mate Biology is composed of James B. Conant, president of Harvard University; William B. Claflin, Jr., treasurer of Harvard University; Henry L. Shattuck, fellow of Harvard College; Charles Seymour, president of Yale University; Thomas W. Farnam, formerly associate treasurer and comptroller, and Carl A. Lohmann, secretary, both of Yale University.

Responsibility for research and educational activities will be in the hands of Dr. Lashley and a board of scientific directors whose membership includes Dean Francis G. Blake, Yale School of Medicine; Leonard Carmichael, president of Tufts College; George W. Corner, director, department of embryology, Carnegie Institution of Washington; Derek E. Denny-Brown, professor of neurology at Harvard; Frederick L. Hisaw, professor of zoology at Harvard; William H. Taliaferro, professor of parasitology at the University of Chicago, and Professor Yerkes.

SCIENTIFIC NOTES AND NEWS

DR. CHARLES-EDWARD AMORY WINSLOW, Anna R. Lauder professor of public health at Yale University, was awarded the Sedgwick Memorial Medal in recognition of distinguished service in public health by the American Public Health Association at the seventy-first annual meeting of the association, held at St. Louis in October.

FIVE Townsend Harris Medals of the Associate Alumni of the College of the City of New York were presented at the annual dinner on November 14. Among the recipients were Dr. William J. Crozier, '12, professor of general physiology at Harvard University; Dr. Selig Hecht, '13, professor of biophysics at Columbia University; and Dr. Alvan L. Barach, '17, assistant professor of clinical medicine at the College of Physicians and Surgeons, Columbia University. The medals were awarded in recognition of "postgraduate achievement."

Chemical and Engineering News reports that E. G. Bailey, vice-president of the Babcock and Wilcox Co., New York, was presented with the first Percy Nicholls Award "for notable scientific or industrial achievement in the field of solid fuels" on September 30 at the banquet of the joint Fuels Conference of the Coal Division of the American Institute of Mechanical Engineers and Fuels Division of the American Society of Mechanical Engineers.

MEMBERS of the American Chemical Society who have been proposed by the local sections for nomination for president-elect are: Thomas A. Boyd, head of the fuel department at General Motors Research Laboratories; Carl Shipp Marvel, professor at the University of Illinois; Thomas Midgley, Jr., vice-president of the Ethyl Gasoline Corporation (now the Ethyl Corporation); Linus Carl Pauling, director of the Gates and Crellin laboratories of the California Institute of Technology; W. T. Read, dean of the School of Chemistry, Rutgers University; Ernest H. Volwiler, vice-president in charge of research and development at the Abbott Laboratories; Hobart H. Willard, professor at the University of Michigan, and Robert R. Williams, chemical director at the Bell Telephone Laboratories.

DR. MARY CAMPBELL BLISS, Margaret C. Ferguson professor of botany at Wellesley College, after serving for forty years, has retired with the title of professor emeritus.

MAJOR GENERAL ROBERT U. PATTERSON, U. S. Army, retired, formerly surgeon general, has been appointed dean of the University of Maryland School of Medicine and College of Physicians and Surgeons, and superintendent of the University Hospital in Baltimore. He succeeds Dr. Hamilton Boyd Wylie, Baltimore, who has been acting dean of the school since the retirement in 1939 of Dr. James M. H. Rowland, Baltimore.

DR. ARTHUR D. HOLMES, research chemist, director of research for the E. L. Patch Company, and Mrs. Arthur D. Holmes, formerly professor of nutrition at the University of Illinois, have been appointed to professorships on the faculty of the Massachusetts State College at Amherst.

ROBERT D. POTTER, science editor of *The American Weekly,* has become instructor in general science at New York University to aid the wartime replacement of teaching personnel now in military and naval service. Mr. Potter will continue his science writing for *The American Weekly.* Losses in the department of general science at New York University include Dr. C. C. Clark, department chairman and now First Lieutenant in the Air Corps, Lieutenant Commander Lawrence Cockaday and Lieutenant T. J. Hanwick, both stationed at Annapolis.

DR. A. C. IVY, professor of physiology at the Medical School of Northwestern University, Chicago, who is now on leave of absence from the university, has been appointed scientific director of the new Naval Medical Research Institute at Bethesda, Md., which will be concerned with the physical and mental condition of aviators, submarine crewmen and marines. The institute was placed in commission on October 27, with ceremonies at which Rear Admiral Ross T. McIntire, surgeon general of the Navy, and Rear Admiral Harold W. Smith, chief of the Division of Research, took part.

