press run of an issue of a publication to present the same editorial material in one way to one group of subscribers, in another way to a comparable group. Then we send out our Research Department interviewers to collect information on the readership of the issues on each side of the split. They tell us whether one version of the varied material gets more attention than the other. By varying the presentation of as many as six articles or departments in a single issue and by supplementing field interviews by mail surveys and by preference studies, in which we ask readers to choose between the two versions of the same material reprinted side-by-side, we check this experimentation from every angle.

We also devise specialized types of research to serve narrower purposes: to test our magazines against their competitors; to explore the potentialities of a projected new publication, or the value of expanding an existing one into a new field or of splitting an existing magazine; for example, *Product Engineering* was born for design engineers from *American Machinist,* our metalworking publication.

I have had to draw on my own experience for illustrations in support of a plea for the application of science to publishing. It would take more space than is available to record the pioneer work along the same lines for which some other publishers—notably in the general magazine field—should be given the credit. Reciting the full history of our own false starts and trials and errors, which leaves me with a feeling that we are only just beginning to make research pay off, would also take too much space, but the job that can be done is ahead of all of us.

If it is true that the eye-camera, the one-way mirror, split-run experiments, the use of specialized techniques to determine reader-preferences, reader-traffic surveying, and informed application of functional logic to editorial presentation are establishing scientifically verifiable facts about how readers react to content, how articles should be structured, illustration handled, and display editing used to the best advantage, what does this mean to the editor?

It means that editing is acquiring that body of learning which marks a true profession. It means that, however much our sources of information or our contributors may know about *their* subject matter which *we* edit, we stand to know much more than they do about when, where, and above all how it should be presented to the reader. It means that, if we can establish our right to their respect for this superior professional knowledge, we must demand that respect or sacrifice our integrity.

Conversely, it means that, in the face of the evidence, the expert in any subject matter with which we deal in our publications need not feel that he is sacrificing some integrity by an admission that he can be even drastically rewritten, or have his illustrations reworked, or his approach changed, or his headings reworded. It is my hope that science, in our hands, can bring him willingly, even eagerly, to such a conclusion, to the greater service of greater numbers of readers who need his help and ours.

News and Notes

Science News

Organizations throughout the nation are celebrating the **100th anniversary of the founding of the profession of entomology in the United States.** In 1854, the first two entomologists ever employed in this country were appointed, one by the Federal Government and one by New York State: Towend Glover was assigned to the U.S. Patent Office where he studied insects that attack orange trees and cotton; and Asa Fitch, employed by New York State, focused his attention on its local insect problems. From these small beginnings, the profession has grown until there are now 4500 men and women engaged in the science of insect control in the United States.

Atomic particles passing near to an **atom's nucleus** set up undulations over the nucleus surface; similarly, the moon regulates tides on the earth. Clyde McClelland and Hans Mark, working under Clark Goodman, associate professor of physics at Massachusetts Institute of Technology, have discovered that the waves on the nucleus surface take the shape of bulges that travel around the nucleus at definite speeds. The research group has found that tungsten nuclei absorb little energy when accelerated through 1 megavolt in an electrostatic generator; the energy absorbed appeared as pure rotational energy. The investigation is being sponsored by the Office of Naval Research and the Atomic Energy Commission.

High manufacturing costs in the publishing field make it increasingly difficult to place manuscripts likely to have a limited sale. Big commercial houses are more and more unwilling to risk financial loss and university presses, which were once the recourse of the scholar, find it necessary to ask for large subventions and guarantees. The **International Scholars Forum,** sponsors of a series of books by American scholars, has been organized in the belief that many first-rate manuscripts are circulating in vain search for a publisher. Publishing costs are much lower on the European continent than in this country; but unfortunately, American authors do not know much about European publishers, and these publishers, for their part, find it difficult to evaluate the American manuscripts submitted to them. The Advisory Board of the International Scholars Forum has therefore entered into an agreement with Martinus Nijhoff of

The Hague to receive manuscripts, appraise them, and make recommendations regarding publication.

