

SCIENCE

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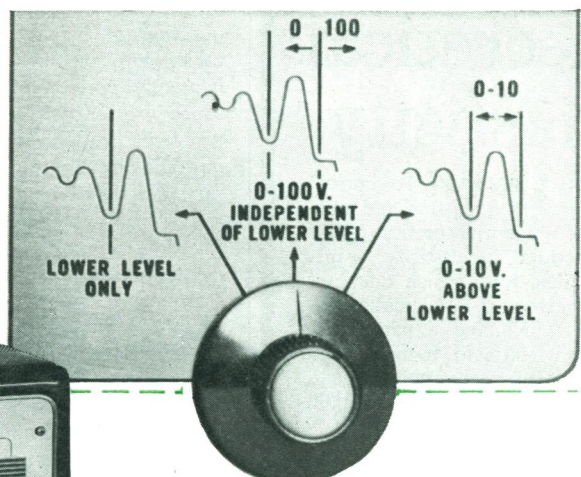
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Letters

Science in Israel

The two recent editorials dealing with science in Israel [*Science* 129, 869, 995 (1959)] have special interest to me, since, as a U.N. Technical Assistance consultant in Israel twice, I was involved in certain aspects of the problems described. I offer a personal opinion concerning particularly the second editorial, "Basic research a luxury?" I feel that the editorial exaggerates somewhat the actual differences in viewpoint which exist, and that it states the argument from a rather unrealistic point of view.

Fundamentally, I believe the question is not whether basic research is either a dispensable luxury or a vital necessity in Israel today, or even whether applied research should prevail at the expense of the basic. What is pertinent is the question of balance between the two, taking into account the fact that Israel is a small country of limited natural resources, suffering from stringent economic problems brought on by both heavy immigrant absorption and large but necessary outlays for national defense. Despite rumors to the contrary, Israel simply does not have at this time a sufficient number of adequately trained and seasoned scientists to meet all of the present demands for both basic and applied research. Thus, to some observers in and out of Israel, including myself, the greatest urgency at this particular moment is maximum effort in technological development. While the vital importance of maintaining as much basic and long-range research as the economy can support is not denied, nevertheless the country is limited in its total scientific resources.

Actually, the problem touched on has deeper sociological and emotional roots than the editorials indicate. The source of Israeli science lies in the older European tradition which rewards, with social and intellectual status, individuals identified with basic research. This attitude is rapidly disappearing in Israel, but one continues to meet it there frequently enough to comprehend its major formative influence on the intellectual values and career orientation of students entering scientific fields.

Finally, the editorial discussion of science in Israel might have pointed up a growing problem of major concern not only to Israel but also to a number of European countries as well. I refer to the extent to which these scientifically literate countries are being "raided" for scientific and technical talent by the United States. As a consequence, a serious threat appears to be developing not only to the scientific, academic, and technical welfare of these small countries

themselves but, in the longer range, also to the vital interest which the United States has in the survival and strengthening of these democratic outposts.

It seems to me that the various United States governmental agencies responsible for allocating ever-increasing sums for research within the United States, should show greater concern for the fact that they may be heedlessly, but nevertheless seriously, weakening the scientific fiber of the smaller nations. A leading Israeli scientist made the point to me that the interests of the United States might be better served if a real effort were made to place U.S. Government projects for nonsensitive or nonclassified types of research in countries with capable scientists, such as Israel and several European and Asiatic countries whose survival is vital to our interests. Such a program would not only yield substantial savings in research costs but would also permit these countries to improve and expand their scientific and academic institutions.

A start has already been made in this direction by the U.S. Department of Agriculture, by allocating to research in several countries, including Israel, local currencies accumulating there by purchases of U.S. agricultural surpluses (Public Law 480). It seems to me that this small beginning could be expanded to the mutual advantage of the United States and democratic countries such as Israel whose welfare and survival concern us.

MAX MILNER

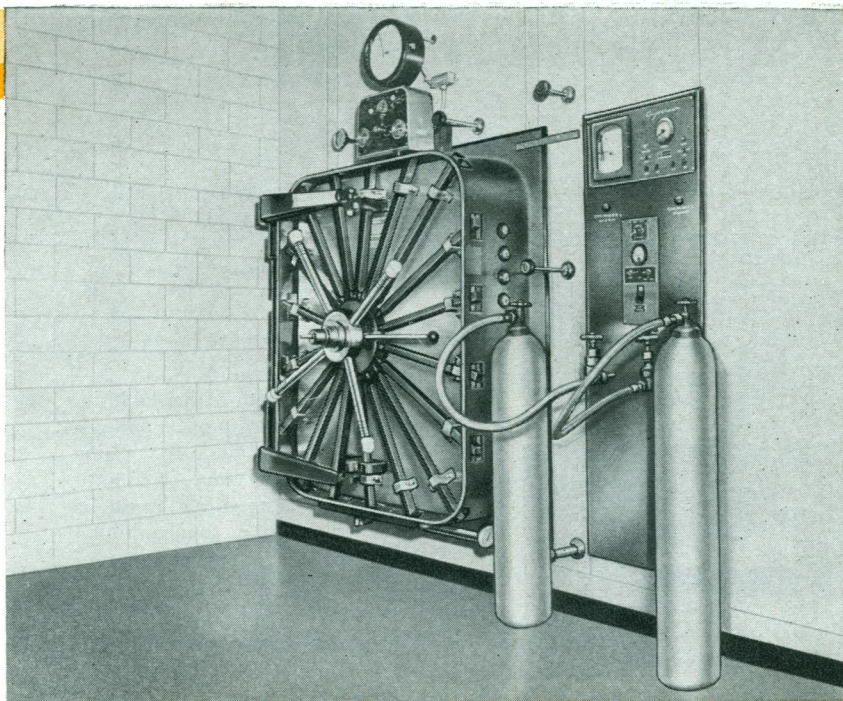
Kansas State University of
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Manhattan, Kansas

