

mitted they had not taken their medication during a 40-day Rocky Mountain tour. The second failure showed a discrepancy of some 110 tablets, and upon careful questioning the couple admitted that during a drinking spree lasting 7 days neither member had followed the prescribed therapy.

Eighteen other patients in this group of 300 showed discrepancies varying up to 46 tablets in one individual—the male member of one couple. These omissions, however, were sporadic over a 90-day period, during which not more than 2 tablets had been omitted in any 24-hour period. The remaining tablets were accounted for by irregular omissions of not more than one 100-mg tablet from a total of 600 mg in a 24-hour period. Instructions were followed precisely by the remaining 280 cases, resulting in a 100 per cent check of all tallies.

The necessity of divided dosage over a 24-hour period has been mentioned. This was important to establish a blood saturation level, which remained fairly constant over a 24-hour period. Experience has proved that the drug is best administered with meals; where necessary, a fourth dose can be given at bedtime. The author's general rule was to prescribe four doses for the wife, and three doses for the husband during the 24-hour period. A constant observation in all couples taking this medication was the lack of rebellion against taking the medication in divided doses. Patients who have been opposed to taking pills all their lives seemed willing to take this factor. It is most important to impress upon the couples this distribution of dosage, as success depends upon the blood saturation.

This drug is an oral medication, physiological in action, which can be taken indefinitely without toxic effects or permanent inhibition of fertility. The medi-

cation must be taken for 10 consecutive days by both partners before antifertility action can be assured, and thereafter continuously by both partners at the prescribed daily divided dose. Fertility can be restored merely by omitting the drug for a 48-hour period. Should medication be omitted for 48 hours by either member of the couple, the 10 consecutive days of therapy must be repeated by both partners in order to re-establish fertility control. Following pregnancy, these 10 consecutive days of medication should not be started until after the first menstrual period postpartum. Phosphorylated hesperidin has been given clinically along with other substitution factors, such as vitamins, endocrines, amphetamine derivatives, and decholic acid derivatives without apparent interference in its action. As has been shown in both the text and tables, its antifertility action is not inhibited by trauma, infectious diseases, or systemic diseases. Again a word of warning must be expressed—it must be remembered that only one specific radical of this drug, phosphorylated hesperidin, has antifertility activity.

It must be realized that this preliminary report is presented for its experimental value only. Much more clinical data must be accumulated before the general use of this antifertility factor is warranted.

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News and Notes

Symposium on Phosphorus Metabolism, Part II

THE second Symposium on Phosphorus Metabolism, sponsored by the McCollum-Pratt Institute, was held at The Johns Hopkins University, Baltimore, June 16–19, 1952. Part I of this symposium was held a year ago, and this sequel provided an opportunity for discussion of those aspects not covered or only briefly treated in Part I.

The program started with a discussion of Phosphate Assimilation, with formal presentations by D. M. Greenberg, who covered the animal metabolic aspect, and by P. K. Stumpf, who dealt with plant metabolism. The second session considered the Role of Phosphate in Amino Acid and Protein Metabolism, and formal papers were presented on the following subjects: Enzymatic Synthesis of Glutathione, by

K. Bloch; Transpeptidation and Transamidation Reactions, by C. S. Hanes; Synthesis and Transfer of Labile Methyl Groups, by G. Cantoni; Genetic Control of Enzyme Formation, by D. Bonner; and Enzymatic Dephosphorylation of Phosphoproteins and the Nature of Phosphorus Linkages, by G. Perlmann. Session III, dealing with the Role of Phosphorus in the Metabolism of Lipids, consisted of papers on The Chemistry of Phospholipids, by J. Folch-Pi; Formation of Phospholipids in Animal Tissues, by C. Artom, and The Enzymatic Oxidation of Fatty Acids, by E. D. Kennedy. The Chemistry and Metabolism of Nucleic Acids, the topic for Session IV, included the follow presentations: The Products of Nucleic Acid Hydrolysis and their Relationship to its Structure, by E. Volkin; Newer Aspects of the Chemistry of Nucleic Acids, by S. Zamenhof; Metabolism of Nucleic Acids in Microorganisms, by J. O.

