since informing others of the failure of an otherwise appealing method may prevent enough wasted effort to compensate the authors for their embarrassment. A case in point is the paper describing "A Variational Calculation of the Elastic Scattering of Electrons by Hydrogen Atoms," by Howard Boyet and Sidney Borowitz, which appeared in the March 15 *Physical Review*. The extension of the Schwinger variational method to three-body collisions was used, since "in principle this method has the advantage that cruder trial functions could be used." A Born trial field was employed in the calculations because it gave the proper result in the static-field formulation of the problem. The result: "The Born trial is one of the simplest that can be used analytically, and yet the integrals involved when it is used in our problem are very complex, and the results poor. This would seem to discourage the use of this method in problems such as these."

The relationship between Newton, an apple, and gravity is at least as firmly established as the relationship between Adam, the apple, and sin, if we are to believe a memoir by a contemporary of Newton quoted by E. C. Watson in the May issue of the *American Journal of Physics*. The relevant passage concerns a visit made by the author of the memoir, William Stukeley, on April 15, 1726: "After dinner, the weather being warm, we went into the garden and drank tea, under the shade of some appletrees, only he and myself. Amidst other discourse, he told me, he was just in the same situation, as when formerly, the notion of gravitation came into his mind. It was occasion'd by the fall of an apple, as he sat in a contemplative mood. Why should that apple always descend perpendicularly to the ground, thought he to himself. Why should it not go sideways or upwards, but constantly to the earths centre?. . . . This was the birth of those amazing discoverys, whereby he built philosophy on a solid foundation, to the astonishment of all Europe."

Established

The National Science Foundation has recently appointed an Advisory Panel for Radio Astronomy having the following membership: M. A. Tuve, Carnegie Institution of Washington, Washington, D. C., chairman; B. J. Bok, Harvard College Observatory, Cambridge, Massachusetts; J. L. Greenstein, California Institute of Technology, Pasadena, California; J. P. Hagen, Naval Research Laboratory, Washington, D. C.; J. D. Kraus, Ohio State University, Columbus, Ohio; R. Minkowski, Mt. Wilson and Palomar Observatories, Pasadena, California; E. M. Purcell, Harvard University, Cambridge, Massachusetts.

In Boston, Harvard Medical School and Peter Bent Brigham Hospital have announced the opening of the Biophysics Research Laboratory of the Department of Medicine at Peter Bent Brigham Hospital. The laboratory is engaged in the study of trace elements in biology and medicine and has as one of its major interests the study of spectrographic sources and receivers. Biophysical and biochemical approaches will be combined wherever possible. Training facilities are provided for pre- and post doctoral students in the natural sciences and medicine. The laboratory, which has been constructed over a period of three years, has a floor area of about 8000 square feet. It is staffed by Bert L. Vallee, and his associates Frederick L. Hoch, Marvin Margoshes, and Ralph E. Theirs.

Organizations

The National Academy of Sciences at its ninety-first annual meeting in Washington, D. C., elected a president, a foreign secretary, two members of the Council, thirty members, and three foreign associates. Detlev W. Bronk, president of the Rockefeller Institute for Medical Research, New York City, was reelected president for a four-year term, beginning July 1, 1954, and ending June 30, 1958. Dr. Bronk has served as president of the Academy since July 1, 1950. John G. Kirkwood, director of the Sterling Chemistry Laboratory, Yale University, was elected foreign secretary for a four-year term, beginning July 1, 1954 and ending June 30, 1958. Dr. Kirkwood succeeds Roger Adams, head of the department of chemistry and chemical engineering, University of Illinois. Other officers of the Academy, all of whom are members of the Council are: vice-president, George W. Corner; home secretary, Alexander Wetmore; treasurer, William J. Robbins. Farrington Daniels, department of chemistry, University of Wisconsin, and Merle A. Tuve, Department of Terrestrial Magnetism, Carnegie Institution of Washington, were elected to membership on the Council of the Academy to serve until June 30, 1957. Additional members of the Council are Hugh L. Dryden, Robert F. Loeb, William W. Rubey, Wendell M. Stanley, and Edwin B. Wilson. Newly elected members of the Academy include the following: Horace W. Babcock, Edgar C. Bain, John Bardeen, Wallace R. Brode, Britton Chance, Richard P. Feynman, James B. Fisk, George E. Kimball, Willis E. Lamb, William F. Meggers, Brian O'Brien, Wolfgang K. H. Panofsky, Ernest H. Vestine, and Albert E. Whitford.

The Cooperative Committee on the Teaching of Science and Mathematics of the American Association for the Advancement of Science elected, at its annual spring meeting in Chicago, John R. Mayor of the University of Wisconsin as chairman. Dr. Mayor, for several years the representative of the Mathematical Association of America on the committee, succeeds Morris Meister, principal of the Bronx High School of Science and representative of the National Science Teachers Association. Laurence L. Quill of Michigan State College, representing the Division of Chemical Education of the American Chemical Society, was elected to the newly created office of vice-chairman. Bernard B. Watson of the Operations Research Office of Johns Hopkins University, representing the American Association of Physics Teachers, was reelected secretary of

the committee. The American Institute of Physics is represented on the committee by J. W. Buchta of the National Science Foundation.