Mating for "Hybrid Vigor"

In his report "Hetero blood types and breeding performance," Mogens Plum [*Science* 129, 781 (1959)], in discussing his data on the matings between 310 females and 32 males of the Holstein-Friesian breed, states, "The rate of survival increased as the difference in antigens increased. The chi-square of 8.72 is significant at 0.05 level." This chi-square of 8.72 is what might be termed the total chi-square for his data and is based on 3 degrees of freedom.

It is possible, of course, to calculate, from the data Plum gives in Table 1, three values of chi-square, based on a single degree of freedom each, which will add to 8.72. On the basis of the number of antigens in which mates differed, the following independent comparisons or degrees of freedom might be used: 1-5 versus 6-7, 1-5 plus 6-7 versus 8-9, and 1-5 plus 6-7 plus 8-9 versus 10-15. These comparisons and their chi-squares, together with other pertinent information, are given in the following table.

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Summary of detailed chi-square analysis of data on matings between 310 females and 32 males of Holstein-Friesian breed, presented by M. Plum.

Comparison	D/F	Sum of squares	Factor	χ^2	p^*
1-5 vs. 6-7	1	0.1675	4	0.670	NS*
1-5 + 6-7 vs. 8-9	1	0.0618	4	0.247	NS*
1-5 + 6-7 + 8-9 vs. 10-15	1	1.9511	4	7.804	.01
Total	3	2.1804	4	8.721	.05

* Level of significance; NS, not significant.

The results presented in this table indicate that, if dissimilarity of blood antigens may be used as a guide for mating for "hybrid vigor," the number of antigens in which mates differ must be equal to or greater than some minimal or threshold number of a given group of breeding animals in order to achieve the desired effect.

A. E. BRANDT

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University of Florida, Gainesville

Using Theses for Scientific Communication

The increasingly critical problem of space limitation in scientific communication has recently received attention in *Science* editorials [*Science* 127, 623, 1145 (1958)] and comments [127, 1458 (1958); 128, 424 (1958); 129, 118 (1959)]. Among the suggested solutions, the publication of journals in microform, the appearance of articles in abstract, and the availability of photocopies of desired manuscripts have all been advanced singly or in combination.

A letter by Phipps [*Science* 129, 118 (1959)] is of especial interest because six attributes of a system for improvements in publication communicability are presented. He applied his criteria, however, to a seemingly radical departure from current practices, involving abridged articles, abstract cards, and photocopies. Although his standards were developed as a test for a hypothetical system of journal publication, most of the criteria can be used to evaluate a suggestion that I wish to propose as a more conservative method for overcoming space limitations in professional journals. The criteria are: (i) capability of evolving from the existing system; (ii) reduction of delays in communicating results; (iii) coverage of a broad range of scientific interests (reversal of the trend toward overspecialized journals); (iv) guarantee of self-determination to the individual author (elimination of editor-referee censorial power and of pressure toward abridgment of source material); (v) guarantee of self-deter-

mination to the individual subscriber; (vi) incurrence of no added cost.

The procedure to be indicated would seem to be of greatest value for an explanation in full of a methodological approach or theoretical system. It might have been used advantageously by one learning theorist who replied to critical reactions by saying that they "reflect a serious lack of understanding of the . . . basic theoretical framework . . ." (1). (Part of this lack of understanding was ascribed to an inadequate treatment which resulted from space limitations in journals, allowing only a brief and piecemeal theoretical discussion.) I used this procedure to advantage when I designed a series of experiments investigating the comparability of a pictureless Thematic Apperception Test (2) to the standard version (3). To insure objectivity in these comparisons, I compiled a scoring manual, involving some half dozen scales and full illustrative protocols indicating their application (4). While dittoed copies were prepared to be sent to interested scholars, copies will also be bound as appendixes in theses of graduate students in Virginia and Texas who are making use of them. Such binding insures scholarly permanence and availability on interlibrary loan should my supply become unavailable. In addition, this use of theses for scientific communication seems to meet four of Phipps' criteria. For, it (i) is part of the existing system, (ii) reduces delays in communicating information, (iii) guarantees complete self-determination to individual authors (the cost of duplicating manuscript pages is but a minuscule fraction of the charges for printing them), (iv) involves no added cost. The two criteria not met are inapplicable. Furthermore, employment of the thesis as a medium for scientific communication may increase its audience and certainly serves to insure completeness. The former is desirable; the latter is recommended (5).