Lampen; Biosynthesis of Nucleic Acids, by G. B. Brown; and The Role of Desoxyribonucleates in Bacterial Transformation, by R. Hotchkiss. Session V, on The Role of Phosphate in the Metabolism of Photosynthetic and Chemoautotrophic Organisms, consisted of the following papers: Phosphorus Compounds in Photosynthesis, by M. Calvin; Reduction of Pyridine Nucleotides in Photosynthesis, by W. Vischniac; and Serendipic Aspects of Recent Nutritional Research in Bacterial Photosynthesis, by M. Kamen. Session VI, which was concerned with the Influence of Hormones on Phosphate Metabolism, included the following papers: The Effects of Epinephrine and the Hyperglycemic Factor on Liver and Muscle Metabolism *in vitro*, by E. Sutherland; Metabolic Effects of the Thyroid Hormone, by C. H. Du Toit; Function of the Parathyroid, by J. Aub; and The Effects of Adrenal Cortical and Pituitary Hormones, by C. R. Park. Phosphate Metabolism in Specialized Tissues, the subject of the final session, VII, was developed by papers on Pathways of Phosphate Metabolism in Cancer Tissue, by V. R. Potter; Skeletal Metabolism of Phosphorus, by W. Armstrong; Metabolic Aspects of Renal Tubular Transport, by J. V. Taggart; The Role of Phosphate in the Maintenance of Membrane Potential and Selective Ionic Accumulation in Muscle Cells, by G. Ling; and Spatial and Chemical Ex-

change of Phosphate in the Resting and Active Nervous System, by R. Tschirgi.

Sixty-five invited discussants, all of them active investigators in the different fields, offered critical comments on the papers that were, in general, spirited and pertinent. Although the main theme of the symposium necessitated broad coverage of the many different aspects of phosphorus metabolism, it served on the whole to emphasize the need to integrate and unify the many fundamental interrelationships in these areas of biochemistry. It can be confidently predicted that the volume containing the papers in this symposium will equal the high standards set by the first volume, and that the two will represent a most valuable comprehensive and critical review of the subject of phosphorus metabolism.

The committee in charge of the symposium is again to be congratulated, not only for arranging an excellent scientific program, but also for providing excellent facilities and accommodations. Although not a part of the official program, one of the interesting extracurricular events was the historical survey of the development of biochemistry and personal recollections by E. V. McCollum at the banquet.

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Scientists in the News

P. Allen, sedimentary petrologist and lecturer in the Department of Geology at Cambridge University, has been appointed to the chair of geology at the University of Reading, made vacant by the retirement of **H. L. Hawkins**, who has been at Reading since 1909.

Odin W. Anderson has been appointed director of research for Health Information Foundation, of New York. The foundation's research program includes studies on methods of payment for medical care, community self-surveys of health facilities and services, medical public relations, and child health. Dr. Anderson has been on the faculty of the University of Western Ontario as associate professor in the socioeconomic aspects of medicine.

William L. Batt, minister in charge of the ECA mission to the United Kingdom, and formerly president of SKF Industries, Inc., has been awarded the Howard Coonley Medal for distinguished service in the standardization movement, administered by the American Standards Association. Mr. Batt has been associated with SKF for 45 years and was its president, 1922-51.

William H. P. Blandy, president of Health Information Foundation, addressed the sixth general assembly of the World Medical Association in Athens, on "Information, the Key to Health."

J. Russell Bright, associate director of the Division

of Contract Services and professor of chemistry at Wayne University, has been appointed representative of his institution on the Council of Participating Institutions of Argonne National Laboratory. Wayne University was recently elected the thirty-second participating institution of the laboratory.

James E. Chapman retired July 1 from the New Mexico College of Agriculture and Mechanic Arts, where he was assistant professor of agronomy. **Merrill R. Pack** succeeds him. Mr. Chapman has located in Miamisburg, Ohio.

Gardner H. Chidester, chief of the Pulp and Paper Division, U. S. Forest Products Laboratory, has been assigned to work with the Forestry Division of FAO in Rome. Mr. Chidester will be on special assignment with the UN organization for three months. He has been asked to help FAO consider ways of meeting the worldwide need for pulp and paper, particularly newsprint.

Gregory S. Duboff, who has been director of research for the Emery Tumor Group, of Los Angeles, has been appointed director of the Bio-Physics Research Institute of the same city. The institute is being established as a conference of specialists for the application of highly specialized devices and newer methods of research in cancer.

