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AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Thomas

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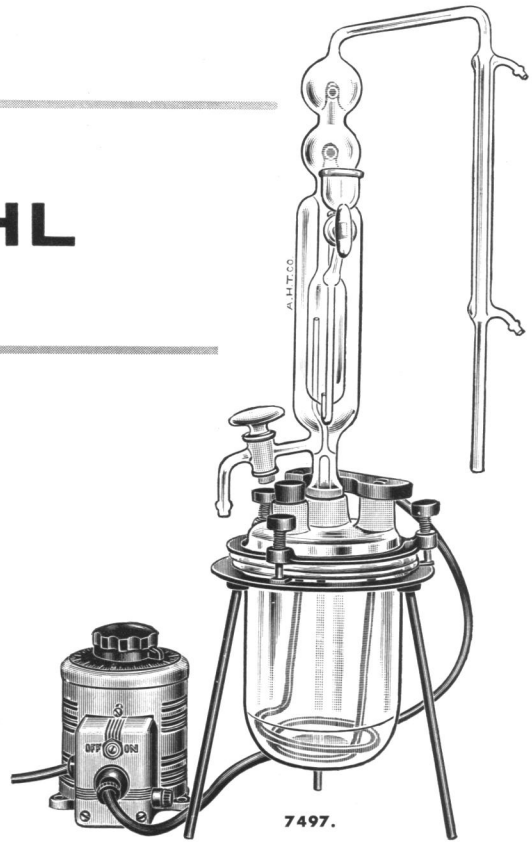

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Control knobs and switches are insulated by a transite panel from the rheostats mounted in ventilated rear compartments. Fume duct, 516 mm long × 51 mm outside diameter, has six openings 22 mm diameter and drains through 7/16-inch o.d. outlet. Fume duct is supported by two slotted aluminum clamps attached to wing-shaped brackets at rear corners of housing. Flexible arrangement of clamps permits easy adjustment for flasks or test tubes up to 12 inches long at any desired angle.

7498-E. Kjeldahl Digesting Apparatus, Micro, Thomas-Labconco, Electric, as above described, with six independently controlled 200-watt heaters. Complete with six heater tops for 30 or 100 ml Kjeldahl flasks, fume duct of Pyrex brand glass, two clamps with locking bolts to support duct, and 4 ft., 3-wire connecting cord with 2-prong attachment plug cap and grounding tail. For use on 115 volts, a.c. or d.c. Maximum power consumption 1200 watts..... **242.00**

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Program content

1. The two-session general symposium, "Moving Frontiers of Science III: The Structure of Science and Scientific Organizations Abroad," arranged by the Committee on AAAS Meetings.
2. The six sessions of the Conference on Scientific Communication Problems.
3. Programs of the 18 AAAS sections (symposia and contributed papers).
4. Programs of the more than 90 participating societies.
5. The Special Sessions: AAAS, Academy Conference, Conference on Scientific Manpower, National Geographic Society, Phi Beta Kappa, Sigma Xi, RESA.
6. Details of the Sheraton-Park Hotel—center of the Meeting—and of the other hotels and session sites.
7. Titles of the latest foreign and domestic scientific films to be shown in the AAAS Science Theatre.
8. Exhibitors in the 1958 Annual Exposition of Science and Industry and descriptions of their exhibits.

Directory content

1. AAAS officers, staff, committees for 1958.
2. Complete roll of AAAS presidents and their fields.
3. The 279 affiliated organizations.
4. Historical sketch and organization of the Association; the Constitution and Bylaws.
5. Publications of the Association.
6. AAAS Awards—including all past winners.
7. Membership figures by sections.
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Letters

International Language

Some inadequate and inaccurate information concerning Esperanto and Interlingua seems to have come to Mario Pei for inclusion in his book *One Language for the World and How to Achieve It.* Alexander Gode's review of the book in *Science* [**128**, 194 (1958)] adds a little more.

Pei gives considerable and generally favorable attention to Esperanto, but he is content with 1952 figures about it. He cites the absurd charge that early Esperanto congresses "frequently broke up in confusion, with schismatic movements arising from them," and remarks that "the difference between Esperanto and its many schismatic descendants may be described as trifling, but it is useless to deny that they weaken the movement for an international language by dispersing the energies of the interlinguists" (p. 164). He seems to hold Esperanto itself responsible for its would-be reformers and competitors.

This is not altogether fair. If the body of Esperantists had compromised with the individuals or groups seeking to modify the language and had accepted their changes, however "trifling," or had heeded the advice of bystanders that they "get together" with the advocates of unlike systems, Esperanto would have become as fluid as some of its competitors and would soon have perished. Its "lack of stability" would then have become an argument for proving any constructed language chimerical and futile. The Congress of International Associations, which in 1920 endorsed Esperanto as a world auxiliary language, had the wisdom to recommend that any improvement in it be deferred until it be adopted by the governments (p. 213). Of course the emergence of new linguistic systems weakened the Esperanto movement and lessened the impact of its actual demonstration of the practicability of the auxiliary language idea. The same thing is happening today, in the attempt to promote the inferior rival system Interlingua.

Apparently, Pei is quite interested in Interlingua, the only interlanguage produced by persons hired to do so. Its history, as he has it, is like a fairy tale: "Almost twenty years ago, a group of linguists, heavily financed by a very wealthy lady, undertook to construct an international language on a truly 'scientific' basis" (p. 171). The facts behind the fairy tale are as follows: Mrs. Alice Vanderbilt Morris became interested in Esperanto as a possible addition to her philanthropies. But the idea of forming an organization to sponsor impartial examination of the whole subject of interlanguage was presented to her at this time. Dropping the thought of Esperanto, Mrs. Morris (aided by her husband, Dave Hennen Morris) organized an International Auxiliary Language Association (IALA), which was incorporated in 1924 with an impressive board of directors. Its "Outline of Program" stated that its function was "merely to serve as a neutral clearing-house for study and information," with "no intention of developing or promoting any new language."

After about a decade, the IALA stopped sponsoring impartial research and undertook the creation of a language. It assembled a staff, three directors of research being successively employed, with some overlapping in different capacities at one time or another, some delay and part-time employment, especially in the war years, and some time out for preparation of a series of foreign-language textbooks. The first director was E. Clark Stillman, who left in 1942. The second was André Martinet, from 1946 to 1948. The third was Alexander Gode, already on the staff, who "assumed full direction of the work" in 1948 and was responsible for it thereafter (Interlingua dictionary, Storm Publishers, New York, 1951, pp. xiii–xiv).

The statement Pei imputes to Gode, describing Interlingua as "the product of the world's greatest linguistic minds over a period of nearly thirty years" (p. 238), must refer to these three men (Stillman, Martinet, Gode); and the "period of nearly thirty years" must mean the IALA's life span (1924–1953), regardless of the fact that during the first decade thereof the IALA was not producing a language and sponsored very few projects or studies having any bearing on language creation. The statement in the IALA circular *Practical World Language* that "work on the dictionary was begun at the University of Liverpool under Professor William E. Collinson," and the further inaccurate implication to the same effect in the foreword to the Interlingua dictionary (p. xiii) surprised a number of persons, including Collinson himself, an active supporter of Esperanto, whose commission executed for the IALA may have been the last it offered any scholar during its impartial research period.