An American publisher requires an initial edition of 2000 or more copies, whereas Mr. Nijhoff is prepared to publish an edition of as few as 500 copies. Authors who, on a realistic assessment of their sales potential, conclude that it will be limited chiefly to libraries and to other scholars in the field, should therefore consider the possibility of submitting their manuscripts for publication in the Forum. For further information apply to the Librarian of the Honnold Library, Claremont, Calif.

The following comments on the Atomic Energy Commission's suspension of **J. Robert Oppenheimer** appear in a news story prepared by Watson Davis, director of Science Service:

> The tragicomedy being enacted justifies the fears that many atomic scientists had in 1946. With the war emergency over presumably, they rushed back to the unsupervised and unrestricted quiet of colleges and laboratories. Some cut loose completely. Others returned to the AEC's atomic research only when the H-bomb major push began in 1950, but with reluctance and a high sense of national duty. The scientists did not relish the heavy and sometimes quite unintelligent hand of the military. They sensed the danger of liberals being red-baited.
>
> Dr. Oppenheimer could have had, but did not wish, major responsibility in the continuing atomic energy program after the war. He did serve in advisory capacities, from a sense of public service. The essentially political attacks being made upon him now are sorry thanks for his service to the nation.
>
> The attack upon Oppenheimer will not make the staffing of the atomic energy program any easier. If the atomic program for defense and industry is to continue successfully, there must be continuous research of the sort that Oppenheimer did. The innovators and the pioneers will not desire the risk of personal attack upon the basis of unevaluated FBI files.

Scientists in the News

J. W. Buchta of the University of Minnesota has been appointed executive secretary of the Advisory Committee on Government-University Relationships, at the National Science Foundation. Prof. Buchta will be on leave from his post in Minnesota as professor of physics and associate dean of the College of Science, Literature, and the Arts.

Bernard D. Davis, who is in charge of the U.S. Public Health Service Tuberculosis Research Laboratory located in the Department of Public Health at Cornell University Medical College, has been appointed professor and chairman of the Department of Pharmacology at the College of Medicine of New York University—Bellevue Medical Center. The appointment will become effective on July 1 when the present chairman of the department, **Severo Ochoa,** assumes chairmanship of the Department of Chemistry.

John C. Eberhart, chief of the Research Grants and Fellowships Branch of the National Institute of Mental Health, has resigned to accept appointment as executive associate with The Commonwealth Fund in New York City. **Philip Sapir** has been appointed acting chief of the Branch.

Joseph T. Flakne, recently appointed director of programming of The Arctic Institute of North America, has been selected to coordinate research activities in the Arctic Research Laboratory at Point Barrow, Alaska—the northernmost U.S. settlement in North America. As a result of negotiations with the Office of Naval Research, the Arctic Institute has assumed responsibility for the conduct of the scientific program in Point Barrow. Basic research relating to problems affecting northern engineering, communication, public health, and other fields will be carried on under the guidance of an Institute committee composed of 11 experts. It is expected that special emphasis will be placed within the province of the physical sciences, such as permafrost studies; investigations in the oceanographic field, including tidal movement and ocean currents; and hydrobiological studies. The Arctic Research Laboratory is the only station in U.S territory where fundamental research relating to the northern environment can be conducted on a continuous basis in a variety of sciences.

George Gamow, who is on leave from George Washington University, has been appointed visiting professor of physics at the University of California, Berkeley. During the current semester he is teaching two graduate courses, one on "Relativity and cosmology" and the other on the "Evolution of the stars."

Isidor Greenwald, who retired from the New York University medical faculty on Aug. 31, 1952 after more than 20 yr of service, has been appointed professor emeritus of chemistry of the College of Medicine of the N.Y.U.—Bellevue Medical Center. He is known for his challenge of the hypothesis that endemic goiter is due to a lack of iodine in the diet in any given geographic area. Since his retirement Dr. Greenwald has continued with his research on goiter.