V. C. A. Ferraro, until recently at University College, Exeter, has been appointed professor at Queen Mary College, University of London, to take the place of **G. C. McVittie**, who is now at the University

of Illinois. Professor Ferraro was appointed in 1947 to the newly created chair of applied mathematics in University College. In 1948 he spent some months on leave as a guest investigator at the Department of Terrestrial Magnetism of the Carnegie Institution of Washington and in the succeeding year he delivered a course of lectures on solar and cosmic magnetism at the Royal Observatory of Belgium. Dr. Ferraro is probably best known for his work in conjunction with S. Chapman on the theory of magnetic storms and the aurora.

Dorothy A. E. Garrod has resigned from the Disney professorship of archaeology in the University of Cambridge to carry on excavations in western France. Professor Garrod was appointed to the Disney chair in 1939, but spent much of the war period analyzing air photographs for the RAF. **Grahame Clark**, who succeeds her, is a graduate of the Cambridge "school" and is at present lecturer there. His interest in the Stone Age started while at Marlborough College, and for the past few years he has been conducting excavations at Star Carr, near Scarborough, which have revolutionized our knowledge of the Mesolithic settlement in northeastern England.

John Gurland, formerly with the Cowles Commission and the Committee on Statistics of the University of Chicago, has joined the staff of the Statistical Laboratory of Iowa State College. He will teach courses in statistics in the graduate college and engage in research and consulting.

Edwin L. Gustus, vice president in charge of the Chicago office of the Bjorksten Research Laboratories, is in Europe to review research programs and problems with several of the firm's European clients before returning to Chicago late in the year. His itinerary will include the major countries of Western Europe, as well as the Near East.

Marshall C. Harrington has been granted a year's leave of absence from his teaching duties at Drew University to accept an appointment under Unesco's program of technical assistance to underdeveloped nations. Dr. Harrington, who has headed Drew's Physics Department since 1931, will serve as professor of physics in the University College at Bagdad. In the Unesco assignment he will succeed one of his former students, **Albert V. Bacz**, professor of physics at the University of Redlands, in California.

Merritt L. Kastens has been appointed assistant to the director of Stanford Research Institute. With *Chemical and Engineering News*, and *Industrial & Engineering Chemistry* since 1946, Mr. Kastens was associate editor at the time of his resignation.

Thomas Lauritsen, Caltech associate professor of physics, has left for Denmark to lecture and conduct research in experimental physics at Niels Bohr's Institute for Theoretical Physics at the University of Copenhagen. The trip and lectureship are being made under a U. S. Educational Exchange grant awarded under provisions of the Fulbright Act.

Howard J. Lucas, professor of organic chemistry at the California Institute of Technology, has been named winner of the 1953 Scientific Apparatus Makers Award in Chemical Education. The award will be presented at the national American Chemical Society meeting in Los Angeles next March, at which time Dr. Lucas will address the Division of Chemical Education. The award was established in 1950 by the association "to recognize outstanding contributions to chemical education." For nearly 40 years Dr. Lucas has been in charge of the undergraduate course in organic chemistry at Caltech.

Samuel L. Meyer, professor and head of the Department of Botany at Florida State University, has been appointed executive director of the American Institute of Biological Sciences and executive secretary of the Division of Biology and Agriculture of the National Research Council. Dr. Meyer is on leave of absence from his post at the university.

John M. Miller, who retired last June as deputy director of the Naval Research Laboratory, has been named the recipient of the Institute of Radio Engineers' Medal of Honor for 1953, and the 1953 Morris Liebmann Memorial Prize, given annually by the institute for a recent important contribution to the radio art, went to **John A. Pierce**, senior research fellow at Harvard University. Mr. Pierce is known for his contributions to the development of the loran system of long-range radio navigation which was widely used by the armed services during World War II, and more recently for his conception of the radux system of long-range navigation now under development for the government. **Frank Gray**, research engineer of Bell Telephone Laboratories, Murray Hill, N. J., was awarded the Vladimir K. Zworykin Television Prize Award for 1953, given annually by the institute for an outstanding contribution to television. The presentation of awards will be made during the annual meeting in New York on Mar. 25.