The "scientific basis" claimed for Interlingua, as in the sentence quoted at the beginning of the foregoing paragraph, seems exaggerated. Fewer source languages than are represented in Esperanto were used in the compilation of Interlingua's vocabulary (actually only Italian, Spanish, Portuguese, French, and English—its Romance element only). The Interlingua dictionary mentions adoption of "principles," such as that words considered for acceptance must

(*Continued on page 1458*)

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ard, Pennsylvania State University; Rex Conyers, University City, Mo.; Elra M. Palmer, Baltimore Public Schools; and Annie Sue Brown, Board of Education, Atlanta, Ga.

Symposium: "Biology in the Classroom, Laboratory, and Field"; arranged by Paul Klinge; 27 Dec.; Irene Hollenbeck, Southern Oregon College, presiding. Papers by Marvin R. Bell, Indiana State Teachers College; Kenneth B. M. Crooks, Grambling College; William Howenstine, Cleveland Heights, Ohio; Margaret M. Murray, Chicago, Ill.; and Richard L. Weaver, University of Michigan.

Address: "Crucial Competition with Russia in Science Education," by Oscar Riddle, Plant City, Fla.; 28 Dec.; Irene Hollenbeck, presiding.

Symposium: "What Is Biology"; arranged by Paul Klinge, 28 Dec.; Irving C. Keene, Brookline, Mass., presiding. Papers by Chester A. Lawson, Michigan State University; Richard E. Paulson, National Science Foundation; and Audrey Pressler, Frederick, Md.

Symposium: "The Advanced Biology Course"; arranged by Paul Klinge; 29 Dec.; John Breukelman, State Teachers College, Emporia, Kansas, presiding. Papers by Phillip Fordyce, Oak Park, Ill.; Lula A. Miller, Washington, D.C.; and William S. Putnam, St. Louis, Mo.

American Nature Study Society. Three-session symposium: "Fifty Years Ahead"; 27 and 28 Dec.

Part I: "ANSS Looks Ahead in the Light of the First Half Century"; Stanley B. Mulaik, University of Utah, presiding. Papers by E. Laurence Palmer, Ithaca, N.Y.; Joseph J. Shomon, Commission of Game and Inland Fisheries, Richmond, Va.; John Brainerd, Nature Conservancy, Springfield, Mass.; Lester A. Giles, Jr., American Humane Education Society, Boston, Mass.; and Ira N. Gabrielson, Wildlife Management Institute, Washington, D.C.

Part II: "An Action Program for the ANSS during the Next Decade"; S. Glidden Baldwin, Danville, Ill., presiding. Papers by Rex Conyers, University City, Mo.; Verne N. Rockcastle, Cornell University; C. W. Mattison, U.S. Forest Service; and Anne Verne Fuller, Western Michigan University.

Part III: "Creating a Better Nature Study Teaching Environment to Improve Nature Interest in Schools: What Role Can the ANSS Play in the Next Decade?"; Emery L. Will, Oneonta, N.Y., presiding. Papers by Martha Munzer, Conservation Foundation; Edith Curry, La Mesa, Calif.; Roland C. Ross, Los Angeles State College; and Stanley B. Mulaik.

Symposium, jointly with the National Science Teachers Association: "Elementary Science"; arranged by Marjorie Campbell, Washington, D.C., Teachers College, and C. W. Mattison; 29 Dec.; Richard L. Weaver, University of Michigan, presiding. Papers by Robert Hines, U.S. Fish and Wildlife Service; Rudolph Wendlein, U.S. Forest Service; and John T. Gibbs and Irving Milgate, Conservation Foundation.

Annual banquet and address: "Searching for Flamingos on Four Continents," by Roger Tory Peterson, Old Lyme, Conn.; 29 Dec.; Richard Weaver presiding.

Science in General

American Association of Scientific Workers. Conference on the Participation of Women in Science, cosponsored by the American Woman's Association, the Business and Professional Women's Foundation, the National Council of Women of the United States, the National Federation of Business and Professional Women's Clubs (including the D.C. State Federation), and Sigma Delta Epsilon; arranged by Murray Vernon King, American Association of Scientific Workers; 29 Dec.; comprising addresses, discussion, panel workshops, and reports. Speakers and moderators: Elizabeth Wood, Bell Telephone Laboratories; Anne Steinmann, Hofstra College; and Dwight B. McNair Scott, University of Pennsylvania.

Conference on Scientific Communication. Symposium: "Communicating Science in Translations"; arranged by the

Society of Federal Translators; 29 Dec.; J. George Adashko (College of the City of New York), editor of *Soviet Physics*, presiding. Papers by Antoinette Pingell, U.S. Naval Research Laboratory; Lillian A. Hamrick, U.S. Department of Commerce; Philip H. Smith, Jr., Georgetown University; and Kay Kitagawa, Library of Congress.

"Communicating Science in Major Programs"; presented by Arnold Frutkin, Special Committee for the International Geophysical Year, National Academy of Sciences; 29 Dec.

Symposium: "Communicating Science in Three Dimensions"; 30 Dec.; Leonard Rennie, Design and Production, Inc., Alexandria, Va., presiding. Papers by Robert P. Multhauf and George S. Switzer, Smithsonian Institution, and by Axel Horn, New York, N.Y.

Symposium: "Communicating Science in Specialized Libraries"; arranged by the Washington, D.C., Chapter, Special Libraries Association; 30 Dec.; Verner W. Clapp, Council on Library Resources, Inc., presiding. Papers by Frank B. Rogers, National Library of Medicine; John Sherrod, Library of Congress; Burton W. Adkinson, National Science Foundation; and Foster E. Mohrhardt, U.S. Department of Agriculture Library.

Conference on Scientific Manpower. Two-session symposium, cosponsored by the Engineering Manpower Commission, Scientific Manpower Commission, National Research Council, National Science Foundation, and Section M (Engineering): "The Employment Situation for Scientists and Engineers in 1959"; 30 Dec.

Part I: Henry A. Barton, Scientific Manpower Commission, presiding. Papers by Henry H. Armsby, U.S. Office of Education; Frank S. Endicott, Northwestern University; Phil N. Scheid, Hughes Aircraft Company; Clarence H. Linder, General Electric Company; Robley Winfrey, Bureau of Public Roads, Washington, D.C.; and Ray C. Maul, National Education Association.

Part II: G. E. Arnold, Engineering Manpower Commission, presiding. Papers by N. J. Oganovic, U.S. Civil Service Commission; William H. Chartener, McGraw-Hill Publishing Company; and Irving H. Siegel, U.S. Council of Economic Advisors.

International Geophysical Year. Three-session symposium, joint program of the AAAS and the U.S. National Committee for IGY of the National Academy of Sciences–National Research Council, cosponsored by the American Geophysical Union: "International Geophysical Year Results"; arranged by a committee, Hugh Odishaw, National Academy of Sciences, chairman; 29 and 30 Dec.

Part I: "Arctic and Antarctic"; Hugh Odishaw presiding. Papers by Carl Eklund, U.S. Army Office of Research and Development; George A. Llano, National Academy of Sciences; Troy L. Péwé, University of Alaska; Irene M. Browne, Air Force Cambridge Research Center, Bedford, Mass.; and Kenneth Hunkens, Columbia University.

