divisions of the "arcuate nucleus." This "Palkovits-punch" technique was utilized to study individual hypothalamic nuclei, demonstrating impressive differences in the distribution of monoamine transmitters (M. Brownstein), their synthesizing enzymes (J. Saavedra), and the effects of hormones on the synthesis of monoamines in those nuclei (J. Kizer). The demonstrated possibility of more meaningful and topographically related biochemical analyses will likely impose a new standard for researchers who, because of technical difficulties, were previously satisfied to study the whole brain or cubes of it.

The proceedings of the conference will be published by S. Karger, Basel.

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Transmissible Disease and Blood Transfusion

It is conventional to think of viral hepatitis as the only disease which is transmitted by blood transfusion. Whether other equally serious diseases may be spread in this fashion was the subject under discussion at the sixth annual Red Cross scientific symposium, "Transmissible Disease and Blood Transfusion," held in Washington, D.C., on 8 and 9 May 1974. Four major points were established. First, a large part of transfusion-associated hepatitis may not be related to the two known forms of viral hepatitis, infectious (type A) or serum (type B) hepatitis. Second, viruses of the herpes group and, in particular, cytomegalovirus and Epstein-Barr virus may be of considerable importance in transfusion and transplant therapy. Third, although many more or less exotic diseases, including parasitic diseases, are potentially transmissible by blood transfusion, the problem does not exist for practical purposes or may be overcome by simple surveillance procedures. Finally, even with the advent of new and sensitive test methods for carriers of serum hepatitis, blood obtained from voluntary sources is still much safer than blood from commercial (that is, paid) donors.

The first day of the meeting was devoted to hepatitis, and papers dealt with both the epidemiology and the etiology of the disease. It is clear that screening programs for the hepatitis B antigen are taking effect, and a number of speakers noted the decline in the incidence of posttransfusion hepatitis type B. The problem of posttransfusion hepatitis is by no means solved, however. Robert Purcell (National Institute of Allergy and Infectious Diseases) outlined the discovery of a particle and antibody associated with hepatitis type A. The availability of this apparent marker for hepatitis type A has led to his discovery that most cases of posttransfusion hepatitis which are not hepatitis type B also appear to be unrelated to hepatitis type A. Other speakers confirmed this supposition, and we were encouraged to consider the possibility of hepatitis types C, D, and so on.

There has been substantial progress in the study of the etiology of hepatitis B, and there is now considerable evidence supporting the notion that the Dane particle is the infectious virion of hepatitis B.

J. Gerin (Molecular Anatomy Program, Oak Ridge National Laboratory) discussed the finding of a specific nucleotide polymerase within the inner core of the Dane particle. Inhibition studies indicate that the polymerase requires a DNA primer. Enzyme, primer, and product all appear to be bound to the Dane core particle. The polymerase could be precipitated from serum specimens by prior treatment with serum containing antibodies to hepatitis type B surface antigen (HB_sAg). These findings could provide the basis of a test for hepatitis B infectivity. J. Hoofnagle (Bureau of Biologics of the Food and Drug Administration) presented his recent findings on the occurrence of antibody to the inner core of the Dane particle. It is probable that this antibody to the core is a reliable indicator of ongoing hepatitis B infection in that it is found in almost all HB_sAg carriers and in certain HB_sAg-negative donors who were implicated in cases of posttransfusion hepatitis type B.

Acceptable animal models for hepatitis types A and B have been developed and are now in use by a number of workers in the field. A. W. Holmes (Rush–Presbyterian–St. Luke's Medical Center, Chicago) described his marmoset model for hepatitis A, and L. F. Barker (Bureau of Biologics) dealt with the chimpanzee, a successful, if expensive, model for the study of hepatitis type B.