Lauren B. Hitchcock, New York chemical engineering consultant, has been appointed president and managing director of the Southern California Air Pollution Foundation, Los Angeles. Eighty industrial and business executives organized the independent, nonprofit Foundation last fall to support and foster research or other means to solve the smog problem. The Foundation will function through a small group of specialists who will formulate the problems involved and encourage research projects.

The American Institute of Nutrition made the following awards at its annual dinner on Apr. 14:

The Borden Award in Nutrition of $1000 and a gold medal was presented jointly to **Agnes F. Morgan** of the

University of California, Berkeley, and **Arthur H. Smith** of Wayne University, for their important investigations on the effect of heat on the nutritive value of milk proteins and for their many other contributions during the past 30 yr concerning the nutritive significance of other components of milk and milk products.

The $1000 Osborne and Mendel Award was given to **Leonard A. Maynard** of Cornell University for his fundamental investigations on biochemical and nutritional aspects of lipid metabolism and of lactation and for his many contributions as a teacher, administrator, and public servant in the field of nutrition.

In March, **A. G. Newhall** of the Department of Plant Pathology, Cornell University, arrived at the Agricultural College of the University of the Philippines, Los Banos, where he will spend a year teaching and conducting research. He has replaced **G. C. Kent,** who has been in Los Banos for the past 18 mo. Dr. Kent will resume his duties as head of Cornell's Department of Plant Pathology in June after visiting several European universities during his return trip. Dr. Newhall and Dr. Kent are participating in a cooperative project of the Agricultural College of the University of the Philippines and Cornell University sponsored by the U. S. Foreign Operations Administration. The purpose of the undertaking is to assist in the rehabilitation of the Agricultural College.

Ralph G. Pearson, associate professor of chemistry at Northwestern University, and **I. M. Kolthoff** of the Department of Chemistry, University of Minnesota, are being sent to England by the National Science Foundation to participate in the Faraday Society discussions on "Rapid reactions."

At the Sixth International Congress on Leprosy in Madrid last fall, **H. W. Wade,** associate medical director of the Leonard Wood Memorial (American Leprosy Foundation) was elected to the Academica Nacional de Medicina and was also elected president of the International Leprosy Association for the third time.

Education

Although approved medical schools are now accepting their largest freshman classes—totaling almost 7500 students—the number of **applicants for admission to medical schools** has decreased for the fourth consecutive year, according to an article by John M. Stalnaker in the April issue of *The Journal for Medical Education.* The freshman class of 1953–54 had some 2085 fewer applicants than the previous year's class, and almost 10,000 fewer individuals are making application now than did in 1949–50 when the GI bill was in full force.

As Mr. Stalnaker points out, however, there are still more individuals seeking admission to medical schools than can be accepted, but many of them are not qualified for the long hard grind of medical school. The average applicant applies to several schools. Figures show that 23 percent of this year's applicants had sought admission to medical school the year before and were repeating, while the comparable figures for the preceding year was 31 percent. Thus not only are there fewer students applying, but fewer students are willing to continue to apply after having once failed to gain an acceptance. Forty percent of the reapplicants are accepted, compared with 57 percent of the first-timers. Averages on the Medical College Admission Test were slightly lower for the group applying for the second time.

Mr. Stalnaker noted that some schools had a wealth of good applicants; the competition for them is heavy, for such students usually applied to several schools and all are anxious to get them. The medical schools that limit their applications to state residents in many instances had to scrape the bottom of the barrel to secure a freshman class. Of the states supplying 100 or more applicants to medical school, New York had the lowest proportion of acceptances and Iowa the highest.

The Department of Psychology, University of Chicago, announces two 5-day **workshop seminars in the Rorschach Test,** July 6–10 and July 12–16. They will be conducted by S. J Beck. Workshop I, *Basic processes,* will provide a grounding in fundamentals. The procedure in obtaining the test record will be discussed. Representative responses will be illustrated and their scoring clarified, with especial reference to their interrelations in shaping the whole personality structure.