Part II, cosponsored by the American Astronautical Society and the American Rocket Society: "Rockets and Satellites"; Richard W. Porter, General Electric Company, presiding. Papers by John W. Townsend, Jr., National Aeronautics and Space Administration, and Herbert Friedman, Naval Research Laboratory.

Part III, cosponsored by the American Meteorological Society: "Meteorology, Oceanography, Glaciology"; Harry Wexler, U.S. Weather Bureau, presiding. Papers by Gordon D. Cartwright, U.S. Weather Bureau; F. C. Fuglister, Woods Hole Oceanographic Institution; John Antoine, Columbia University; Sidney Teweles, U.S. Weather Bureau; William W. Vickers, McGill University; and James Bender, U.S. Army Snow Ice and Permafrost Research Establishment.

Scientific Research Society of America. Annual address: "An Analogy: Individual Education and Industrial Research," by C. Guy Suits, General

Electric Company; 29 Dec.; George H. Boyd, presiding.

Sigma Delta Epsilon Graduate Women's Science Fraternity. Address: "The Status of American Women Scientists," by Ethaline Cortelyou, Illinois Institute of Technology; 30 Dec.; Mary Louise Robbins, George Washington University, presiding.

Society of the Sigma Xi. Annual address, jointly with the United Chapters of Phi Beta Kappa: "Science and Public Policy," by James R. Killian, Jr., science adviser to the President of the United States; 29 Dec.; Wallace R. Brode, U.S. Department of State, presiding.

Meetings

High-Energy Physics

The 1958 annual International Conference on High Energy Physics was held in Geneva, Switzerland, from 27 June to 5 July, under the sponsorship of CERN (Organisation Européenne pour la Recherche Nucléaire) and of the International Union of Pure and Applied Physics. The chairman of the conference was C. J. Bakker, director of CERN. This conference was the eighth of a series of annual conferences on high-energy physics, of which the first seven were held at the University of Rochester (United States). The more than 300 participants at the 1958 conference included about 100 Americans, 30 British 20 French, 20 Italians, 20 Russians, and an excellent representation from 25 other countries. A record was probably set in the number of Nobel laureates attending; Anderson, Blackett, Cockcroft, Heisenberg, Lawrence, Lee, McMillan, Pauli, Powell, Yang, and Yukawa were all present.

Various novel organizational procedures were tried at this conference, including two days of organizing sessions (to bring together the contributors and rapporteurs) and a thoroughgoing adoption of the rapporteur system during the plenary sessions. On the whole, these innovations were very successful, and a much more unified picture of the latest theoretical and experimental developments in the high-energy field emerged for most of the participants. The proceedings of the conference (under the editorship of B. Ferretti of CERN) have been published by CERN, Geneva.

There were nine plenary sessions at the 1958 conference, as follows: session 1, on "Nucleon structure" [I. E. Tamm (U.S.S.R.), chairman; W. K. H. Panofsky (Stanford), experimental rapporteur; and S. Drell (Stanford), theoretical rapporteur]; session 2, on the "Nucleon and its interaction with pions, photons, nucleons and antinucleons" [S. I. Nikitin (Dubna), chairman; G. Puppi (Bologna) and O. Piccioni (Berkeley), experimental rapporteurs]; session 3, on the "Nucleon and its interaction with pions, photons, nucleons and antinucleons" [R. E. Peierls (Birmingham), chairman, and G. F. Chew (Berkeley), theoretical rapporteur]; session 4, on "Fundamental theoretical ideas" [W. Pauli (Zurich), chairman]; session 5, on "Strange particle production" [C. C. Butler (London), chairman; J. Steinberger (Columbia), experimental rapporteur, and M. Gell-Mann (California Institute of Technology), theoretical rapporteur]; session 6, on "Strange particle interaction" [D. I. Blokhintsev (Dubna), chairman, M. F. Kaplon (Rochester), experimental rapporteur, and R. H. Dalitz (Chicago), theoretical rapporteur]; session 7, on "Special topics" [T. D. Lee (Columbia), chairman]; session 8, on "Weak interactions: Leptonic modes" [A. Salam (London), chairman, M. Goldhaber (Brookhaven), experimental rapporteur, and L. Michel (Lille), theoretical rapporteur]; session 9, on "Weak interactions: Other modes" [R. E. Marshak (Rochester), chairman, D. A. Glaser (Michigan), experimental rapporteur, and S. B. Treiman (Princeton), theoretical rapporteur]. Sessions 4 and 7 were "classical" theoretical sessions in the sense that original contributions were presented by quite a number of partici-

pants; these included W. Heisenberg (Gottingen), A. Bohr (Copenhagen), and S. B. Okun (Dubna). J. R. Oppenheimer (Institute for Advanced Study, Princeton) gave a summary talk at the end of session 9, assessing the accomplishments of the 1958 conference.

The 1958 high-energy physics conference labored under a handicap in that the three existing multi-Bev machines (the 10-Bev machine in the U.S.S.R. and the cosmotron and bevatron in the United States) had been inoperative for either part or all of the past year. Partly as a result of this, the 1958 conference turned out to be a conservative and reassuring one. There was no report of failure of a well-known conservation law, such as the report of parity breakdown, which highlighted the 1957 conference. There were no new particles reported, such as the hyperons and K mesons which had stolen the show at earlier conferences. Indeed, some of the conservation laws which had shown signs of running into trouble at the 1957 conference seem to be back in operation, and some new particles which had established some faint claims to existence have receded into the "unphysical" region.

Thus, new Berkeley experiments on the production of strange particles in pion-nucleon collisions, when combined with the earlier work of the Michigan group, do not indicate a violation of the law of conservation of isotopic spin (charge independence) (session 5). New Berkeley experiments on the absorption of K^- mesons by deuterons are also consistent with charge independence (session 6). Charge independence has been confirmed in pion-nucleon scattering up to 300 Mev, and in the production of pions in nucleon-nucleon collisions up to 660 Mev, at the Dubna Laboratory in the U.S.S.R. (session 2). Recent experiments at Liverpool and Rochester on pion-proton scattering below 100 Mev have helped to straighten out a contradiction with dispersion theory which Puppi and Stanghellini advanced last year (session 2). All attempts to detect parity nonconservation or violation of time-reversal invariance in strong interactions have been negative (session 7).

As far as new particles are concerned, evidence for the 500-electron-mass particle which Alikanyan had reported 2 years ago seems to be disappearing. Alikanyan had claimed that the frequency of the 500-mass particle in the cosmic radiation was about 1 in 200 muons. American and Italian work over the past year has placed an upper limit on the frequency of the 500-mass particle of 1 in 5000 muons (session 5). There also appears to be no evidence for a neutral (isotopic singlet) particle, which is desired by so many theorists (session 2). It is true that the first definite observation of an anti-Λ hyperon

(in nuclear emulsion exposed to the 4.9 Bev π^- beam at Berkeley), via the $p + \pi^+$ decay mode, was reported, but it would be surprising if $\bar{\Lambda}$ did not exist.