The Southeastern Section of the American Physical Society, at its Twentieth Meeting, held at the University of Tennessee in Knoxville April 1–3, elected the following officers for 1954–55: Chairman, W. M. Nielsen, Duke; Vice-chairman, M. S. McCay, Chattanooga; Secretary, Dixon Callihan, ORNL; Treasurer, Robert Lagemann, Vanderbilt; and Member, Executive Committee, R. C. Williamson, Florida.

Publications

The Directory of Commercial and College Laboratories, hitherto compiled and published by the National Bureau of Standards of the U. S. Department of Commerce, will be published in the future by the American Society for Testing Materials, according to a recent agreement between the two organizations. First published in 1927, the Directory has been periodically revised. It provides interested persons with information concerning the location of testing laboratories together with the types of commodities and the nature of the investigations the laboratories are prepared to undertake. Until the revised ASTM Directory is completed, the present Directory, NBS Miscellaneous Publication M187, published in 1947, will continue to be available from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Investigation of Electron Tube Reliability in Military Applications is the title of a 97-page report published by Aeronautical Radio, Inc., 1520 New Hampshire Ave., N.W., Washington 6, D. C., and available for $.50 from L. E. Davis of that organization. The subject of this study, which was sponsored by the Bureau of Ships, is of considerable importance, since it is estimated that from one-half to two-thirds of military equipment failures are due to faulty tubes. According to the report "an over-all 3-to-1 improvement in tube reliability could eventually cut maintenance costs by not less than a half-billion dollars a year, even if the improved tubes cost five times as much as the original types". Aeronautical Radio's investigation involved collecting defective tubes and controlled testing of several of the least reliable tube types. An evaluation of tube weaknesses and a discussion of factors contributing to the unreliability is incorporated in the report.

The Optical Industry Directory has as its purpose "to supply information concerning the sources of the materials, tools, components, finished instruments, design facilities, and services available to those interested in the Optical Industry and its products." The result is a compilation of American optical manufacturers, distributors, and designers, foreign optical manufacturers, optical industry personnel, and a classified products listing. The Directory is published by the Optical Publishing Company, Huntington, Long Island, New York, and sells for $5.00.

Summer Programs

Mechanical Properties of Metals is to be the topic of this summer's conference on the chemistry and physics of metals, held August 16–20 at New Hampton School in New Hampshire as part of the Gordon Research Conferences, AAAS. Purpose of the conferences is to stimulate research "by fostering a free and informal exchange of ideas between persons actively interested in the subjects under discussion". Further information can be obtained from W. George Parks, Colby Junior College, New London, New Hampshire.

Laboratory courses at Brooklyn Polytechnic this summer will cover: Progress in Polymerization and Copolymerization Techniques (June 28–July 2); Properties of Macromolecules in Solution, Including Polyelectrolytes and Other Water Soluble Polymers (July 12–July 16); and Industrial Applications of X-Ray Diffraction (August 23–September 3). The courses are intended "as an experimental program for teaching modern laboratory techniques to meet the growing demand by scientists, particularly industrial scientists, for advanced instruction in the use of specialized physical tools in chemistry and physics". Inquiries should be addressed to Mrs. Doris Cattell, Secretary, Summer Laboratory Courses, Polytechnic Institute of Brooklyn, 99 Livingston Street, Brooklyn 1, New York.

Grants for Research

Thirty-six unclassified physical research contracts have been awarded recently by the Atomic Energy Commission, of which six are new contracts and the rest renewals. The new contracts are with the University of Buffalo, applications of isotopes in chemical kinetics (G. M. Harris); Columbia University, helium in the atmosphere and lithosphere (J. L. Kulp); Bartol Research Foundation, neutron scattering measurements (C. E. Mandeville); Providence College, the nature of gaseous negative ions formed by electron impact (M. A. Fineman); Rutgers University, anionic complexes and polymers of oxy-acids of some of the transition elements (E. R. Allen); and University of Texas, effects of biological slimes on sea water (E. W. Steel).

A total of $30 000 in grants for the support of fundamental research in West Germany has been awarded by the Research Corporation as the start of a five-to-ten-year program of that magnitude. The financing of the program is to come from royalties collected in Germany on American patents on the manufacture of vitamin B_1 that were assigned to the Research Corporation by the developers of the process. Physics, chemistry, and biochemistry are the principal fields involved in the present eleven grants. Among the latter are: research concerning deviations from the thermic balance in the outer layer of the sun, P. ten Bruggencate; research concerning the velocity and mechanism of high-speed ionic reactions, M. Eigen; and luminous phenomena in active nitrogen, U. Stille.