DR. WALTER H. EDDY, professor emeritus of physiological chemistry at Columbia University, has been appointed chairman of the department of nutrition and related sciences at the New York Institute of Dietetics.

DR. THURMAN B. RICE, health education consultant to the State Board of Health, Indianapolis, has been appointed acting state health commissioner. Dr. John W. Ferree, Indianapolis, has been granted leave of absence as state health commissioner to serve as lieutenant commander in the medical corps of the U. S. Navy.

Nature reports that the Lord President of the Council has appointed Sir Lawrence Bragg, Professor J. E. Lennard-Jones, Dr. A. McCance and Sir Raymond Streat to be members of the Advisory Council to the Committee of the Privy Council for Scientific and Industrial Research. Dr. G. M. B. Dobson and S. K. Thornley retired from the council on completion of their terms of office on September 30.

ANHEUSER-BUSCH, INC., has established a research unit devoted to the study of the genetics of yeast in the Henry Shaw School of Botany of Washington University, St. Louis. Dr. Carl C. Lindegren has been appointed research associate, Gertrude Lindegren, research fellow, and Grace Schaffel, research assistant.

THE Hawley Products Company, St. Charles, Ill., manufacturers of molded cellulosic and allied plastic products, has founded an industrial fellowship in Mellon Institute, Pittsburgh, for the purpose of conducting an investigational program of importance to our armed forces. Dr. J. C. Williams, an alumnus of Oberlin and of the Iowa State College, a specialist in cellulose chemistry and plastics technology, has been appointed to the incumbency of this fellowship. He will be assisted by Peter Shanta, a chemical engineer from the University of Pittsburgh.

PROFESSOR W. L. ENGELS, of the department of zoology of the University of North Carolina, has joined the Army as a private; Professor I. C. Kitchin has enlisted in the Navy as lieutenant (junior grade), and Dr. D. E. Copeland is in the Army as second lieutenant. Dr. Maurice Whittinghill, recently at Bennington College, has been added to the department as associate professor, and Dr. Claude A. Villee, Jr., of the University of California, as instructor; Dr. W. J. Bowen is continuing as assistant professor *ad interim*.

PROFESSOR ALLEN C. TESTER and Professor Joseph J. Runner, both of the department of geology of the State University of Iowa, and Dr. G. C. Knowlton, of the department of physiology, have leave of absence. Professor Tester will begin service with the rank of captain in the corps of engineers. Much of his work will be in the field of petroleum development. Professor Runner will serve in the U. S. Geological Survey as a senior geologist, devoting his time to a study of copper deposits. Active duty in the Army Air Corps with the rank of first lieutenant is the assignment of Dr. Knowlton.

Nature states that Professor A. V. Hill has heard directly from Professor J. K. Parnas, who was until 1939 professor of medical chemistry in the University of Lwów, that he had succeeded in escaping to the U.S.S.R. and is alive and well.

JOSEPH L. WEINER, deputy director of the Office of Civilian Supply of the War Production Board, will speak on December 11 at the annual meeting of the American Standards Association to be held at the Hotel Astor, New York. Mr. Weiner is also chairman of the Committee of the Government on Concentration of Production in Industry.

PROFESSOR RICHARD H. SHRYOCK, professor of American history at the University of Pennsylvania and lecturer on medical history at the School of Medicine, will deliver a lecture on "Factors Affecting Medical Research in the United States, 1800–1900" at a joint meeting of the Institute of Medicine of Chicago and the Society of Medical History of Chicago at the Palmer House on the evening of November 27.

THE Charles Sumner Bacon Lectures for 1942–1943 of the College of Medicine of the University of Illinois, Chicago, will be delivered on December 2 and 3 by Dr. Edward A. Schumann, formerly professor of obstetrics at the School of Medicine of the University of Pennsylvania.

DR. J. D. BERNAL, professor of physics at Birkbeck College, University of London, delivered at the Royal Institution the first Sir William Bragg Memorial Lecture of the Chemical Society, London, on November 19.

PROFESSOR P. A. BUXTON, director of the department of entomology of the London School of Hygiene and Tropical Medicine, gave on October 30 the first Bacot Memorial Lecture of the Lister Institute of Preventive Medicine.