Robert A. Patton has been appointed professor of psychology and chairman of the department at the University of Pittsburgh. He has been associated with the staff of the Psychology Department for more than ten years and has been a member of the research staff of the Western Psychiatric Institute and Clinic in the university's Medical Center. **Jack Matthews**, associate professor of psychology, has been named director of the division of psychological services. The appointments of Drs. Patton and Matthews follow the retirement from the psychology staff of **Carroll Whitmer**, who was head of the division of psychological services and who has been serving as acting head of the department. Dr. Whitmer has accepted a position as head psychologist of the new VA Hospital at Salt Lake City.

J. Donald Ryan has been appointed instructor in the Department of Geology at Lehigh University.

F. Sanger, of the University of Cambridge, will spend the month of November at Northwestern Uni-

versity as a visiting lecturer. In addition to a special lecture on the determination of the sequence of amino acids in insulin, he will deliver a series of talks on "The Chemistry of Proteins" as part of a graduate course in biochemistry.

Elmer L. Shaffer has been appointed director of laboratories of the New Jersey State Department of Health. Dr. Shaffer was formerly senior histologist in charge of the Bureau of Pathology of the State Department of Health.

James A. Shannon has been appointed associate director of the National Institutes of Health, U. S. Public Health Service, succeeding **Norman H. Topping**, whose appointment as vice president in charge of medical affairs at the University of Pennsylvania becomes effective Nov. 1. For the past three and one half years, Dr. Shannon has served as associate director of the National Heart Institute. In his new post, which carries the rank of assistant surgeon general, Dr. Shannon will coordinate the medical research program conducted in the laboratories of the seven institutes that comprise NIH. Before joining NHI in 1949, Dr. Shannon served for three years as director of the Squibb Institute for Medical Research.

P. A. Sweet, who has been at the University of Glasgow, has been appointed assistant director of the University of London Observatory at Mill Hill, the director of which is C. W. Allen. Dr. Sweet will be concerned with theoretical astronomy; his special interest has been in problems of cosmic magnetic fields.

William E. Taylor has been named research physicist in charge of the Phoenix Arizona Motorola Research Laboratory transistor and semiconductor research. Prior to his assignment to Motorola's Solid State Physics Research activity, Dr. Taylor was associated with the University of Tennessee, the Oak Ridge National Laboratory, and Purdue University.

Education

C. J. Gorter, professor of physics at the University of Leiden, recently gave a series of three special lectures at **California Institute of Technology**. In addition to discussing the history and the research program of the Kamerlingh Onnes Laboratory, of which he is director, Dr. Gorter spoke on "Paramagnetic Relaxation and Resonance" and "Aligning Atomic Nuclei."

Carnegie Institute of Technology has dedicated its new building for the Graduate School of Industrial Administration, which was founded in 1949 with a gift from the Mellon Foundation. Aim of the school is the training of young men for management positions; because of the teaching methods only a small number of students are admitted each year.

At the dedication of the new Life Sciences Building at **Colby College** in October, William K. Gregory, formerly of Columbia University and the American

Museum of Natural History, presented a series of five lectures on "Interacting Factors of Human Comprehension and Behavior."

New York University opened this month the Wallace Clark Center for International Management, established by a gift of Mrs. Clark. The center will include facilities for seminars and conferences and the management library containing foreign reports and records acquired by the late Mr. Clark.

Northwestern University Medical School is presenting a series of lectures on problems and phases of cancer and cancer treatment and progress to date on Wednesday evenings. The first lecture was given on Oct. 6 by Shields Warren. Other speakers will be Cornelius P. Rhoads, Raymond F. Kaiser, John J. Bittner, Wendell M. Stanley, Emil Novak, Van R. Potter, Granville A. Bennett, Edward D. Churchill, and Albert Tannenbaum.

Grants and Fellowships

The **American Association of University Women** offers 25 fellowships for advanced study or research during 1953-54, ranging from \$1500 to \$3000. Applications and supporting materials must reach the Secretary, Committee on Fellowship Awards, AAUW, 1634 I St., N.W., Washington 6, D. C., by *Dec. 15*.

