MATHEMATICIANS AND THE WAR

THE following cablegram has been sent to SCIENCE from Dr. A. Kolmogorov, a member of the Academy of Sciences of the USSR at Moscow:

All trials of the patriotic war which our country is waging against Hitlerism haven't stopped the intensive work of Soviet mathematicians. In Moscow and in all other towns mathematical research institutes are working full speed, lectures are being delivered at universities, scientific societies are meeting, mathematical journals are being printed.

Many young Soviet mathematicians are bravely fighting German vandals at the front. Nevertheless they keep in touch with science. In the last issues of *Doklady* of the Academy of Sciences, USSR, several notes have been printed by W. Smulian, "Acting Red Army," which he has written at the front. The last works by D. Raikov were written in the hospital where he was recovering after having been wounded at the battle of Moscow in the autumn of 1941.

The number of mathematicians that are working at mathematical war problems necessary for defense of our country increases daily. Stalin prizes were assigned in 1941 to mathematicians Christianovitch and Kelych for works on aerodynamics connected with problems of plane structure. Many mathematicians who had formerly devoted themselves to the purely abstract domains of our science—number theory, mathematical logi, topology, functional analysis—are now steadily working on problems of aerodynamics. Many of our well-known mathematicians are working at military plants and artillery polygons. We are full of admiration for the splendid and productive work of American mathematicians in all branches of our science. We are enchanted with the careful, irreproachable issues of English mathematical journals throughout all the terrible air raids, but we are especially satisfied when we read in the *Bulletin* of the American Mathematical Society that American mathematicians are beginning to concentrate their attention on war problems. All the future of our splendid science and the fate of humanity depend now on success in the struggle against war, and, in the first place, against German aggression. The sooner the aggressors are crushed, the sooner shall we mathematicians be able to meet at our next international congress and freely renew our peaceful work.

IN HONOR OF HENRY GRANGER KNIGHT

THE American Institute of Chemists has passed the following resolution in honor of Henry Granger Knight, past president of the institute.

WHEREAS, We, the National Council of The American Institute of Chemists, Inc., have learned with deepest sorrow of the death of our associate and friend, Dr. Henry Granger Knight, and

WHEREAS, Dr. Knight as a teacher has imbued many young men with an enthusiasm for chemistry and an appreciation of its importance to humanity, and

WHEREAS, as Chief of the Bureau of Chemistry and Soils, now the Bureau of Agricultural Chemistry and Engineering of the United States Department of Agriculture, he has been of inestimable value to the agricultural industry of the United States and through it to every American citizen, and

WHEREAS, as President of The American Institute of Chemists, he gave evidence of his interest in the individual chemist as a medium for the advancement of successful civilization, and

WHEREAS, in recognition of his noteworthy and outstanding service to the science of chemistry and the profession of the chemist in America, The American Institute of Chemists, Inc., did bestow upon him its annual medal, and

WHEREAS, his high sense of honor, his upright character and his clear judgment will ever be an inspiration to us, and

WHEREAS, his lovable nature, his cheerfulness, and his kind and thoughtful qualities will ever be remembrances of his friendliness,

Therefore, be it Resolved, that the Council of The American Institute of Chemists, Inc., hereby records its lasting appreciation and deep sense of loss of one who has been a true friend of chemists; and that our sympathy be extended to his family; and that a copy of these resolutions be spread upon the minutes of the National Council of The American Institute of Chemists, Inc.

SCIENTIFIC NOTES AND NEWS

DURING his visit to Mexico, Peru, Chile, Argentina and Uruguay from February to August, 1942, Dr. George D. Birkhoff, Perkins professor of mathematics at Harvard University, attended the inaugurations of the Observatories at Tonantzintla, Mexico, and Busque Allegre in Argentina, as delegate, and gave lectures on mathematical, physical and philosophical topics in a number of universities in these countries. He was incorporated formally as honorary member of the faculties of the National University of San Marcos at Lima and of the University of Chile, and received the degree of doctor, *honoris causa,* at the University of Buenos Aires. He was also made a corresponding member of the National Academy of the Mathematical, Physical and Exact Sciences at Buenos Aires, and was incorporated as honorary member of the Peruvian Philosophical Society, of the Scientific Union of Argentina and of the Mathematical Society of Argentina.