Some other reassuring results were reported to the conference. (i) Quantum electrodynamics holds down to a distance of 0.3×10^{-13} cm, according to the electron-scattering experiments at Stanford (session 1). (ii) New bubble-chamber experiments at Berkeley on the interaction of antiprotons with protons in the energy region from 133 to 333 Mev indicate that the elastic scattering and annihilation parts of the cross section are comparable; this eases the problem of achieving a theoretical understanding of the interaction in question (sessions 2 and 3). (iii) If care is exercised in the application of dispersion theory to various pion-nucleon processes, the renormalized coupling constant always comes out to be about 0.08 (session 3). (iv) The Cornell group has measured the excitation function as well as the angular distribution of the K^+ mesons photo-produced in hydrogen; the linear dependence on the momentum and the isotropic angular distribution probably imply a pseudoscalar K meson (session V).

The conference was conservative in its reaction to various new theoretical ideas which were presented. Thus, Heisenberg's attempt to develop a unified theory of elementary particles on the basis of a nonlinear equation for one spinor particle was subjected to a barrage of criticism. His commutation relations were considered to be too pathological; his indefinite metric was seen as leading, probably, to a violation of microcausality; his degenerate vacuum was thought to be in conflict with present-day field theory; and his use of the Tamm-Dancoff method for computing the masses of the particles was considered too crude. Pauli, who only 6 months ago had associated himself with Heisenberg's theory, turned out to be his most vehement critic. Despite the hostile reception accorded the specifics of Heisenberg's theory, it was generally agreed that his objective was very worth while.

A. Bohr's attempt to present a simple derivation of the dispersion relations on the basis of macroscopic causality also met with an unsympathetic response, particularly because of his failure to give adequate recognition to the nonphysical region in the finite-mass case. The most novel theory presented at the conference, and one which did not meet an immediately negative reception, was that of Okun, who sketched an attempt to deduce the existence of all the baryons and mesons from strong four-fermion interactions among the three baryons: neutron, proton, and Λ hyperon. He showed how certain conservation laws (for example, strangeness-conservation) can be deduced from certain conditions (such as chirality invariance) imposed on the

original four-fermion interaction. In a general way, Okun's program is similar to that of Heisenberg, except that Okun recognizes that it is probably necessary to start with a minimum of three spinor fields in order to deduce the wealth of conservation laws which seem to hold for the strong interactions.

Probably the greatest progress during the past year in elementary particle physics was registered in the domain of weak interactions (sessions 8 and 9). The last obstacle to the V-A (V, vector; A, axial vector) interaction in beta decay was overcome with a remeasurement of the electron-neutrino correlation from He^6 (by the Illinois group). All the other new beta-decay experiments definitely favor the V-A interaction, and the latest Russian measurement of the neutron lifetime fixes the ratio $A/V = -1.25 \pm .04$. The work at Chalk River and at Argonne National Laboratory on the neutron decay gives no evidence for time-reversal breakdown in weak interactions. It is thus established that the helicity of the neutrino is negative (left-handed neutrino) and that Landau's argument for the invariance of weak interactions under "combined inversion" is probably correct. The extension of the V-A theory to other weak interactions has met with a considerable amount of success, and, in particular, the parity breakdown involved in the decay of the Λ hyperon can be understood on the basis of this extension. These successes have given support to a universal V-A theory of weak interactions, first put forward by E. C. G. Sudarshan and R. E. Marshak (on the basis of the "chirality" invariance of the weak four-fermion interaction for each field separately) and, independently, by R. P. Feynman and M. Gell-Mann (on the basis of a two-component theory of the spin ½ particle). Many experiments still remain to be done, particularly in connection with the strange-particle decays, in order to decide whether a universal theory of weak interactions holds.

The time and place of the annual International Conference on High Energy Physics is now regulated by a Commission on High Energy Physics established in 1957 by the International Union of Pure and Applied Physics. Members of this commission [C. J. Bakker (chairman), R. E. Marshak (secretary), W. K. H. Panofsky, R. E. Peierls, I. E. Tamm, and V. Veksler] met in Geneva on 26 June and decided that the next three conferences will be held in Moscow, Rochester, and Geneva, in 1959, 1960, and 1961, respectively, in July of each year. This commission also decided that a biennial international conference on high-energy accelerators and instrumentation will be held in Geneva in 1959, at Brookhaven National Laboratory in 1961, and in Moscow in 1963. Finally, it was decided that, commencing 1 January 1959, a monthly newsletter on high-energy physics (containing abstracts of articles, calendar of meetings, items of general interest, and so on) would be published by CERN under the auspices of the International Union of Pure and Applied Physics.

R. E. MARSHAK
University of Rochester, Rochester, New York

International Conference on Epidemiology in Mental Disease

An international work-conference on problems in field studies in mental disorders will be held 16–19 February 1959 under the auspices of the American Psychopathological Association, financed by a grant from the National Institute of Mental Health. Meetings will be held at the Park Sheraton Hotel in New York.

The general purpose of this conference is to bring together a group of international authorities in this field to discuss definitions, assumptions, conceptual frameworks, and techniques of data collection and analysis used in working with problems related to the incidence, preva-

lence, and outcome of mental disorders. The first day's session will be devoted to problems of taxonomy, the second day's to problems of defining units of study, and the third day's to problems of comparability of field investigations; a summary session will be held on the final day.

Fifteen American and fifteen foreign participants have been invited. Among the foreign participants will be professors Jan Boök of Sweden, Erik-Essen–Möller of Sweden, Aubrey Lewis of England, J. E. Meyer of Germany, Ø. Ødegaard of Norway, Pierre Pichot of France, H. C. Rümke of the Netherlands, E. Stengel of England, Erik Strömgren of Denmark, E. E. Krapf of Switzerland, and D. Reid of England.

At the end of the work-conference, the annual meeting of the American Psychopathological Association will take place. The symposium for this year's meeting (20–21 February) will be on the epidemiology of mental disorders; and some of the findings of this work conference will be reported, including contributions by both foreign and American guests. Topics for the symposium will include current field studies in the mental disorders, current studies of the incidence and prevalence of hospitalized mental patients, current studies of the prognosis and outcome of therapy, and field studies in the etiology of mental disorders. Requests for further information should be addressed to Dr. Joseph Zubin, American Psychopathological Association, 722 W. 168 St., New York 32, N.Y.

International Planned Parenthood

The International Planned Parenthood Federation's sixth international conference will be opened in New Delhi, India, by Prime Minister Nehru on 14 February and will remain in session until 21 February. In addition, the President of India, Rajendra Prasad, will receive those attending the conference at a reception.

"Family Planning—Motivations and Methods" will be the theme of the conference, which will be held under the auspices of the FPA of India. Subjects to be discussed include population in an atomic age, cultural patterns and motivations, biological aspects of fertility control and evaluation of oral methods, laboratory and clinical testing, sterilization, and infertility problems and education for family life.

Visits will be arranged to Ludhiana where a 10-year population study is being conducted under the auspices of the Indian Government, and to the government institutes (demographic, family planning training, and contraceptive testing) in Bombay.

During the month of February cool,

bright weather is to be expected in Delhi. Visitors are advised to bring warm wraps or coats and medium weight clothing. Registration forms are now available and should be returned *not later than 31 December* to Conference Secretary, FPA India, 1 Metropolitan House, Dadabhai Naoroji Road, Bombay, 1. The official travel agents for the conference are Messrs. Trade Wings Ltd., 30/32 Rampart Row, Bombay, 1. All requests for hotel accommodations should be made through them, also not later than 31 December.