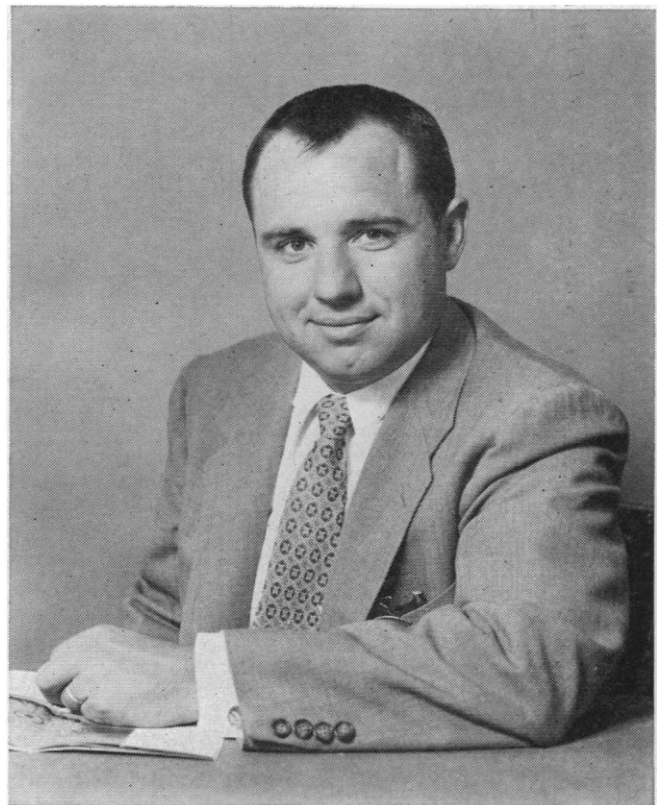
Without change in journal policy one may insure the full availability of material regarded as important, or, at least, used by fledgling researchers in their formulations. Theses are seldom in the forefront of tools available to all scholars, nor are they all indexed even as whole items. Hence when a person whose material is inserted in a thesis writes a journal article that concerns the subject treated in the inserted material, it behooves him to include in his article a reference to the thesis repository. Without such specific citation, the theoretical or methodological addendum might not become a part of the literature. More than a few people must know where the material is obtainable.

To this end, the form of citation of the thesis insert in a journal reference is important. It must indicate clearly the specific nature of the added explanatory matter and identify the thesis sufficiently

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by Frederick Stevens

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to insure its location when requested by readers of the article. The form of reference 4, below, is within the style of references appearing in *Science*, and could be easily adapted to editorial policies of other scientific bodies. If the material is bound in more than one thesis, as will be the present case, the writer might cite the copy available in the library more frequently used by his colleagues, or the one best equipped for rapid interlibrary loan, or, if he is associated with an academic institution himself, prestige considerations might dictate citation of his college library.

The use of graduate theses for scientific communication would seem to be a partial but satisfactory solution to the problem of diminished space and expanded output. Such usage might be welcomed by those who may need to familiarize themselves with the insert in only one such thesis for full background information on a series of journal publications. Journal space is scarce, ingenuity is not.

DELL LEBO

Child Guidance and Speech Correction Clinic, Jacksonville, Florida

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"Feedback" in Evolution

In his review of *Behavior and Evolution* (Anne Roe and George G. Simpson, Eds.), C. H. Waddington [*Science* 129, 203 (1959)] discusses the lack of emphasis by the several authors on the "various types of 'feedback' or circularity in the relation between an animal and its environment." He says that the relation of the behavior of an animal to the evolutionary process is not solely that of a product, but is also one of the factors which determines the magnitude and type of evolutionary pressure to which the animal will be subjected. Behavior is at the same time a producer of evolutionary change as well as a resultant of it.

In his recent articles, and particularly in his recent book *The Strategy of the Genes* (1957), Waddington has clearly demonstrated "genetic substitution" by means of evolutionary feedback through natural selection. I agree with Waddington that this process is important for an understanding of much adaptive evolution, including the evolution of adaptive behavior. However, in his book

review, Waddington seems to have missed my discussion (pp. 319, 323, 331), which is in essential agreement with the point of view expressed by Waddington in his criticism, and which he says did not "emerge completely into the light of day." For the feedback from behavior to isolating mechanisms, a process that Waddington feels did not receive sufficient emphasis in the chapter by H. T. Spieth, I should also like to call attention to *Principles of Animal Ecology* (1949), by Allee, Emerson, Park, Park, and Schmidt, for a discussion of this point (pp. 619, 630, 695).

ALFRED E. EMERSON

*Department of Zoology,
University of Chicago*

It was only the feeling that my review was already unduly long that prevented me from giving references to the few remarks, such as those in Emerson's interesting paper, which referred to "feedback" relationships in evolution. The passage in which I expressed a wish to have heard more about such matters was not so much a criticism as it was a comment prompted by the British convention that no review, however favorable, should suggest that a book is quite incapable of being improved. After all, "feedback" is, at least in connection with biology, a rather vague concept; I still think it requires a good deal more discussion and experiment than has yet been devoted to it.

