiyama Y. (1961) : Choline acetylase activity in a convulsive strain of mouse : Biochim. Biophys. Acta **50**, 385

Kurokawa M., Machiyama Y. and Kato M. (1963) : Distribution of acetylcholine in the brain buring various states of activity : J. Neurochem. **10**, 341

Kurokawa M., Naruse H. and Kato M. (1965) Metabolic studies on the ep mouse, a special strain with convulsive predisposition : Progress in Brain Rescarch, Elsevier, Amsterdam (in press)

2）シナプトソームの研究：神経系に特有な分画粒子としてシナプトソーム（神経終末粒子）の存在が近年注目されている。これまでの趨勢はアセチルコリンをはじめいわゆる神経伝達物質の細胞内局在の問題が主として追求されてきたが、われわれはより一般的な視野からの検討を志ざしている（神経終末におけるエネルギー代謝の自律性，神経系に特異な膜系としてのシナプトソーム限界膜の性質など)。しかしシナプトソーム、シナプス小胞、synaptosomal ghosts' について純度の高い標品を分離することは現在ひとっの壁であり，今後解決さるべき技術的な問題が多い。

（主要論文）

kurokawa M., Sakamoto T. and Kato M. (1965) A rapid isolation of nerve-ending particles from brain : Biochim. Biophys. Acta 94, 307

Kurokawa M., Sakamoto T. and Kato M. : Distribution of the sodium and potassium stimulated adenosine triphosphatase activity in the isolated nerve-ending particles : Biochem. J. (in press)

3）リン・タンパクの研究：神経系のタンパクに関する研究は他の組織にくらべて著しいたちおくれがある。この中でリン・タンパクは脳切片にたいする電気刺激時における代謝回転や，Na+の能動輸送の担体としての研究などによって，その生理的な意義が重視されている。しかし生理的な役割を論ずる前に，リン酸代謝の酵素学的検討と，リン・タンパクの化学的性質が明らかにされねばならない。我々は脳の顆粒結合性リン・タンパク・キナーゼ（PPK）による結合リン・タンパクへの32P－ATPの組入れが，γ－Pの組入れであることを確認し，この反応のMg^{2+}にたいする選択的な依存性，至適pH，各種陽イオン，陰イオンにたいする挙動，PCMBによる阻害，PPKの細胞内分布（主として顆粒分画，一部上清部分）などを報告した。代謝回転の比較から，リン・タンパクは一部の研究者によって主張されているような，(NaK) ATPase 反応の中間体とはなりえないものと考えられる。

（主要論文）

Orikabe E., Matsui H., Ishikawa S. and Shim-

azono N. (1965) Studies on phosphoprotein in braln. I. Phosphorylation of bound phosphopeptibe and its isolation J. Biochem. **57** 346

Matsui H., Orikabe E., Ishikawa S. and Shimazono N.(1965) : Studies on phosphoprotein brain. II. Reactions catalyzed by Protein kinase : J. Biochem. **57**, 131

4）脳切片に関する研究：脳の切片は他の組織の切片にくらべて一般的にいちじるしく旺盛なアミノ酸の能動輸送をいとなむし，また高濃度のカリウム塩や電気刺激によって，いわゆる“刺激代謝”を示す点に特徴がある。脳切片のかかる特徴を利用した研究は内外とも数多いが，我々は電気刺激にたいする白質切片の反応が，灰白質切片とは質的にことなることを示した。アミノ酸の能動輸送の問題に関しては，L－（およびD－）ヒスチジン，L－（およびD－）メチオンなど脳内には微量にしか存在しないアミノ酸を用いて，脳切片における exchange diffusion の存在を示した。また脳内に相対的多量に，または特異的に存在するL－グルタミン酸，L－アスパラギン酸 γ－アミノ酪酸およびその他のアミノ酸（β－アラニン，DL－チロジン，L－ヒスチジン）などを用いて，脳切片のアミノ酸輸送機構には少くとも2種類のものが存在すること（α－アミノ酸とω－アミノ酸では異なる）および著しい脳内局所差および種属差のあることを明らかにした。