Workshop II, *Advanced clinical interpretation,* will consider the ego, anxiety, and the individual's psychological reserves as treatment potential. The cases will illustrate "schizogenic" conditions in children, and some milder disorders in children and adults; they will exemplify anxiety of "central" (inner) source, as well as of peripheral stimulation. In exploring for reserves, both structure and content will be scrutinized.

Workshop I may be attended by students at, or ready for, the interne level. Admission to Workshop II is limited to psychologists and psychiatrists in clinical positions or practice. Each seminar will consist of two sessions, each day, 2 hr per session. For information write to the Executive Secretary, Department of Psychology, University of Chicago, Chicago 37, Ill.

Grants and Fellowships

The following **AAAS research grants** have been awarded:

American Academy of Arts and Sciences to R. R. Gates, Peabody Museum, Harvard University. Race crossing in man and mutation and frequency of crossing in Oenothera.

Indiana Academy of Science to J. E. Potzger, Dept. of Botany, Butler University. Pollen research in Quebec.

Tennessee Academy of Science to Frank H. Barclay, East Tennessee State College. The vegetation of Johnson County, Tenn., with special reference to the bogs.

Tennessee Academy of Science to Richard Stevenson, **East**

Tennessee State College. Altitudinal distribution of Drosophila on Unaki Mountain, Tennessee-North Carolina, with special reference to an anomalous sex ratio in D. Affinis.

Northwest Scientific Association to John A. Broussard, Everett Junior College. Research in the human relations files at Univ. of Washington.

The **Damon Runyon Memorial Fund** made the following research grants during March:

Columbia University. D. V. Habif, College of Physicians and Surgeons. Combination chemotherapy of cancer, $15,000.

Columbia University. R. Lattes, College of Physicians and Surgeons. Cytochemical study of nucleic acid and protein synthesis in cultured cells, with reference to the effects thereon of certain antimetabolites, $3500.

Utah State Agricultural College. E. J. Gardner. Genetic and cutological analysis of tumorous head in Drosophila Melanogaster, $2300.

University of Chicago. L. T. Coggeshall. Biological studies of cancer patients who are treated endocrinologically; and topical application of short-lived radioisotopes to inoperable cancer, $20,000.

Duke University. J. W. Beard. Properties of avian leukosis virus, $10,000.

Meetings and Elections

The **Alabama Academy of Science** has elected the following officers: pres., William T. Wilks, Troy State Teachers College; pres.-elect., Ralph Chermock, University of Alabama; sec., Herbert McCullough, Howard College; treas., Lock White, Jr., Southern Research Institute. Patrick H. Yancey, S. J., is the representative to the AAAS Council.

The dates of the **Annual Colloquium of College Physicists** at the University of Iowa are June 16–19. As is traditional with the Colloquium, there will be emphasis on the exhibit of new devices, reports of research, and round-table discussions of teaching problems. Special consideration will be given radio astronomy and the application of atomic power. The program will be climaxed by the four lectures of Dean J. H. Van Vleck of the Division of Applied Science at Harvard, on "Radio and microwave spectroscopy of the solid state."

The **23rd Annual Meeting of the Western Society of Naturalists** was held Dec. 28–30, 1953, at the University of Southern California, Los Angeles. In his presidential address, delivered at the annual dinner, Martin Johnson presented a colorful review of "Tropical and South Pacific islands" illustrating a wide range of highly photogenic natural history topics from atolls to volcanoes. Other evening meetings featured a Hancock Foundation film, "The New Frontier," with a commentary by John Garth; and a special showing at the Walt Disney Studio of "The Living Desert," with an introductory lecture by Mr. Algar. The effective work of the symposium chairmen—Francis Haxo, photosynthesis; John Garth, marine zoogeography; and Ivan Pratt, parasitology; and their participating colleagues—made these symposiums notable. Eight separate sessions were needed for the many papers submitted. Abstracts of these will be supplied on application to the secretary, John L. Mohr, Univ. of So. California, Los Angeles.