Forthcoming Events

December

26–31. American Assoc. for the Advancement of Science, annual, Washington, D.C. (R. L. Taylor, AAAS, 1515 Massachusetts Ave., NW, Washington 5, D.C.)

The following 47 meetings are being held in conjunction with the AAAS annual meeting.

AAAS Committee on the Social Aspects of Science (C. D. Leake, Ohio State Univ. College of Medicine, Columbus, Ohio). 27 Dec.

AAAS Cooperative Committee on the Teaching of Science and Mathematics (J. W. Buchta, Univ. of Minnesota, Minneapolis, Minn.). 28 Dec.

Academy Conf. (J. A. Yarbrough, Meredith College, Raleigh, N.C.). 27–28 Dec.

Alpha Epsilon Delta (M. L. Moore, 7 Brookside Circle, Bronxville, N.Y.). 27 Dec.

American Assoc. of Clinical Chemists (Miss E. G. Frame, Clinical Center, Natl. Institutes of Health, Bethesda 14, Md.). 29–30 Dec.

American Assoc. of Scientific Workers (R. J. Rutman, 6331 Ross St., Philadelphia 44, Pa.).

American Astronautical Soc. (R. Fleisig, 58 Kilburn Rd., Garden City, N.Y.). 27–30 Dec.

American Geophysical Union (W. E. Smith, AGU, 1515 Massachusetts Ave., NW, Washington 5).

American Meteorological Soc. (K. Spengler, 3 Joy St., Boston, Mass.).

American Nature Soc. (S. Mulaik, Biology Dept., Univ. of Utah, Salt Lake City). 26–30 Dec.

American Physiological Soc. (F. A. Hitchcock, Ohio State Univ., Columbus).

American Political Science Assoc. (E. M. Kirkpatrick, APSA, 1726 Massachusetts Ave., NW, Washington, D.C.). 27 Dec.

American Psychiatric Assoc. (L. J. West, Univ. of Oklahoma School of Medicine, Oklahoma City 4). 27–28 Dec.

American Soc. of Criminology (D. E. J. MacNamara, Dean, New York Inst. of Criminology, Inc., 40 E. 40 St., New York 16). 27–28 Dec.

American Soc. of Naturalists (J. Schultz, Inst. for Cancer Research, Philadelphia, Pa.).

American Soc. of Photogrammetry (R.

G. Ray, U.S. Geological Survey, Washington 25). 29 Dec.

American Soc. of Zoologists (G. Moment, Dept. of Biology, Goucher College, Towson, Baltimore 4, Md.). 27–29 Dec.

American Sociological Soc. (K. Davis, Inst. of International Studies, Univ. of California, Berkeley 4). 29 Dec.

American Statistical Assoc. (E. Glazer, 305 George Mason Dr., Falls Church, Va.). 30 Dec.

Association of American Geographers, Middle Atlantic Div. (J. E. Guernsey, 9707 Parkwood Dr., Bethesda, Md.). 29 Dec.

Association for Computing Machinery (J. Douglas, Mathematics Dept., Rice Inst., Houston, Tex.).

Astronomical League (Miss G. C. Scholz, 410 Mason Hall Apts., Alexandria, Va.). 26 Dec.

Biometric Soc. (J. Cornfield, Johns Hopkins Univ., Baltimore, Md.). 30 Dec.

Conference on Scientific Communication Problems (G. L. Seielstad, Applied Physics Lab., Johns Hopkins Univ., Silver Spring, Md.) 28–30 Dec.

Conference on Scientific Manpower (T. J. Mills, National Science Foundation, Washington 25). 30 Dec.

Ecological Soc. of America (D. E. Davis, Johns Hopkins Univ., School of Hygiene, Baltimore, Md.).

History of Science Soc. (M. C. Leikind, 1334 Aspen St., NW, Washington 12). 29 Dec.

Instrument Soc. of America (O. L. Linebrink, Battelle Memorial Inst., Columbus, Ohio). 30 Dec.

International Geophysical Year (H. Odishaw, National Acad. of Sciences, Washington 25). 29–30 Dec.

Junior Scientists Assembly (K. C. Johnson, Supervising Director of Science, District of Columbia Public Schools, Woodrow Wilson High School, Washington 16). 27–28 Dec.

Metric Assoc. (J. T. Johnson, 694 W. 11 St., Claremont, Calif.).

National Acad. of Economics and Political Science (D. P. Ray, Hall of Government, George Washington Univ., Washington, D.C.). 27 Dec.

National Assoc. of Biology Teachers (P. Klinge, Jordan Bldg., Indiana Univ., Bloomington). 26–30 Dec.

National Assoc. for Research in Science Teaching (E. S. Obourn, U.S. Office of Education, Washington 25). 26–30 Dec.

National Assoc. of Science Writers (J. Billard, U.S. News and World Report, Washington, D.C.).

National Geographic Soc. (W. R. Gray, NGS, 16 and M Sts., NW, Washington 6). 30 Dec.

National Science Teachers Assoc. (W. A. Kilgore, District of Columbia Teachers College, Washington 9). 26–30 Dec.

National Speleological Soc. (W. E. Davies, 125 Greenway Blvd., Falls Church, Va.). 28–29 Dec.

Philosophy of Science Assoc. (C. W. Churchman, Case Inst. of Technology, Cleveland, Ohio).

Pi Gamma Mu (Mrs. Effie B. Urqhart, Winfield, Kan.).

Scientific Research Soc. of America (D. B. Prentice, 56 Hillhouse Ave., New Haven 11, Conn.).

Sigma Delta Epsilon (Mrs. V. L. Blackford, 2630 Adams Mill Rd., NW, Washington 10). 26–30 Dec.

Society for General Systems Research (R. L. Meier, Mental Health Research Inst., Univ. of Michigan, Ann Arbor). 29 Dec.

Society for Industrial Microbiology, Washington section (W. N. Ezekiel, Bur. of Mines, Washington 25). 27–28 Dec.

Society of the Sigma Xi (T. T. Holme, 56 Hillhouse Ave., New Haven 11, Conn.). 29 Dec.

Society of Systematic Zoology (G. W. Wharton, Dept. of Zoology, Univ. of Maryland, College Park). 26–30 Dec.

United Chapters of Phi Beta Kappa (C. Billman, 1811 Q St., NW, Washington, D.C.). 27 Dec.

Washington Acad. of Sciences (G. W. Irving, ARS, U.S. Dept. of Agriculture, Washington 25).

27–29. American Economic Assoc., Chicago, Ill. (J. W. Bell, AEA, Northwestern Univ., Evanston, Ill.)

27–29. Econometric Soc., Chicago, Ill. (R. Ruggles, Box 1264 Yale Station, Yale Univ., New Haven, Conn.)

27–30. American Folklore Soc., New York, N.Y. (MacE. Leach, AFS, Univ. of Pennsylvania, Philadelphia, Pa.)

28–30. Archaeological Inst. of America, Cincinnati, Ohio. (L. A. Campbell, AIA, Dept. of Classics, Brooklyn College, Brooklyn, N.Y.)

29–30. National Council of Teachers of Mathematics, New York, N.Y. (M. H. Ahrendt, NCTM, 1201 16 St., NW, Washington 6.)