A wide spectrum of other diseases with potential relevance to blood transfusion were also discussed. D. J. Lang (Duke University) discussed posttransfusion disease associated with Epstein-Barr virus and cytomegalovirus (CMV). Both viruses are widely distributed in the normal population, and serologic or clinical evidence of exposure is frequently found in transplant or transfusion recipients. Lang has been able to show an association between the number of transfused leukocytes and CMV infection in the recipient. It is as yet uncertain whether herpesvirus-associated disease in blood or transplant recipients is a direct result of transfer of virus from the donor, or whether latent host virus is reactivated by the immune stimulus associated with such operations.

Other viruses potentially transmissible by transfusion are arboviruses and the slow viruses, respectively discussed by R. N. Philip (Public Health Service, Rocky Mountain Laboratory) and Louis Herzberg (National Institutes of Health). Each gave a comprehensive review of his field and pointed out that there was little or no evidence of transmission of either virus group by transfusion. We were warned that a significant potential did exist in the case of Colorado tick fever, which has a lengthy viremic phase following clinical symptoms. In endemic areas, subjects with a recent history of tick-associated febrile illness should be deferred from donating blood for 6 months.

Transmission of bacterial and rickettsial disease by blood transfusion is not a serious problem. In common with most other microbial diseases, the potential donor is too unwell to consider giving blood at the time when he is circulating infectious organisms. Bacterial infection as a result of contamination of blood during collection or processing is still a hazard, however.

Finally, the problem of parasitic disease was considered. Transfusion malaria is no longer a significant hazard as current donor-screening practices are sufficient to eliminate potentially infectious donors. Martin S. Wolfe (Office of Medical Services, Department of State) discussed nonmalarial parasitic disease in the context of the symposium. It is clear that American trypanosomiasis (Chagas' disease) poses a serious transfusion problem in South America; but African trypanosomiasis, visceral leishmaniasis, toxoplasmosis, and filarial in-

fections are less frequently spread by this route. Serological tests are available in most cases and are routinely applied in endemic areas. These factors must be considered when potential blood donors give a history of residence in tropical areas.

The proceedings of the symposium, edited by G. A. Jamieson and T. J. Greenwald under the title *Transmissible Disease and Blood Transfusion*, will be published by Grune & Stratton.

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Forthcoming Events

January

20–22. Conference on **Computer Architecture,** Inst. of Electrical and Electronics Engineers, Houston, Tex. (W. King, Dept. of Computer Science, Univ. of Houston, Houston 77004)

20–22. Society of **Thoracic Surgeons,** Montreal, Canada. (W. G. Purcell, 111 E. Wacker Drive, Chicago, Ill. 60601)

20–23. American **Meteorological** Soc., 55th annual, Denver, Colo. (P. Julian, Natl. Center for Atmospheric Research, Box 3000, Boulder, Colo. 80303)

20–24. Nevada Acad. of **Family Physicians,** Lake Tahoe. (B. Holland, NAFP, 225 Albany St., Carson City, Nev. 89701)

20–25. Orbis Scientiae of the Center for **Theoretical Studies,** 2nd mtg., Coral Gables, Fla. (S. M. Widmayer, Center for Theoretical Studies, Univ. of Miami, Coral Gables 33124)

21–22. **Vehicular Technology** Conf., 25th, Inst. of Electrical and Electronics Engineers, Toronto, Ont., Canada. (G. A. Ross, Sinclair Radio Labs., Ltd., 122 Rayette Rd., Concord, Ont.)

22. **Microprocessors and Microcomputers** Symp., Newark, N.J. (Continuing Education, Newark College of Engineering/New Jersey Inst. of Technology, 323 High St., Newark 07102)

23–24. **Fibrinolytic System: Molecular and Physiologic Aspects,** 23rd annual symp., Detroit, Mich. (E. F. Mammen, Dept. of Physiology, Wayne State Univ., Scott Hall of Basic Medical Sciences, Detroit 48201)

23–27. American **Mathematical** Soc., Washington, D.C. (E. Pitcher, Dept. of Mathematics, Lehigh Univ., Bethlehem, Pa. 18015)