C. H. WADDINGTON

*Institute of Animal Genetics,
University of Edinburgh*

Biological Bromination

In the 20 March issue of *Science* [129, 778 (1959)], J. W. Burger and Ti Li Loo give an interesting account of bromination of phenol red by the dogfish. However, they state that there appears to be no recorded instance of bromine being incorporated into an experimentally introduced exogenous material. Attention is invited to the fact that we have shown [*Proc. Soc. Exptl. Biol. Med.* 80, 241 (1952)] that dibromindigo appears in the urine of rats after intragastric injections of hexabromostearic acid.

J. F. McCLENDON,
J. GERSHON-COHEN

*Department of Radiology,
Albert Einstein Medical Center,
Philadelphia, Pennsylvania*

We thank McClendon and Gershon-Cohen for bringing their article to our attention.

J. WENDELL BURGER

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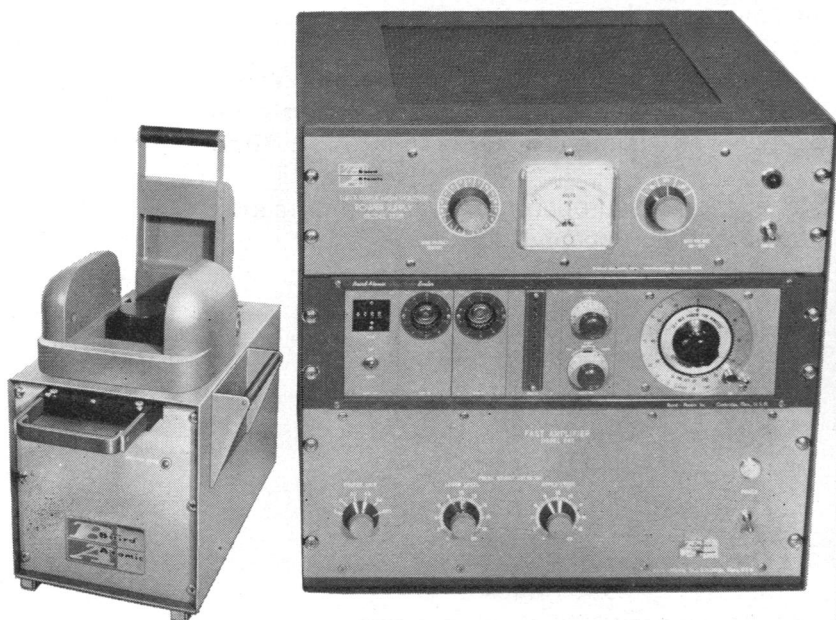
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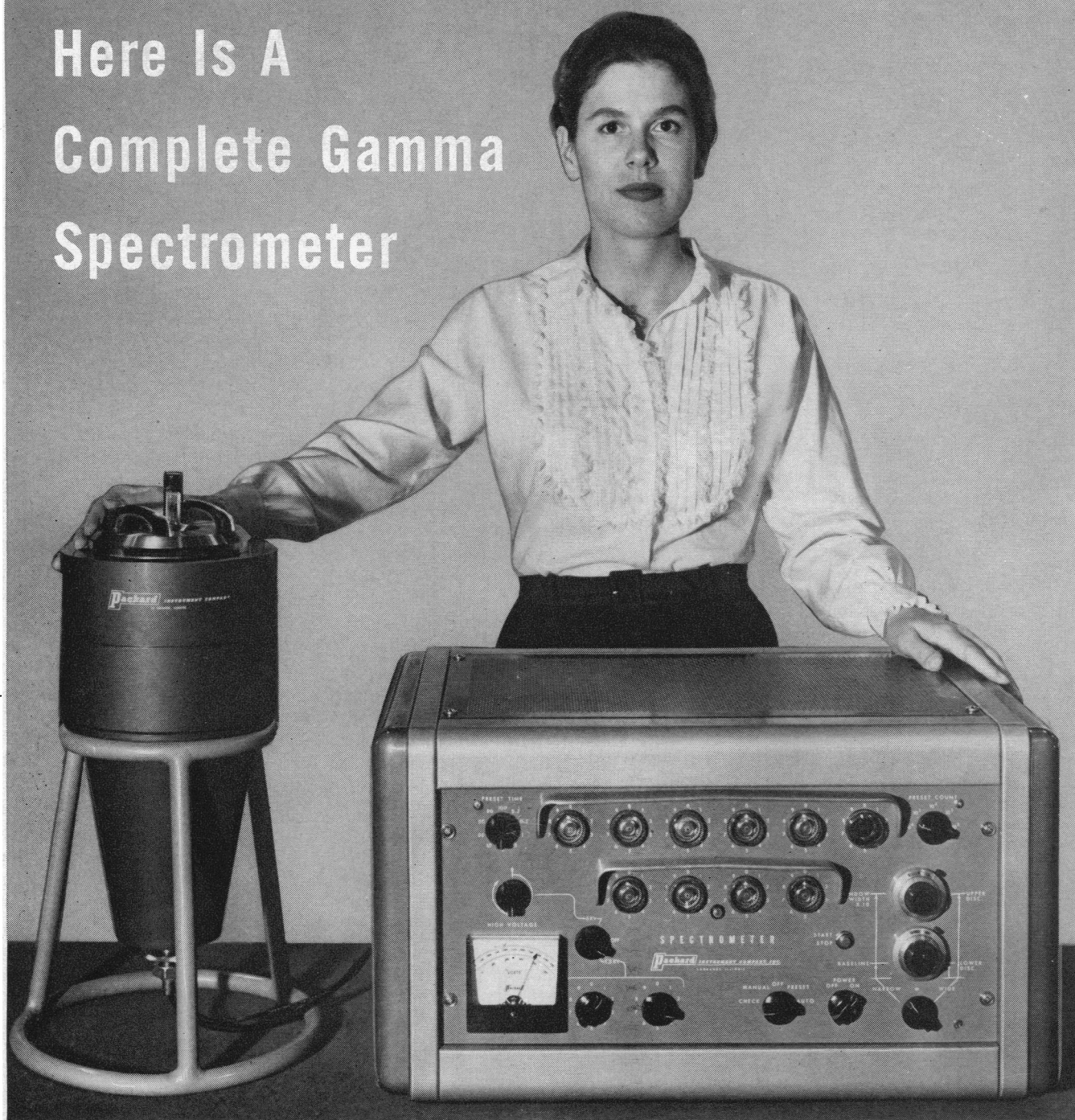