（主要論文）

Kurokawa. M. (1960) Metabolic consequences of localized application of electrical pulses to sections of cerebral white matter : J. Neuroohem. **5**, 283

Nakamura R. (1963) Active transport of histidine and methionine by rat brain slices : J. Biochem. **53**, 314

Nakemura R. and Nagayama M. : Active transport of amino acids in brain slices, with special reference to its regionality and species difference (in preparation)

5）Oxidative phoshorylation の研究

この研究は現在のところとくに神経組織との関連をもたないが，単純化された膜構造のモデルとして細菌細胞膜に存在する oxidative phosphorylation の研究が進められている。膜構造に付随する化学反応の内容は神経系の機能を明らかにする上に基本的な重要性をもつものであるが，この方向の研究が今後神経系の膜構造のはたらきといかなる関連をもつかは，現在のところまったく予想できない。

（主要論文）

Ishikawa S. and Lehninger A. L. (1962) Reconstitution of oxidative phosphorylation in prepations from Micrococcus lysodeikticus : J.biol.Chem. **237**, 2401

Yamashita S. and Ishikawa S. (1965) A heat-stable protein coupling factor from Micrococcus lysodeikticus : J. Biochem. **57**, 232

Ishikawa S., Yamashita S., Araki S. and Shimazono N. (1965) Stimulotiom of ATPase activity by deoxyribonucleic acid in the Micrococcus lysodeikticus preparation : J. Biochem. **57**, 235

Ⅳ

1951年出版されたBrain metabolism and elrebral disorders(H. E. HIMWICH は当時画期的な意味をもっていた。これはこの著書が神経系の代謝を神経機能との関係において捉えようとしたはじめての試みであったからである。現在この著書は記述の妥当性を失わないとはいえ，当時の神経生化学の面影を止めるという意味を担うにすぎず現在的な意味は失われてしまった。神経生化学はこの時期前后 sturm und Drang の時代に入り，現在もまだこれから脱け出す気配はみられない。今日神経生化学という言葉によって描きだされる image はおのおのの研究者によっていちじるしく異なるものであろう。このことは神経生化学の豊かな将来性，多様性と同時に著しい後進性をも物語っている。数多くの臆説が横行する中で，確実な実験資料をつみ重ねてゆきたいものと思う。

（黒川正則）（1965年6月）

—編集後記—

昨年度から一年近くもおくれていた“神経化学”誌もやっと発行が軌道にのって来ました。長い間皆様にごめいわくをかけて来たことをこゝに深くおわび致します。

Vol. 4，No. 1にはNeurosciences Research Programの記事に収録致しました。NRPのChairmanである米国MITのDr. F. O. Schmittは今秋東京で行われる第23回国際生理科学会議に来日され，神経化学懇話会でも招待講演を開く予定です。

Vol. 4，No. 2からは我が国及び外国の神経化学の研究施設の紹介を行っていきます。第1回は東大・脳研の生化学部門の紹介記事を黒川さんに書いていたゞきました。

猶雑誌の記事その他につきまして御意見がありましたら編集委員を通じてお知らせ下されば幸甚です。

Y. N.

編集委員（ＡＢＣ順）

鳩谷　龍	川北　幸男	高坂　睦年	黒川　正則
成瀬　浩	佐野　勇	佐藤　倚男	高垣玄吉郎
高橋　良	高橋　康夫	塚田　裕三	宇尾野公義

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編集者	(代表) 塚田　裕三	
編集所	東京都大田区大森西5丁目21番地 東邦大学医学部第二生理学教室内	神経化学懇話会
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神経化学　VOL. 4　NO. 2

目　次

〔神経化学文献〕……41

〔ニュース〕

Developing Brain ……56

日米神経化学コンフェレンス
に就いて……75

〔神経化学研究施設の紹介〕（1）……76

——東京大学・医学部・脳研究所・
神経生化学部門——

緒方書店刊