RALPH W. FREY, research chemist of the U. S. Department of Agriculture, has been given the W. K. Alsop Award by the American Leather Chemists As-

sociation for "outstanding research work advancing the art of the science of leather manufacture."

DR. B. H. WILLIER, professor of zoology and chairman of the Division of Biological Sciences at the University of Rochester, was elected president of the Society for the Study of Development and Growth at the recent meeting of the Society at North Truro, Mass.

PORTRAITS of Dr. William S. Carter, formerly professor of physiology and dean of the Medical School of the University of Texas, and of the late Dr. Harry O. Knight, formerly professor of anatomy, have been presented by the University of Texas Medical Alumni Association to the University of Texas Medical Branch at Galveston.

PROFESSOR HENRY EYRING, of Princeton University, will join the staff of the department of chemistry of the Polytechnic Institute of Brooklyn during the coming academic year as visiting professor of physical chemistry.

THE retirement is announced of Dr. Hugh A. McGuigan, since 1917 professor of pharmacology and therapeutics at the University of Illinois College of Medicine.

DR. DONALD SLAUGHTER, formerly associate professor of pharmacology of the College of Medicine of Baylor University, has been appointed professor of pharmacology and physiology and chairman of the department of the College of Medicine of the University of Vermont.

AT Iowa State College, Professor Joseph K. Walkup, of the University of Pittsburgh, has been appointed head of the department of general engineering, and Professor E. L. Barger, of the University of Arkansas, has been named professor of agricultural engineering. Professor Fred Beard, of the department of animal husbandry, has resigned to take a position in charge of the meat-grading service of the Agricultural Market Administration. Buford McClurg has been made research assistant professor. He will succeed Professor Beard as meat specialist at the college.

DR. ALBERT E. DIMOND, plant pathologist at the Connecticut Agricultural Station, has become assistant professor of botany at the University of Nebraska. Dr. Alfred John Wakeman, who for thirty years has been engaged in chemical research at the station, retired this summer.

DR. M. NOBLE BATES, instructor in histology and embryology at Cornell University, has been appointed associate in histology and embryology at the Jefferson Medical College, Philadelphia.

PROFESSOR MADISON BENTLEY has returned to Cornell University (Morrill Hall, Ithaca, N. Y.) as lecturer in psychology. Besides instruction and research, he will edit and publish *The American Journal of Psychology,* relieving Captain K. M. Dallenbach, who has entered active service in the Plans and Training Branch of the Adjutant General's office.

DR. LOUIS ROUND WILSON has retired after serving for ten years as dean of the Graduate Library School of the University of Chicago. Dr. Wilson, who is sixty-five years old, plans to return to the University of North Carolina, with which he was associated for thirty-one years before he went to Chicago. The Graduate Library School, established by a grant of the Carnegie Corporation and the only Graduate School in the library field, is largely due to the work of Dr. Wilson.

DR. HOMER L. DODGE, director of the new research institute and of the school of engineering physics and dean of the Graduate College of the University of Oklahoma, has leave of absence to permit him to assume on September 15 the directorship of the office of scientific personnel of the National Research Council. He succeeds Dr. J. C. Morris, who will return to his post as professor of physics at Tulane University to supervise a special electronics training program. The office of scientific personnel will continue to assist the army, navy and other war agencies in obtaining competent scientific staffs. It will continue to cooperate with the Selective Service Headquarters, the Office of Education and other agencies in the conservation, training and effective use of technical manpower in the war effort.

PROFESSOR WALTER MUMFORD, chairman of the department of forestry of the College of Agriculture of the University of California and forest economist of the Giannini Foundation, has been appointed first honorary adviser of the National Bureau of Forestry Research of the Republic of China.

WILLIAM H. BAYLIFF, formerly assistant professor of biology and later tutor at St. John's College, Annapolis, Md., has been appointed executive secretary to the Maryland Board of Natural Resources.

DR. T. C. RUCH, of Yale University, and Mrs. Judith Wallen Hunt, of the Bio-Medical Libraries, University of Chicago, have been added to the section editor group of *Biological Abstracts* as editors of the amalgamated Section of Biography, History and Bibliography.