28–30. Western Soc. of Naturalists, Seattle, Wash. (J. P. Harville, San Jose State College, San Jose 14.)

January

6. Society for Applied Spectroscopy, New York, N.Y. (P. Lublin, Sylvania Research Laboratories, Bayside, N.Y.)

7–9. Northeastern Weed Control Conf., 13th annual, New York, N.Y. (E. R. Marshall, Carbide & Carbon Chemical Co., New York, N.Y.)

12–14. Reliability and Quality Control, 5th natl. symp., Philadelphia, Pa. (W. T. Sumerlin, Philco Corp., 4700 Wissahickon Ave., Philadelphia 44.)

20–22. American Mathematical Soc., annual winter, Philadelphia, Pa. (E. G. Begle, Leet Oliver Hall, Yale Univ., New Haven, Conn.)

21–22. American Group Psychotherapy Assoc., 3rd annual institute, New York, N.Y. (C. Beukenkamp, Public Relations Chairman, 993 Park Ave., New York 28.)

22–23. Mathematical Assoc. of America, 42nd annual, Philadelphia, Pa. (H. M. Gehman, MAA, Univ. of Buffalo, Buffalo 14, N.Y.)

23–24. American Group Psychotherapy Assoc., 16th annual conf., New York, N.Y. (C. Beukenkamp, Public Relations Chairman, 993 Park Ave., New York 28.)

24–29. American Acad. of Orthopedic Surgeons, Chicago, Ill. (C. L. Compere, 720 N. Michigan Ave., Chicago Ill.)

26–29. American Meteorological Soc., New York, N.Y. (K. C. Spengler, AMS, 3 Joy St., Boston 8, Mass.)

26–29. American Soc. of Heating and Air Conditioning Engineers, 65th annual, Philadelphia, Pa. (W. M. Vidulich, ASHACE, 62 Worth St., New York 13.)

26–29. Institute of the Aeronautical Sciences, 27th annual, New York, N.Y. (IAS, 2 E. 64 St., New York 21.)

27–30. Society of Plastics Engineers, Inc., 15th annual tech. conf., New York, N.Y. (L. A. Bernhard, SPE, 65 Prospect St., Stamford, Conn.)

28–29. Nuclear Fuel Elements, 1st intern. symp., New York, N.Y. (H. H. Hausner, 1st Intern. Symp. on Nuclear Fuel Elements, 730 Fifth Ave., New York 19.)

28–31. American Physical Soc., annual, New York, N.Y. (E. R. Fitzgerald, Dept. of Physics, Pennsylvania State Univ., University Park.)

29–31. Western Soc. for Clinical Research, 12th annual, Carmel-by-the-Sea, Calif. (W. N. Valentine, Office of the Secretary, Univ. of California Medical Center, Department of Medicine, Los Angeles 24.)

February

1–6. American Inst. of Electrical Engineers, winter general, New York N.Y. (N. S. Hibshman, 33 W. 39 St., New York 18.)

6–7. American College of Radiology, Chicago, Ill. (W. C. Stronach, 20 N. Wacker Dr., Chicago 6.)

9–11. American Acad. of Allergy, Chicago, Ill. (B. Rose, Royal Victoria Hospital, Montreal, P.Q., Canada.)

9–11. Nature of Coal, symp., Bihar, India. (Director, Central Fuel Research Inst., P. O. Fuel Research Inst., Dhanbad District, Bihar.)

11–13. American Acad. of Occupational Medicine, Boston, Mass. (L. Blaney, 1608 Walnut St., Philadelphia, Pa.)

12–13. Solid State Circuits Conf., Philadelphia, Pa. (A. B. Stern, General Electric Co., Bldg. 3, Syracuse, N.Y.)

14. Short Range Navigation Aids., Montreal, Canada. (Intern. Civil Aviation Organization, Maison de l'Aviation Internationale, Montreal.)

15–19. American Inst. of Mining, Metallurgical, and Petroleum Engineers, annual, San Francisco, Calif. (E. O. Kirkendall, AIME, 29 W. 39 St., New York 18.)

16–19. Problems in Field Studies in Mental Disorders, intern. work conf., New York, N.Y. (J. Zubin, American Psychopathological Assoc., 722 W. 168 St., New York 32.)

20–21. Epidemiology in Mental Disorders, annual meeting of the American Psychopathological Assoc., New York, N.Y. (J. Zubin, APA, 722 W. 168 St., New York 32.)

25–26. Midwest Industrial Radioisotopes Conf., Manhattan, Kan. (J. Kitchens, Dept. of Continuing Education, Kansas State College, Manhattan.)

26–28. Genetics and Cancer, 13th annual symp. on fundamental cancer research, Houston, Tex. (Editorial Office, Univ. of Texas, M. D. Anderson Hospital and Tumor Inst. Texas Medical Center, Houston 25.)

(See issue of 21 November for comprehensive list)

Equipment

The information reported here is obtained from manufacturers and from other sources considered to be reliable. Science *does not assume responsibility for the accuracy of the information. A coupon for use in making inquiries concerning the items listed appears on page 1470.*

■ ACCELEROMETER of piezoelectric type may be fed directly to read-out devices such as oscilloscopes or vacuum-tube voltmeters with input impedance of 1 to 10 megohm. Up to 1000 ft of cable will still provide an output greater than 1 mv/*g*. Response is constant from 2 cy to 10 kcy/sec. Sensitivity is 5 mv/*g*. Useful temperature range is −300° to +200°F. (Endevco Corp., Dept. 499)

■ THERMISTOR KIT includes 12 representative thermistors in the form of probes, beads, rods, discs, and washers. Data for each transistor include resistance values at various temperatures, maximum safe continuous temperature, maximum current for no self-heating, peak voltage, maximum safe continuous current, dissipation constant, and time constant. (Fenwal Electronics, Inc., Dept. 503)

■ CRUCIBLES for metal melting are described in 16-page catalog. Information on physical and chemical characteristics, recommended uses, and availability is presented. Included are crucibles of fused alumina, oxide-bonded silicon carbide, nitride-bonded silicon carbide, recrystallized silicon carbide, fused magnesia, fused zirconia, thoria, and urania. (Norton Co., Dept. 504)

■ SUBMICRON FILTER is designed to remove particulate matter from distilled or demineralized water. Particles as small as 0.45 μ are removed. The filter medium is a cellulose ester membrane. Standard units are constructed of bronze lined with pure block tin. The filter can also be supplied with Teflon or Kel-F interior coating. Rate of flow is 25 to 100 gal/hr. (Barnstead Still and Sterilizer Co., Dept. 505)

■ HEMATOCRIT CENTRIFUGE accommodates two alternative heads, one holding 36 tubes, the other holding eight hematocrit tubes and eight 75 by 1.75 mm tubes. Speeds up to 12,000 rev/min are obtainable. Stopping time is 1½ min. (Labline Inc., Dept. 506)

■ RUBBER-STRETCHING APPARATUS is used to determine deterioration caused by ozone on constantly flexing rubber. Up to 12 samples can be individually mounted, stretched 25 percent and returned to the original unstretched state at 30 cy/min. Minimum stretch length is 2.0 in. The instrument operates on 110 to 115 v a-c. (Mast Development Co., Inc., Dept. 512)