The Society plans to join the Pacific Section of the Botanical Society of America in sponsoring—at the AAAS Pacific Division Meeting, Washington State College, Pullman—an afternoon of demonstration papers in genetics on June 24, and to hold a separate morning session the same day for submitted papers.

The fifth annual summer conference sponsored by the Biology Department of Brookhaven National Laboratory, **"A symposium on the thyroid,"** will take place June 9–11; a cordial invitation to attend is extended. On-site accommodations for guests will be reserved in order of receipt of applications up to about 150. Those planning to be present, whether or not they are staying overnight, must notify Dr. Abraham Edelmann, Biology Department, Brookhaven National Laboratory, Upton, L.I., N.Y. *by May 10.* Those who are not citizens of the United States must communicate *by May 1* to allow time for AEC approval of their attendance.

The following scientists are listed on the tentative program: E. B. Astwood and W. P. Vanderlaan, New England Center Hospital; Aubrey Gorbman, Barnard College; S. A. D'Angelo, Jefferson Medical School; C. P. Leblond and N. J. Nadler, McGill University; S. B. Barker, University of Alabama Medical School; Henry Lardy, University of Wisconsin; Jack Gross and P. J. Fitzgerald, College of Medicine at New York City; Alvin Taurog, University of California School of Medicine; William L. Money, Sloan-Kettering Institute for Cancer Research; Hans G. Schlumberger, Ohio State University College of Medicine; Harold P. Morris, National Institutes of Health; Abraham Edelmann, Brookhaven National Laboratory.

The **spring meeting of the American Physical Society** will be held in Washington, D.C. on Apr. 29-May 1, at the Shoreham and Sheraton Park hotels and the National Bureau of Standards. The invited speakers are C. Tobias, R. E. Zirkle, and C. Levinthal in *biophysics*; W. E. Alburger, H. F. Kaiser, R. Sagane, E. Teller, and G. M. Temmer in *nuclear physics*; R. P. Hudson, B. T. Matthias, and D. ter Haar in *low-temperature physics;* R. J. Rubin in *statistical physics*; I. Karle, H. Jones, and R. L. Petritz in *solid-state physics;* H. Lyons, *on velocity of light,* F. N. Frenkiel and O. Laporte in *fluid dynamics*; N. F. Ramsey, H. S. Gutowsky, M. R. Packard, and C. H. Tournes on *chemical applications of radio-frequency spectroscopy*; L. Marton, W. Pines, and L. B. Loeb, and L. H. Fischer, on *electron optics*; C. Wiegand, J. Marshall, J. Tindot, and L. Wolfenstein on *polarization of nucleons by scattering.*

There will also be 31 sessions devoted to 414 10-min papers. At the banquet on Friday evening at the Shoreham Hotel, the speakers will be E. R. Piore and P. Debye.

Nearly 1000 radio engineers are expected to attend the first **Symposium on Global Communications,** which

will be held in Washington, D.C., June 23–25. It will be sponsored by the Institute of Radio Engineers' Professional Group on Communications Systems. Christian L. Engleman, management and engineering consultant of 2480 16th St., NW, is chairman of the meeting. Technical papers on various aspects of worldwide communications will be presented in two full-day sessions by commercial, military, and other Government specialists in the field. Arrangements are being completed for conducted field trips to nearby commercial and military communications centers on the third day of the meeting. It is expected that there will be some exhibits of the latest communications equipment and components. A reception, two luncheons, a banquet, and special activities for the ladies, will also be featured.

The American Institute of Chemical Engineers will hold a **world conference on nuclear energy** at the Univeristy of Michigan, June 20–25. Nuclear scientists from Europe and Asia have been invited to participate in the meeting, and representatives from Belgium, Canada, France, Great Britain, India, Italy, The Netherlands, Norway, Spain, and Sweden have already accepted.