DR. HAROLD L. HANSEN, of Northwestern University, consultant to the Federal Food and Drug Administration, the Federal Trade Commission, the Council on Pharmacy and Chemistry, and secretary of the Council on Dental Therapeutics and director of

the Bureau of Chemistry of the American Dental Association, has been appointed administrative assistant to the president of Winthrop Chemical Company, Inc.

DR. C. M. HARING, professor of veterinary science in the University of California College of Agriculture, has been appointed consultant to the War Manpower Commission.

COLIN CAMPBELL SANBORN, curator of mammals at Field Museum of Natural History, has been commissioned a lieutenant (senior grade) in the U. S. Navy, and Frank Boryca, assistant preparator in the department of botany, has enlisted in the U. S. Marines.

DR. ROBERT G. BERNREUTER, professor of psychology at the Pennsylvania State College, has been granted a leave of absence to accept a major's commission in the U. S. Army Specialists' Corps. He will act as field supervisor of thirty-five national army centers for specialist training of personnel men.

THE Committee of the British Privy Council for the Organization and Development of Agricultural Research has appointed Professor James Gray and Professor F. L. Engledow members of the Agricultural Research Council in succession to Sir Merrik Burrell and Professor D. M. S. Watson, whose terms of office as members of the council have expired.

G. E. FRIEND, medical officer to Christ's Hospital, Horsham, England, has become the honorary general secretary of the British Food Education Society.

THE annual symposium of the Division of Physical and Inorganic Chemistry of the American Chemical Society will be omitted this Christmas because of world conditions.

THE *News Letter* of the American Association of Scientific Workers states that a provisional program has been arranged by the symposium committee (Drs. Shapley, Elliott and Sandow). Four sessions are planned. The first is to take place on Tuesday afternoon, December 29. The subject is "Scientific Research in the War Effort." A meeting on "Scientific Cooperation Between the United Nations" is planned for the evening, with speakers from the various United Nations, perhaps with a wide radio hook-up. The first session of Wednesday, December 30, will deal with "Science in the War of Production" and the final session, in the afternoon, will be a joint session with the National Association of Science Writers on "Morale and Propaganda."

IN view of the scarcity of qualified persons to fill such positions, the Civil Service Commission has issued in revised form its continuously open examinations for technical assistants and junior physicists. For junior physicist ($2,000) the requirements are: completion of a 4-year college course including 18 semester hours in physics. Applications will be accepted from senior students who expect to complete the required courses within six months after filing applications. The technical assistant ($1,440–$1,800) examination contains three optional branches: engineering, metallurgy and physics. For the $1,800 grade, three years of college study is required; for the $1,600 grade, two years; and for the $1,440 grade, one year. Provision is made for the acceptance of technical assistant applications from those who have not completed the required three, two or one year of college study but who expect to complete the required courses within four months after filing applications. Appropriate war-training courses may be substituted for college hours required in any optional branch. There are no age limits for these examinations. No written tests are required. Applications will be accepted until the needs of the service have been met. Applications are not desired from persons engaged in war work unless a change of position would result in the utilization of higher skills possessed by the worker. Announcements and application forms may be obtained at any first- or second-class post office or from the Civil Service Commission, Washington, D. C.

THE *Journal* of the American Medical Association reports that Lankenau Hospital Cancer Research Institute will receive nearly $2,000,000 from the estate of Mrs. Anna C. Burr, who died on March 6. The bequest, which will be used for the study of cancer, will serve as a memorial to Mrs. Burr's husband, Edward H. Burr, who died in 1922.

"ALDERSEA," the Bar Harbor, Maine, summer residence of Miss Mary Robert Coles, who died on October 22, 1941, has been given by her heirs to the Roscoe B. Jackson Memorial Laboratory, the cancer research center at Bar Harbor. The buildings will provide office space for the staff and distinguished visiting investigators, part of the library, space for important experimental work and for scientific meetings.