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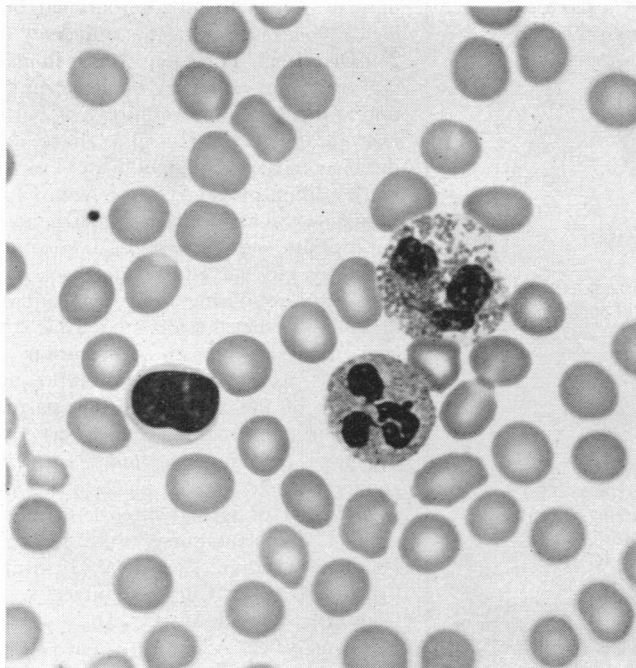
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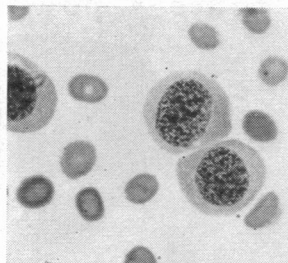
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The sanguinary details



Among the red cells, three of the principal types of white cells, left to right: a lymphocyte, representing about 30% of the white cells; a neutrophil, representing 60%; an eosinophil, representing about 2%.



Megaloblastic cells, characteristic of the pattern of red cell maturation in pernicious anemia.

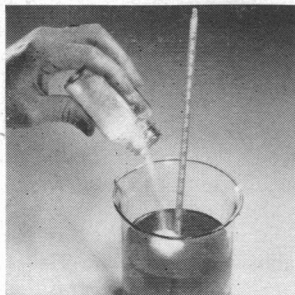


Erythrophagocyte, seen in an uncommon blood condition, where white cells swallow red cells. Here is one that has eaten three.

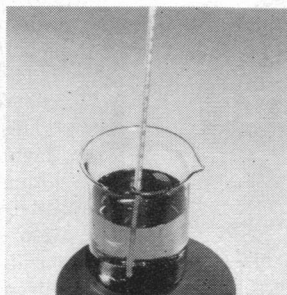
The objective documentation of hematological observations through properly controlled photomicrography is treated with some depth in the current issue of our periodical *Medical Radiography and Photography*. It contains some excellent color photomicrographs, including a series which depicts the maturation of human blood cells. However, if we were to go to the expense of reproducing the color on this page, it would use up money better spent in face-to-face instruction in hematological photomicrography for those who need it. You can look at the color all you want to by requesting a copy of the blood issue of *M. R. & P.* from Eastman Kodak Company, Medical Sales Division, Rochester 4, N. Y.

More film may be expended on Old Faithful in Yellowstone National Park than on all the blood in the world. Every man has his own idea of a natural marvel to photograph.