■ LENGTH-MEASURING DEVICE for rapidly moving objects operates by sensing the leading edge by means of a photocell. The signal from this photocell triggers indication of the members of a bank of photocells that have been passed by the trailing edge. Photocells in the bank are spaced on 1/32-in centers. Indication is provided by pilot lamps, one for each photocell. Accuracy is said to be ± 0.003 in. (Eldorado Electronics, Dept. 508)

■ SURFACE ILLUMINATOR ACCESSORY for use with a contour projector permits projection by reflected light in cases where silhouette projection is not feasible. The device uses a standard 500-watt projection bulb and adjustable mirrors that permit use of the unit for magnifications from 10 to 100. No alteration of the manufacturer's microprojector is necessary for use of the accessory. (George Scherr Co., Dept. 510)

■ MICROHARDNESS TESTER is available in 1- or 2-kg loads penetrating as little as 0.002 and 0.004 mm, respectively. The diamond indenter is loaded by a hydraulic method. A direct reading of numbers from 100 to 1000, corresponding to the diamond pyramid hardness method, is obtained within 15 sec. (Newage Industries Inc., Dept. 498)

■ CONSTANT-TEMPERATURE BATH for oxygen and carbon-dioxide tension tests on blood subjects blood specimens to a temperature of 37.5° ± 0.2°C. Specimens are contained in glass pipettes mounted on a rotating cone by means of spring clamps. Six pipettes are accommodated at one time. Bath temperature range extends from a few degrees above room temperature to 90°C. (American Instrument Co., Dept. 520)

■ PRINTING INTEGRATOR for chromatographic-chart peak area measurement provides printed numerals on standard adding-machine tape at a rate of 6000 count/min. To determine the relative concentration of components, the integral printed at the beginning of a peak is subtracted from the integral printed at the beginning of the next peak. Integration is accomplished by controlling the speed of a servomotor-tachometer combination according to the signal on the potentiometer recorder on which the peaks are being recorded. The number of shaft turns is counted by a printing counter. The integrator tape travels at the same rate as the chart paper so that tape and chart records may be compared side by side. (Perkin-Elmer Corp., Dept. 511)

■ COLOR-DIFFERENCE METER displays the results of color-matching measurements on the face of a cathode-ray oscilloscope. Two blips are excited on the screen of

the instrument. One blip indicates lightness difference by displacement along the *y*-axis. The other blip represents hue by the resultant of motions along both axes. When the instrument is used, a standard is inserted and its representative signals are entered into a memory. When the standard is replaced with a specimen, a computer circuit compares the signals to those in the standard memory, and the resultant signals are fed to the deflection coils of the display tube. The instrument may also be used as a conventional color-difference meter. (Gardner Laboratory, Inc., Dept. 516)

■ LOW-TORQUE BEARING consists of a ball-bearing assembly in which an electromagnetic device oscillates the outer ring of the bearing, thus tending to cancel static friction torque. A typical bearing of 0.1875-in. bore is said to show starting torque equal to running torque with both less than 25 dy-cm. (Barden Corporation, Dept. 513)

■ PHOTOELECTRIC TRANSDUCER features up to 50 outputs per linear inch. The assembly consists of closely spaced cadmium-sulfide elements, each with an individual lead and a common ground. Resistance of the elements changes from 10 megohm to 100 kohm upon exposure to light. (Waldorf Instrument Co., Dept. 515)

■ ULTRAVIOLET IRRADIATOR exposes biological fluids to controlled amounts of ultraviolet radiation. The equipment is essentially a centrifuge with a polished stainless-steel bowl slightly tapered outward toward its upper edge. Length of the bowl is 15 in. Material is fed into the bottom of the rotating bowl at controlled rate. As the material climbs up the wall, the liquid film is exposed to radiation from mercury lamps suspended in the center of the bowl. Lamps are calibrated against a standard light source supplied with the equipment. Lamp operating temperature is maintained within ±0.5°C. All parts that come in contact with the material can be removed for sterilization. Provision is made for use of neutral atmospheres. (Spinco Division, Beckman Instruments, Inc., Dept. 521)

■ HOOK GAGE consists of two large water columns mounted on a common standard, individual hooks, and standard depth micrometers for the precise measurement of water column levels. Accuracy of pressure measurement of ± 0.001 in. water is obtainable over the full instrument range. Ranges available are 12 and 24 in. (F. W. Dwyer Mfg. Co., Dept. 514)

■ TRIOCULAR MICROSCOPE adds a monocular tube for camera attachment to a binocular microscope. Design of the instrument allows 80 percent of the source illumination to be directed into the camera tube. Observation is continuous even during photographic exposure. The microscope body can be rotated over a full 360 deg for orientation of the specimen in relation to picture frame and may be locked in any position. (Bausch & Lomb Optical Co., Dept. 517)

■ BALANCE for high-speed analytical weighing that does not require precision of 1 part in 1000 is available in three models with capacities of 50, 100, and 200 g and corresponding sensitivities of 0.5, 1.0 and 2 mg. Fractional weights are added or removed by turning a knob. The weight added is indicated on a 250-mm scale graduated from 0 to 1000 mg in 5-mg subdivisions. (Arthur S. LaPine & Co., Dept. 523)

■ FLOW INDICATOR shows at a glance whether flow is taking place in circulating or cooling lines. Capacities are 0.72 to 120 gal/min, pipe sizes ½ to 3 in. Flow is indicated by spin of a chromium-plated ring under a toughened-glass dome. (McIntosh Equipment Corp., Dept. 524)

JOSHUA STERN
National Bureau of Standards

(*Continued from page 1388*)

have representation in at least three of those languages; but evidently the principles were relaxed on occasion, and they were ignored for two kinds of words accepted. One consists of numerous "unassimilated guest words, that is, foreign or borrowed words" (Interlingua grammar, Storm Publishers, New York, 1951, section 9). The other consists of "a very liberal supply of grammatical words" (section 134), namely, "all such forms" found in "several older auxiliary-language systems" (Interlingua dictionary, p. xlix). These systems were doubtless those whose authors had "placed their manuscripts at the disposal of IALA" (Interlingua dictionary, p. xv). Very little is said about Interlingua's grammar, which is mainly that of French without gender and with its individual peculiarities claimed to be removed, with further minor "streamlining" favoring Italian and Spanish—but with irregularities and uncertainties of its own.

The most vital defect of Interlingua is that it cannot be spoken. This is admitted indirectly in the frequent assertion that it can be read with the greatest of ease. In 1951 the above-mentioned IALA circular conceded that "In the early stages of the new language most of its use is likely to be written." The following circuitous words, six years later, seem to admit clearly that its use still has been only written: "For the first time in human history, an international language has been fashioned that can be read at sight by all who can read any Western European language. . . . it [Interlingua] can be considered a sort of basic, average language (primarily for reading), common to most of the reading world. . . . Interlingua can be read without study or preparation by German, French, Italian, Anglo-Saxon, and South American people, as well as by Japanese, Russian, and other people who have been exposed to occidental linguistic patterns" ("Babel resolved," *Science* **126**, 55 [1957], editorial by Watson Davis, editor of *Science News Letter*, to whose staff the IALA transferred Gode when it disbanded in 1953). There has not yet been demonstration, report, or claim that anyone can speak Interlingua.