The **American Cancer Society Clinical Fellowships and Traineeships** will continue through the next institutional year, July 1-June 30, with fellowship training beginning on July 1. The traineeships are opportunities for training for physicians at a level somewhat lower than the fellowships and carry stipends up to a maximum of \$3600, at which level the physician will be designated as a clinical fellow. Fellow- and traineeships will be made available primarily to teaching institutions approved by the AMA Council on Medical Education and Hospitals. Deadline for filing applications is *Nov. 10*; for complete information write to Brewster S. Miller, Professional Education Section, 47 Beaver St., New York 4.

The **Arctic Institute of North America** is offering research grants for scientific field investigations in North America or studies at one of the institute offices. Application forms, which must be completed by *Dec. 1*, may be obtained from the institute, 3485 University St., Montreal, Canada, or 1530 P St., N.W., Washington, D. C.

The **John Hay Whitney Foundation**, 30 Rockefeller Plaza, New York 20, will accept applications until *Dec. 15* for fellowships for graduate work in the humanities. Qualified teachers from Maine, New Hampshire, Vermont, Alabama, Arkansas, Florida, Louisiana, Mississippi, Illinois, Indiana, Iowa, Missouri, Idaho, Montana, Utah, and Wyoming will be selected to attend Columbia or Yale during 1953-54, with full salary, tuition, and transportation paid. Each teacher accepted as a John Hay Fellow is granted a year's leave by his employing school system and agrees to return following his university work.

Miscellaneous

Among those who will receive awards at the Medal Day ceremonies of The Franklin Institute (SCIENCE, 116, 315 [1952]) are Albert J. Williams, Jr., associate director of research with Leeds & Northrup Co., Philadelphia—a John Price Wetherill Medal for his invention of the Speedomax self-balancing recorder; Arthur M. Stoner, vice president in charge of engineering, of the Jacobs Manufacturing Co., West Hartford, Conn.—Certificate of Merit for his development of machine tool chucks; Edwin Loy Hall, director of the testing laboratories of the American Gas Association, Inc.—a Walton Clark Medal for his contributions and inventions in processes of gas manufacture; Edward C. Molina, of the Newark College of Engineering—an Elliott Cresson Medal for his contributions and inventions in the improvement of telephonic communications; Wolfgang Pauli, of the Physikal. Institut of the Eidgenössische Technische Hochschule, Zurich—the Franklin Medal for his work in atomic physics and specifically for his formulation of the exclusion principle.

Recent Deaths

Henry L. Alves (59), of San Francisco, chemist, Dunsmuir, Calif., Aug. 24; Roger W. Armstrong (72), civil engineer, Basking Ridge, N. J., Aug. 24; Jean E. Chalanqui Beuret (79), civil engineer, Buenos Aires, Aug. 20; Isaac Bildersee (65), of Brooklyn, educator, Star Lake, N. Y., Aug. 23; E. W. Bodine (46), plant pathologist, San Francisco, Aug. 11; Robert L. Bucher (57), chest specialist, Philadelphia, Sept. 14; Jeremias Cardenas (81), educator, Pelham, N. Y., Aug. 30; Jack W. Clark (37), of Ontario, Calif., geologist and mineralogist, Tananarive, Madagascar, Aug. 8; Charles A. E. Codman (83), of Philadelphia, physician, Camden, Me., Aug. 31; Melville T. Cook (83), plant pathologist, Washington, D. C., Aug. 11; Ann M. A. Ellis (38), of Clinton, N. Y., home economist, Utica, N. Y., Sept. 15.

Harry J. Fehr (66), of Philadelphia, eye, ear, nose, and throat specialist, Marlton, N. J., Sept. 15; Royal H. Fowler (69), surgeon, Glen Ridge, N. J., Aug. 31; Hugh J. Fraser (54), of Larchmont, N. Y., metallurgical and mining engineer, Montreal, Aug. 22; Augustin Frigon (64), director of planning and research, Canadian Broadcasting Corp., Ottawa, July 9; Mario C. Giannini (50), of New York, mechanical engineer, Winter Park, Fla., Aug. 24; Manfred L. Gorten (66), neurologist and psychiatrist, Newark, N. J., Aug. 31; Richard Gregory (88), physicist, meteorologist, astronomer, and editor, former president, British Association for the Advancement of Science, Middleton, Eng., Sept. 15; A. T. Hanritta (49), of Austin, Tex., psychiatrist, Boston, Aug. 23; Charles Hire (54), physicist, Bloomington, Ind., Sept. 9; B. Smith Hopkins, Sr. (79), chemist, Champaign, Ill., Aug. 27; Clarence M. Hyland (66), chemist, Apple Valley, Calif., Aug. 28.