In the United States, the AIChE has secured the cooperation of government, industrial, and educational organizations. Information heretofore restricted has been declassified by the Atomic Energy Commission for presentation at the meeting.

Miscellaneous

The first volume, *Analytical Procedures and Patent Index,* in a series of ozone reference books entitled ***Bibliography of Ozone Technology*** will be published by Armour Research Foundation of Illinois Institute of Technology early in May. The series of six volumes, which will appear over a period of 3 yr, is a comprehensive reference to the literature in the field and is the first work dealing exclusively with ozone to be published since 1918. The series is being compiled by Clark E. Thorp, manager of the chemistry and chemical engineering research department at the Foundation, and his staff.

The various species of fish inhabiting Atlantic waters off New England, New Brunswick, and Nova Scotia are described in a new edition of the bulletin ***Fishes of the Gulf of Maine,*** published by the Department of Interior's Fish and Wildlife Service. Prepared by Henry B. Bigelow and William C. Schroeder of Harvard University and Woods Hole Oceanographic Institution, the 577-page work presents material on the distribution, abundance, life histories, and identification of the fish found in the oceanic bight between Nantucket Shoals, Mass., and Cape Sable, Nova Scotia.

The bulletin revises and adds to Bulletin 40, published between 1925 and 1927 by the Bureau of Fisheries, a parent organization of the Fish and Wildlife Service. The new edition, designated as Fishery Bulletin 74, may be purchased for $4.25 from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C.

Because of the broad interest outside of the fields of fisheries and wildlife ecology, the Wildlife Society has prepared several hundred copies of a symposium on **fluctuations in animal populations** which appeared as part of the January 1954 issue of *The Journal of Wildlife Management.* These are available at $1.00 each from Dr. Daniel L. Leedy, Executive Secretary, The Wildlife Society, U.S. Fish and Wildlife Service, Washington 25, D.C.

Science Reference Sources, a useful guide to more than 1200 representatives bibliographical and reference tools has been announced by the University of Illinois Library School. The list includes general works in engineering, agriculture, and medicine as well as source materials in the pure sciences. A feature of the volume is an outline of the several divisions of modern science with definitions of each subject. Also brought together for the first time is a list of astrographic catalogs covering the heavens from every point on the globe. The work was compiled by Frances Briggs Jenkins, associate professor of library science at the University of Illinois Library School. A limited number of copies is available from the Ilini Union Bookstore, Champaign, for $1.00.

The Proceedings of the Annual Meeting, Council for High Blood Pressure Research of the American Heart Association, 1953, has been published as a cloth bound monograph of 96 pages. It may be obtained through the office of the American Heart Association of its affiliates at $2.00 per copy. The monograph consists of a collection of papers summarizing recent investigative work by the authors and their associates on certain aspects of hypertension that is otherwise scattered widely through current literature. The authors are R. W. Sevy, Georges M. C. Masson, Simon Rodbard, D. M. Green, and George A. Perera. Topics covered in this second volume include the relations between hypertension and the anterior pituitary, the adrenal cortex, renin, salt-water balance, sodium metabolism, and electrolyte metabolism. Copies of the first volume of the *Proceedings* (1952) are still available at $1.75 each.

Copies of the complete presentations of the **University of Pennsylvania–American Society of Tool Engineers carbide seminar** held in Philadelphia during the recent ASTE show are now available. The proceedings of the 5-day meeting include the economics of carbide in today's business, tool fabrication and maintenance, single-point tooling results and analysis, outstanding new carbide applications such as milling, gun drilling, trepanning, and detailed data on heat, impact and corrosion resistence. Bound copies with charts, photographs, etc., can be obtained at a cost of $3.00 from Prof. Lee N. Gulick, School of Mechanical Engineering, University of Pennsylvania, Philadelphia 4.