23–27. Conference Board of the **Mathematical Sciences,** Washington, D.C. (T. A. Botts, 834 Joseph Henry Bldg., 2100 Pennsylvania Ave., NW, Washington, D.C. 20037)

24–25. **Developmental Psycholinguistics and Communication Disorders** Conf., New York Acad. of Sciences, New York. (Conf. Dept., NYAS, 2 E. 63 St., New York 10021)

25–27. **Mathematical** Assoc. of America, Washington, D.C. (H. L. Alder, Dept. of Mathematics, Univ. of California, Davis 95616)

26–31. American Assoc. for the **Advancement of Science,** 141st annual, New York, N.Y. (AAAS Meetings Office, 1776 Massachusetts Ave., NW, Washington, D.C. 20036)

26–31. **Power Engineering** Soc., Inst. of Electrical and Electronics Engineers, New York, N.Y. (J. W. Bean, IEEE, 345 E. 47 St., New York 10017)

27–29. National Conf. on **Materials Availability/Utilization,** American Soc. for Metals, Chicago, Ill. (T. F. Andrassy, ASM Materials Conf., Metals Park, Ohio 44073)

27–29. International Conf. on **Metric Education,** 2nd, Biloxi, Miss. (G. Tinnon, Southern Sta., Box 56, Hattiesburg, Miss. 39401)

27–30. American Assoc. of **Physics Teachers,** Anaheim, Calif. (A. A. Strassenburg, AAPT, Drawer AW, Stony Brook, N.Y. 11790)

27–31. American **Nature Study** Soc., New York, N.Y. (B. J. McKnight, ANSS, State Univ. College, New Paltz, N.Y. 12561)

28–30. Association for the **Development of Computer-Based Instruction Systems,** Charleston, S.C. (K. A. Duncan, Office of Computer Resources, College of Dental Medicine, 80 Barre St., Charleston 29401)

28–30. **Reliability and Maintainability** Symp., American Soc. for Quality Control, Washington, D.C. (J. H. Simm, Beckman Inst., Inc., 2200 Wright Ave., Richmond, Calif. 94804)

28–3. Winter **Medical-Dental** Assembly, Havana and Varadero Beach, Cuba. (A. T. Wachna, 504 Medical Arts Bldg., Windsor 14, Ont., Canada)

29–31. Western **Spectroscopy** Assoc., 22nd annual, Pacific Grove, Calif. (G. R. Haugen, L-404, Univ. of California, Lawrence Livermore Lab., Livermore 94550)

29–1. Southern Soc. for **Pediatric Research,** New Orleans, La. (J. R. Montgomery, Dept. of Pediatrics, Baylor College of Medicine, Houston, Tex. 77025)

31–2. Los Angeles Midwinter **Radiological** Conf., 27th annual, Los Angeles, Calif. (J. F. Mack, 4500 Marloma Dr., Rolling Hills Estate, Calif. 90274)

31–2. Southern **Radiological** Conf., 19th, Point Clear, Ala. (M. Eskridge, P.O. Box 7544, Mobile, Ala. 36607)

31–5. **Biofeedback Research** Soc., 6th annual, Monterey, Calif. (F. Butler, Room 202, Dept. of Psychiatry, Univ. of Colorado Medical Center, 4200 E. Ninth Ave., Denver, Colo. 80220)

February

2–5. American Soc. for **Adolescent Psychiatry,** 3rd Pan American mtg., Mexico City, Mexico. (M. D. Staples, 24 Green Valley Rd., Wallingford, Pa. 19086)

2–9. Noah Worcester **Dermatological** Soc., Phoenix, Ariz. (H. Plotnick, 1150 David Whitney Bldg., Detroit, Mich 48226)

3–7. National Symp. on **Forensic Science,** 4th, Perth, West Australia. (V. J. McLinden, Australian Forensic Science Soc., Government Chemical Labs., 30 Plain St., Perth, West Australia 6000)