The further unsupported claims quoted in Pei's book that Interlingua is particularly suitable for scientific and technical writing (for which Esperanto is already widely used, in both books and periodicals, including one journal entirely in Esperanto), and also that it is "the" language of scientific congresses because anyone who is "scientifically trained" can read it "with ease" (p. 238), and even that it "is meant primarily for written use at scientific congresses" (p. 171). It impugns the good sense of scientists to propose that they use at congresses a language for reading only, as in

programs, digests of headphone translations, and "compilation of papers which may be read silently and at leisure" (p. 44). A main purpose of assembly is oral communication and discussion. For such use, Esperanto has proved completely adequate in both its own annual international congresses and in technical and scientific ones.

IVY KELLERMAN REED
315 Westbourne Street,
La Jolla, California

My review of Pei's book did not discuss the comparative merits of Interlingua and Esperanto, for the simple reason that this problem has no bearing on Pei's primary objective. Pei presented a program of "how to achieve one language for the world," leading up to it by (i) a survey of the "linguistic state of the world" and (ii) a summary of past and present interlingual or supralingual events and endeavors. I expressed my doubts regarding the practicability of Pei's program and my unqualified admiration for his preparatory outlines. I supplied no information, inaccurate or accurate, on either Esperanto or Interlingua, but simply reported my impression that of all the available auxiliary-language projects of the "planned or guided" variety, Pei seems to take seriously only Esperanto and Interlingua. This is still my impression; and it is still my impression that "Esperanto emerges," in Pei's book, "as a dream which the faithful believe will come true," while "Interlingua appears as a tool effective today in the specialized applications for which it was designed."

It is obvious that in handling a maze of data of the kind that went into Pei's book, no one—not even a master of organization of Pei's caliber—can avoid every last error of fact or interpretation. I hold that such matters may be given room in a concise review only if they are characteristic of the work reviewed or if they seriously impair its usefulness. Otherwise, I believe, minor inaccuracies had better be drawn to the author's attention privately, for correction in a possible later edition. A point of this kind is Pei's remark (p. 164) that schismatic movements often caused Esperanto congresses to break up in confusion. It has been suggested to Pei that it might be wise to rephrase this passage to avoid all implications of a causal link between congresses and schisms.

I have, on the whole, no comment on Reed's outline of the history of Interlingua. Its peculiar tenor results from Reed's mistaken notion that Interlingua is a "rival system" of Esperanto. It isn't. Esperanto was designed as an autonomous medium, enabling those who have studied it to communicate with one another. To increase its effectiveness, the numbers of its adepts must be increased.

This results in a proselytizing effort which is distasteful to many and looks hopeless to many more. Interlingua attempts to speak in such a way that the most diverse forms of "linguistic sophistication"—as imparted by the most diverse educational systems now in operation—supply an adequate basis for its comprehension. It functions without requiring that its beneficiaries have studied it or can speak and write it.

Reed quotes, disapprovingly, Pei's "quotation" that Interlingua is "the product of the world's greatest linguistic minds over a period of nearly thirty years." She does not claim that I made that statement. She merely says that Pei "imputes" it to me, and goes on to interpret that whoever made it must have meant to refer to Stillman, Martinet, and Gode. Something is a little off here. Actually, no one was referred to, and no one made that statement. Pei dramatized his idea that a world congress should adopt a universal language, outlining in some detail how such a congress might work. For this purpose, he invented some partisan speeches which are amusing to read because they reflect the fun their author had concocting them. It is in one of these that Pei has the spokesman for Interlingua (under my name) claim flamboyantly the endorsement of the world's greatest linguistic minds. There is also some soapbox oratory in support of Esperanto. It never occurred to me, nor, I am sure, to Pei, that anyone could ever try to base a serious argument on these delightful bits of tongue-in-cheek fiction.

ALEXANDER GODE
Science Service, New York

Acknowledgments in Scientific Papers

It seems worth while to bring up a few of the ethical problems which arise in the widely followed practice of making acknowledgments to various persons in scientific papers.

There can, of course, be no quarrel with the specific mention of the source of a culture, of a specimen of known compound, of an intermediate for a synthesis, or of specific analytical data on these preparations, cultures, and so on. Such acknowledgments are essential to the ability of the reader to evaluate the paper, or seek an equivalent starting material, or attempt to repeat and extend the work.

The problem arises chiefly with respect to the general type of acknowledgment of the style, "The authors wish to thank Professor ———, Dr. ———, and Professor ——— for their helpful criticisms, interesting comments, fruitful discussions . . ." and the like.

In my opinion, it not infrequently happens that the individual to whom such thanks are made would prefer not to have his name mentioned in the paper. Frequently his advice was not followed; many times he may object to the conclusions or may not be happy with the data. Often his comments were made casually in discussion, without reference to a specific paper, and he may have no recollection of them. He opens his mail one day to find the latest issue of the journal with the paper in print and with himself as the recipient of the unwanted and unsolicited thanks. He had not been asked or he might well have refused.

Within the past month I requested two individuals who were good enough to send me their manuscripts to delete my name from among such thanks at the end of the manuscripts. In one case my advice, based on about 20 hours of studying the paper and discussing it with the author, was not followed, and I do not believe that the data presented established the validity of the proposed method. In the other case, my contribution was negligible, and the manuscript was sent to me privately for my opinion with a thank-you note already included at the end of the paper. Both manuscripts had been sent to the journal prior to my having seen them. Other persons, however, have not given me the opportunity of not being thanked!

There is little doubt that the judicious use of such acknowledgments to well-known workers in the field consciously or subconsciously influences referees in the evaluation of the paper. In one instance of which I have firsthand knowledge, a paper refereed was rejected by one journal. The author submitted it to another journal but inserted an acknowledgment to a very prominent worker in the field. After the paper appeared, the person who had refereed it for the second journal asked me for my opinion and, on learning that I did not feel the paper was worth publishing, said that he had refereed it. Really, he said, he didn't know much about the field, but after all, if Professor ——— was given an acknowledgment, the paper must be all right, so naturally he had accepted it. It so happened that Professor ——— had not seen the paper, had not been asked about having his name mentioned, and told me that "he would not have published the paper" on the basis of the data.

Is it too much to expect editors of journals to request that manuscripts containing such acknowledgments be accompanied by a letter from the individual thanked indicating that he has read the paper and has no objection?

ELVIN A. KABAT
Columbia University, New York

Electroconvection

The paper of Dobry and Finn (*1*) describes a method for the electrophoretic separation of ionic mixtures which has some similarities to that of Philpot (*2*). It should be a valuable addition to the present list of protein separation methods.

However, the comments of Dobry and Finn on the method of electroconvection are apparently based on a misunderstanding of this method. The fact is that thermal convection currents have no significant effect in the method of electroconvection, since the density gradients established by electrophoretic migration are far greater than those resulting from thermal differences.

The electroconvection apparatus of improved design described by Raymond (*3*) can in fact be operated at room temperature with no particular necessity for controlling temperature differences within the solution or within the buffer compartments. The heat produced in this apparatus has also been discussed (*4*). It is true that only one component at a time can be separated by electroconvection, but the actual working time for any given separation is very small. On the other hand, experience with apparatus whose operation depends on a constant and continuous flow of solution