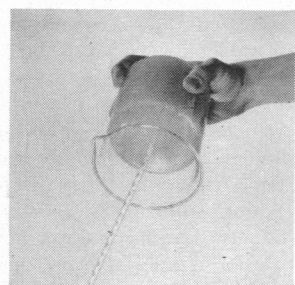
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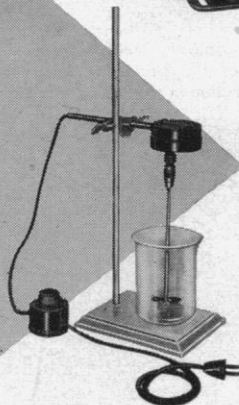
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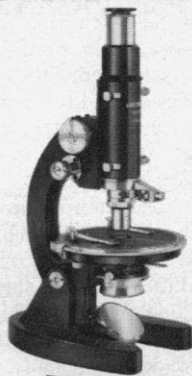
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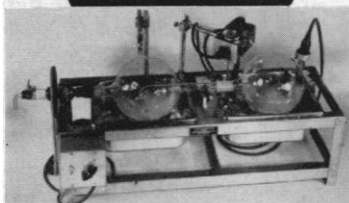
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Meetings

Science Congress at Singapore

The University of Malaya, at Singapore, was host to an international biological congress held at the university on 2-9 Dec. 1958. The congress was in celebration of the centenary of the formulation of the theory of evolution by Charles Darwin and Alfred Russel Wallace, and the bicentenary of the publication of the tenth edition of the *Systema Naturae* of Linnaeus. Singapore was a particularly appropriate site for such a meeting, since this city served Wallace as a base of operations during his 6-year sojourn in Malaya, when he formulated his concept of the mechanism of evolution.

Guests from 12 countries, representing four of the five continents, participated in the program, which lasted a full week. Sunday was taken up with conducted field trips to places on Singapore Island of special interest to biologists. The official guests were J. B. S. Haldane (Indian Statistical Institute, Calcutta), G. S. Carter (University of Cambridge), and H. G. Andrewartha (University of Adelaide). The Royal Society of London was represented by E. J. H. Corner, the British Association for the Advancement of Science by H. Munro Fox, the Zoological Society of London by R. D. Purchon, and the Institute of Biology by J. R. Audy. Purchon was chairman of the organizing committee, and Roland Sharma was general secretary.

Haldane served as president of the congress, and his presidential address, "The Theory of Natural Selection Today," provided the keynote of the program. After affirming that, after a hundred years, the concept of natural selection as an agent in evolution is more firmly established than ever, Haldane suggested that "the next great step in biology, comparable to those we are celebrating today, may be made—or may already have been made—in a tropical country." He further suggested that "the lack of complicated apparatus may even stimulate us to look at what is before our eyes."

A total of 68 papers was presented, under the general categories of evolution, parasitology and entomology, zoogeography, terrestrial ecology, fresh-water ecology, genetics, anthropology, systematics, and botany. Emphasis throughout was on evolution (especially on those aspects of evolution that can best be studied in the tropics) and on tropical ecology, especially as it affects human welfare and well-being. The necessity for understanding the ecology of the tropics—so different in many ways and so much more complex than the ecology of temperate zones—if man is to avoid disaster in his attempts to manage

tropical nature was repeatedly stressed by speakers and discussants. The University of Malaya proposes to issue a volume containing the papers read at the congress. Abstracts of the papers have already been published by the university.

Participants were given a choice of three tours to various parts of Malaya, each under the leadership of a staff member of the zoology department of the university; these enabled foreign visitors to see something of tropical biology firsthand. One tour, to the King George V National Park in north-central Malaya, was conducted by J. R. Hendrickson. The park contains 1700 square miles of virgin tropical rain forest, in which the visitors lived and worked for a week; emphasis was on tropical terrestrial ecology. A second tour, along the west coast of Malaya as far north as Penang, which was led by D. S. Johnson, explored the various types of fresh waters in Malaya and studied tropical fresh-water ecology. A third tour, to Raffles Light in the Straits of Singapore, led by R. E. Sharma, studied tropical marine ecology.

It was generally agreed that the congress was an outstanding success. It was well organized and efficiently run, and it emphasized problems that are pertinent to the tropics in general and to Southeast Asia in particular. The papers presented were of the highest calibre. In view of the fact that the University of Malaya is only 9 years old, the centenary and bicentenary congress was nothing short of a triumph.

D. DWIGHT DAVIS

*Chicago Natural History Museum,
Chicago, Illinois*

American Statistical Association

The 119th annual meeting of the American Statistical Association will be held in Washington, D.C., 27-30 December, with headquarters at the Shoreham Hotel. The 4-day meeting will have more than 50 technical sessions covering the methodology and application of statistics in many different professional fields. The sessions are sponsored and organized by the five sections of the American Statistical Association—Biometrics, business and economic statistics, physical and engineering sciences, social statistics, and training—and by the Institute of Mathematical Statistics. This meeting will be joint with a number of other societies, among them the American Economic Association, the American Finance Association, the Biometric Society (ENAR), and the Institute of Mathematical Statistics.