Alfred Japha (81), pediatrician and tuberculosis specialist, Denver, Sept. 3; Otto K. Kaspercit (69),

optical engineer, Philadelphia, Sept. 18; Sherman L. Kelly (—), inventor and engineer, Toledo, Ohio, Aug. 21; Henry Ladner (51), electrical engineer, Boonton, N. J., Sept. 10; James L. Lake (91), physicist, Raleigh, N. C., Sept. 1; Robert K. Lamb (48), of Cambridge, economist, Boston, Aug. 25; William W. Leake (68), surgeon, Fond du Lac, Wis., Aug. 26; Max Lederer (67), pathologist, Brooklyn, Sept. 13; Moses D. Lederman (83), ear, nose, and throat specialist, New York, Sept. 7; Michael Levine (66), of Yonkers, N. Y., biologist and cytologist, New York, Aug. 26; David S. Likely (71), internist, New York, Sept. 11; Howard E. Lindeman (69), of New York, gynecologist and obstetrician, Montauk Point, N. Y., Sept. 10; James A. McDonnell (64), aeronautical engineer, New York, Sept. 16; William J. M. A. Maloney (69), of New York, neurologist, Edinburgh, Scotland, Sept. 3; Heyman R. Miller (64), heart specialist, Poundridge, N. Y., Aug. 23; Solomon Memat (36), of Long Beach, L. I., podiatrist, New York, Sept. 14; Ferdinand J. Neubauer (66), astronomer, Monterey, Calif., Sept. 16; Charles L. O'Neill (68), surgeon, Newark, N. J., Aug. 26; Leigh Page (68), of New Haven, Conn., mathematical physicist, Randolph, N. H., Sept. 14; E. Cooper Person, Jr. (42), surgeon, New York, Sept. 5; Albert Pike (76), engineer and topographer, Tarboro, N. C., Sept. 3; Joshua P. Pillsbury (78), horticulturist and landscape architect, Elm City, N. C., Sept. 4.

Milton H. Redish (40), gastroenterologist and internist, New York, Aug. 29; Erich H. Restin (59), of Fort Pierce, Fla., surgeon, New York, Sept. 14; Maurice G. Ricker (83), explorer, educator, and photographer, Washington, D. C., Sept. 9; Roy L. Robinson (70), vice president, British Commonwealth Forestry Conference, Ottawa, Sept. 5; Thomas K. Ross (77), dentist, Fitchburg, Mass., Sept. 13; Ole Salthe (65), nutritionist, New York, Sept. 10; Arthur J. Sandler (—), of New York, electrical engineer, Rio de Janeiro, Aug. 31; Emanuel B. Schoenbach (40), bacteriologist and immunologist, Brooklyn, Sept. 6; Robert C. Simpson (73), naval architect, Groton, Conn., Aug. 19; Harrison Smith (71), civil engineer, Greenwich, Conn., Aug. 21; Andres Gutierrez Solis (52), traumatologist, Caracas, Venezuela, Aug. 22; Alva B. Sowers (68), oculist and ear specialist, Evanston, Ill., Aug. 31; Eduard Strauss (76), biochemist, New York, Aug. 24; Freeman P. Stroup (83), of Philadelphia, pharmaceutical chemist, Oil City, Pa., July 19; Ernest K. Tanner (75), surgeon, Cortland, N. Y., Aug. 30; Franklin Thomas (67), civil engineer, Pasadena, Aug. 27; John E. Tress (59), electrical engineer, Lansdowne, Pa., Sept. 13; Adrian Van Muffling (65), of New York, aeronautical engineer, New Milford, Conn., Sept. 7; Ottomar H. Van Norden (74), industrialist, New York, Aug. 28; Gurth A. Whipple (76), forester, Salamanca, N. Y., Sept. 11; Harvey Whipple (—), former secretary-treasurer, American Concrete Institute, Northville, Mich., Sept. 6; William L. White (44), of Arlington, botanist, Concord, Mass., July 31; Frank N. Wilson (61), internist, Stockbridge, Mich., Sept. 11.