THE William James lectureship at Harvard University is held this year by Dr. Edward L. Thorndike, professor emeritus of Teachers College, Columbia University. Dr. Thorndike is conducting a seminar during the first half year on "The Applications of Psychological Methods to the Social Sciences," and giving a series of lectures on "Human Nature and Human Institutions," as follows: Oct. 8, "The Original Nature of Man—The Genes of the Mind"; Oct. 15, "Modification by the Environment—Learning";

Oct. 22, "Human Relations"; Oct. 29, "The Psychology of Language"; Nov. 5, "The Psychology of Language" (continued)—"The Origin of Language"; Nov. 12, "The Psychology of Government"—"Rulers and Ruled"; Nov. 19, "The Psychology of Government" (continued)—"Laws and the Law"; Dec. 3, "The Psychology of Punishment"; Dec. 10, "The Psychology of Welfare"—"The Welfare of Individuals"; Dec. 17, "The Psychology of Welfare" (continued)—"The Welfare of Communities." The lectures are open to the public.

THE *Journal* of the American Medical Association reports that the Washington State Department of Health and the U. S. Public Health Service cooperated in the establishment of an industrial hygiene division on October 1. The new division will be housed in the same office building as the State Department of Health.

The Harvard Alumni Bulletin states that the latest reports show that four hundred members of the faculty of Harvard University have either left or are on full- or part-time leave for war service. They represent twenty per cent. of the teaching staff. At the Harvard Medical School alone, 180 faculty members have left, many of them to serve in base hospitals overseas from Northern Ireland to the central Army hospital in Australia. Faculty members in many other departments have been granted leaves of absence either to serve with the armed forces or to engage as civilians in special war work in Washington. Others have been permitted to give full time to research projects financed by the Federal Government and carried on in laboratories at Harvard and elsewhere.

THE *Journal* of the American Medical Association reports that the U. S. Army headquarters for the European theater of operations has announced that the American Red Cross-Harvard University Hospital in southern England has been taken over by the Army and will be the central laboratory for U. S. armed forces in Britain. This hospital was established in 1940 and operated jointly by the American Red Cross, Harvard University and the British Ministry of Health for the study of wartime epidemics. Its twenty-two buildings were all fabricated in the United States, from which the sixty-six thousand pieces of fabricated building material were shipped to England to be erected by British workmen. The director of the hospital was Dr. John E. Gordon, professor of preventive medicine and epidemiology at Harvard University Medical School. The staff comprised ten doctors, sixty-two nurses, six technicians and eight administrative members. The hospital will be turned over to the British Ministry of Health at the end of the war.

DISCUSSION

THE PROBABILITY OF OBTAINING POTENTIALLY DANGEROUS POOLS OF HUMAN SERUM OR PLASMA

THE mixture of plasmas or serums containing antagonistic isoagglutinins results in their inactivation.[1,2,3] The reaction takes place in a quantitative manner.[3] For this reason the practice of pooling serums or plasmas of unknown isoagglutinin content has gained wide popularity. Such pools usually consist of eight to sixteen individual serums or plasmas. Since the groups of the individual components of the pools are not customarily determined, it would seem possible that pools containing disproportionate numbers of serums or plasmas of one type might occur, so that the phenomenon of inactivation might not take place. Such a possibility possesses more than a theoretical danger, since Polayes and Squillace[4] have reported a near-fatal reaction following the transfusion of pooled plasma. The pooled plasma was later found to be capable of agglutinating the red blood cells of the recipient. In this paper we shall attempt to demonstrate the mathematical probability of obtaining potentially dangerous pools of human serum or plasma.

In order to simplify the calculation, three assumptions were made: (1) each donor contributes equally to the pool; (2) each sample has the same titer of isoagglutinins; (3) the presence of an excessive preponderance of one group in a pool renders such a pool potentially dangerous for transfusion, *e.g.*, 12 or more samples of Group A or O in a pool of 16; 6 or more samples of Group A or O in a pool of 8; 3 or more samples of Group A or O in a pool of 4.

In this investigation we have used Snyder's[5] data (based upon 20,000 random samples from the U. S. population) regarding the relative incidence of the four main blood groups: Group O, 45 per cent.; Group A, 41 per cent.; Group B, 10 per cent., and Group AB, 4 per cent.

In order to determine the probability that a certain number of any particular group (O, A, B or AB) of serum or plasma would occur by random sampling of the U. S. population in pools of sixteen, eight and

[1] S. O. Levinson and A. Cronheim, *Jour. Am. Med. Asn.*, 114: 2097, 1940.

[2] R. Jakobowicz and L. M. Bryce, *Med. Jour. Australia*, 1: 318, 1941.

[3] H. A. Davis, *Surgery*, 10: 592, 1941.

[4] S. H. Polayes and J. A. Squillace, *Jour. Am. Med. Asn.*, 118: 1050, 1942.

[5] L. H. Snyder, "Blood Grouping in Relation to Clinical and Legal Medicine," Williams and Wilkins Company, Baltimore, 1929.