Further information regarding the preliminary program and other details will be available from the American Statis-

tical Association office, 1757 K St., NW, Washington 6, D.C., later this year. The program will be under the general chairmanship of Charles D. Stewart, Deputy Assistant, Secretary of Labor, U.S. Department of Labor, Washington, D.C.

Animal Cell Biology

The fourth annual Conference on Quantitative Study of Animal Cell Biology in vitro will be conducted by the department of biophysics of the University of Colorado, 31 August-3 Septem-

ber. The course is sponsored by the Colorado division of the American Cancer Society and is open to persons with the doctorate degree who are doing research or graduate teaching in biology and medicine, and to students who are currently enrolled as candidates for the Ph.D. degree in biological disciplines.

Lectures and laboratory demonstrations illustrating the basic techniques will be presented, but major emphasis this year will be placed on application of the quantitative methodologies to problems in mammalian cell genetics and chromosome analysis, biochemistry,



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virus-host cell interaction, and radiation studies. Possible uses of these methods in clinical medicine will also be considered. Participants should possess acquaintance with the principles of sterile technique and with the philosophy of quantitative microbiology.

Because requests for admission have in the past always exceeded the available facilities, applicants, up to the limit of 50, will be accepted in order of receipt of their completed applications. Inquiries should be addressed to the Department of Postgraduate Medical Education, University of Colorado Medical Center, 4200 E. 9th Ave., Denver 20, Colo.

Mammalogists to Meet

The American Society of Mammalogists will meet 22–24 June in Washington, D.C. Sessions will be held at the U.S. National Museum Auditorium, and meeting headquarters will be at the Harrington Hotel. The program will include technical papers that cover a diversity of basic mammalogical and ecological studies carried on throughout North America. Special tours are scheduled to the Fish and Wildlife Service's Patuxent Research Refuge in Maryland and the National Zoological Park. A

banquet and a program of outstanding documentary films are planned for the evening of 23 June at the Cosmos Club. Further information may be obtained from Viola S. Schantz, General Chairman, United States National Museum, Washington, D.C.

Symposium on Hematin Enzymes

Under the auspices of the International Union of Biochemistry, a symposium on hematin enzymes is to be held in Canberra, Australia, between 31 August and 4 September 1959. The symposium is being arranged by the Australian Academy of Science, and participation is by invitation.

About 40 scientists are expected to attend. Papers will be concerned with aspects of the following topics: the biogenesis and metabolism of heme compounds; the chemistry of hemoproteins, regarded as iron complexes, and as proteins; cytochromes and cytochrome oxidase; catalases and peroxidases; the respiratory chain and cellular organization; and problems of classification and nomenclature of cytochromes. The proceedings of the symposium are to be published by Pergamon Press in a special volume.

The costs of this meeting are being

borne by the Australian Academy of Science, the International Union of Biochemistry, and the Wellcome Trust. Travel of some overseas participants is being supported by the appropriate organizations in their respective countries.

A meeting of the Cytochrome Subcommittee of the I.U.B. Commission on Enzymes is to be held in the week following the symposium.

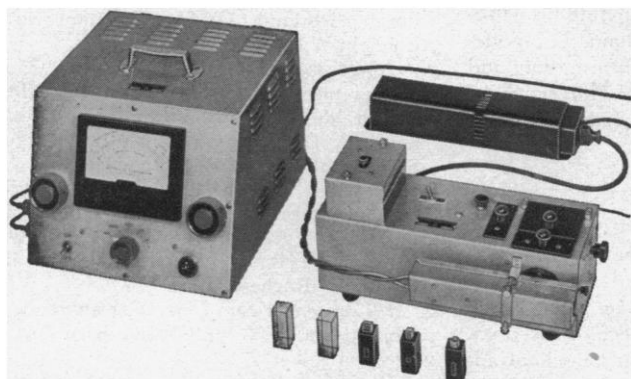
Professor R. K. Morton, Department of Agricultural Chemistry, University of Adelaide, South Australia, is convener of the organizing committee of the symposium.

Infrared Symposium

Some 300 scientists are expected to gather on 30 June at the University of Michigan, Ann Arbor, for the 44th Infrared Information Symposium. Representing industry, government, and academic institutions, they will hear presentations concerning infrared reconnaissance equipment, interpretation methods, and new concepts. The meeting will deal mainly with reconnaissance.

Attendance is by invitation; only those persons with a security clearance and a "need to know" will be admitted. The symposium is one of a continuing series of classified meetings on military appli-

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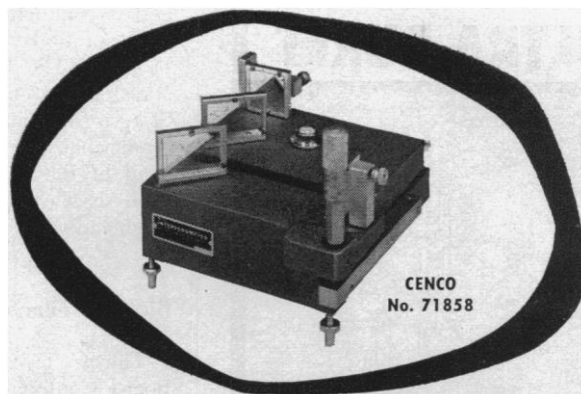
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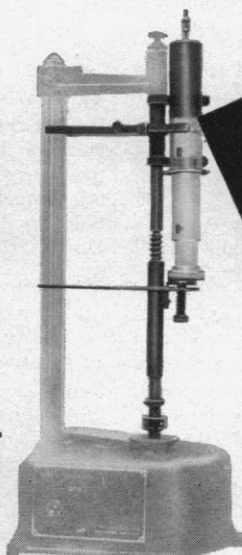