THE sum of $3,908,310 was collected for the control of infantile paralysis during the national celebration of the President's birthday last January. The expenses of the committee were $207,889 or five per cent. of the amount raised. The *Journal* of the American Medical Association states that New York led the states with contributions of $663,646, California was second with $337,318, Pennsylvania third with $329,684, Illinois fourth with $202,352 and Ohio fifth with $202,236. Theaters raised $1,338,059. Half the proceeds goes to the National Foundation for Infantile Paralysis, whose share is used to sponsor clinical and laboratory research on the disease, provide epidemic aid, and conduct an educational program for both the general public and the medical profession.

The other fifty per cent. remains with the state and county chapters of the foundation, where it is used to provide direct medical assistance to infantile paralysis patients, regardless of age.

BY executive order of President Roosevelt, ten fish and wildlife preserves have been established in New York counties. The Department of the Interior will have jurisdiction over these areas and they will "be reserved as refuge and breeding grounds for native birds and other wildlife and for research relating to wildlife and associated forest resources." The land required for the sanctuaries will remain available to the State of New York for use and management by its conservation department, under the custody of the Fish and Wildlife Service of the Department of the Interior. The preserves in New York Counties include Schuyler and Tompkins, Chautauqua, Allegany, Allegany and Livingston, Ontario and Yates, Oswego, Jefferson and Madison, Delaware and Albany.

WILLIAM L. BATT, deputy chairman of the War Production Board and president of SKF Industries, Inc., of Philadelphia, made the address of welcome at the presentation of the Army-Navy Production Award (the Army-Navy "E") to the Leeds and Northrup Company on September 5. Admiral Henry A. Wiley, U. S. Navy retired, was the Navy's official spokesman and presented the "E" pennant. It was received by C. S. Redding, president of the company, and J. L. Johnson, president of the Employee's Association. Lieutenant Colonel Thomas H. Stilwell, Commanding Officer of the Eastern Pennsylvania District, was the Army's official representative at the ceremonies.

DISCUSSION

ANOMALIES OF COLOR VISION

THE article by Miss Murray on "Color Blindness and Borderline Cases" (SCIENCE, August 7, 1942), is an excellent exposé of the present confusion in regard to what is popularly called "color-blindness"; but in our opinion the revelation is not sufficiently comprehensive.

For twenty years we have been finding persons who fail on the chart tests (pseudoisochromatic tests), of Stilling, Ishihara, *et al.*; but who in all practical situations distinguish colors as well as do the persons called "normal" in color vision; and who have no difficulty with worsted tests and other practical tests. We have found others who pass the chart tests without difficulty, but who show serious defects of color vision in practical life and in real tests.

The reason for this apparent discrepancy is made apparent by the chart tests themselves. These tests usually include one or more charts which can be read by "color-blind" persons, but which can not be read by many who are considered as "normal." This is a paradoxical situation which should impress even a layman. The reading of the charts is assumed to depend on ability to distinguish the colors of which the numbers are made up from the colors of the background (the surrounding spots). Here, however, are charts which the person who is supposedly "normal" can not read, whereas a person who is presumably unable to distinguish the color reads them! The conclusion that the charts do not test color perception is inescapable.

Reading of the numbers in the charts requires that there shall be a difference in appearance between the numbers and the background. Obviously, the difference is not in hue. Actually, a difference in brightness is required; and if the numbers do not differ appreciably from the background in brightness, they can not be discerned. Even among persons classed as "normal," the relative brightness of colors of low saturation (low intensity of the chromatic factor) varies from individual to individual. In other words, some have a slightly higher threshold for certain colors than do others. Spots of small area (such as the spots composing the numbers in the charts), which appear to one person brighter or darker than the other spots composing the background may, to another person, be so little different in brightness that the numbers can not be read. On the other hand, spots which to the average person appear brighter than the background may appear to a really "color-blind" person darker than the background spots; and conversely, spots which to the average person appear darker than the background may appear to certain individuals darker than the background. In either case, the individual with abnormal color thresholds can read the charts easily, although he may be defective in practical color vision. It is obvious that in the charts the "normal" person can not read, the figures and background are nearly alike in brightness; whereas for the person (color-blind or not) who reads them, there is a brightness difference.

The facts above epitomized have long been known to psychologists, and have even been slowly percolating into elementary psychological texts. They have been ignored by promoters of chart tests and by those who have used them in routine work, because the chart tests can be applied rapidly by persons devoid of training in the psychology of color perception. The valid tests available up to the present time take time and