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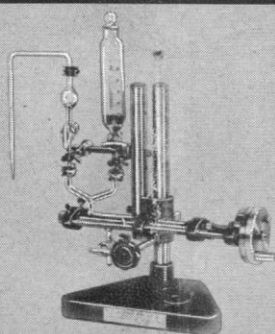
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"This volume is not a reference intended for use at the introductory student level. It can be reviewed with interest, however, by any serious member of the reading public." *American Journal of Pharmaceutical Education*, July 1956.

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cations of infrared techniques. It is sponsored by the Office of Naval Research and is conducted under joint direction of the military services.

Thomas B. Dowd of the Office of Naval Research, Boston (495 Summer St.), is in charge of invitations. Program chairman is William L. Wolfe, head of the Infrared Information and Analysis Center at the University of Michigan's Willow Run Laboratories.

Biology Teaching

The College Entrance Examination Board Conference on Advanced Placement in Biology will take place 25-27 June at Chatham College, Pittsburgh, Pa. Collegiate and secondary-school administrators and faculty will participate in workshop sessions on the instruction of able students especially interested in biology, and will hear talks on biology curricula and teaching. In addition to a representative from the College Entrance Examination Board program in advanced placement, speakers will include Oswald Tippo, Eaton professor of biology and director of the Marsh Botanical Garden, Yale University.

The conference is open to all interested educators. Information and application blanks may be obtained by writing to the conference chairman, Dr. Phyllis C. Martin, Chairman of the Department of Biological Sciences, Chatham College, Woodland Road, Pittsburgh 32, Pa.

Forthcoming Events

July

12-17. American Waterworks Assoc., annual conv., San Francisco, Calif. (H. E. Jordan, AWA, 521 Fifth Ave., New York 17.)

13-17. National Assoc. of Power Engineers, natl. conv., Boston, Mass. (A. F. Thompson, Secretary, NAPE, 176 W. Adams St., Chicago, Ill.)

13-17. Plastic Surgery, 26th intern. cong., London, England. (D. Matthews, Organizing Secretary, Intern. Cong. on Plastic Surgery, c/o Inst. of Child Health, Hospital for Sick Children, Great Ormond St., London, W.1.)

13-17. Standardization, intern. (council meeting), Geneva, Switzerland. (ISO, 1-3, rue Varembe, Geneva.)

15. American Soc. of Facial Plastic Surgery, New York, N.Y. (S. M. Bloom, 123 E. 83 St., New York 28.)

15-17. Fluorine Chemistry, symp., Birmingham, England. (Chemical Soc. of London, Burlington House, Piccadilly, London, W.1.)

15-17. Shaft Sinking and Tunnelling, symp., Olympia, London, England. (Institution of Mining Engineers, 3, Grosvenor Crescent, London, S.W.1.)

15-18. British Assoc. of Urological Surgeons (members and guests), Glasgow,

Scotland. (Joint Secretariat, 45, Lincoln's Inn Fields, London, W.C.2, England.)

15-18. British Cong. of Obstetrics and Gynaecology, 15th, Cardiff, Wales. (BCOG, Maternity Hospital, Glossop Terrace, Cardiff.)

15-24. British Medical Assoc., Edinburgh, Scotland. (BMA, Tavistock Sq., London, W.C.1, England.)

16-24. Canadian Medical Assoc., 92nd annual meeting in conjunction with the British Medical Assoc., Edinburgh, Scotland. (A. D. Kelly, CMA, 150 St. George St., Toronto 5, Ontario, Canada.)

17. High Energy Nuclear Physics, 9th annual intern. conf. (Intern. Union of Pure and Applied Physics, Moscow, U.S.S.R.). (R. E. Marshak, Univ. of Rochester, Rochester, N.Y.)

19-24. American Crystallographic Assoc., Ithaca, N.Y. (J. Waser, Rice Inst., Houston 5, Tex.)

19-25. Pediatrics, 9th intern. cong., Montreal, Canada. (R. L. Denton, P.O. Box 215, Westmount, Montreal 6.)

20-26. Radiation and Atmospheric Ozone, joint symp., by Intern. Union of Geodesy and Geophysics and World Meteorological Organization, Oxford, England. (WMO, Campagne Rigot, 1, avenue de la Paix, Geneva, Switzerland.)

22-23. Rocky Mountain Cancer Conf., Denver, Colo. (N. Paul Isbell, 835 Republic Bldg., Denver 2.)

23-30. Radiology, 9th intern. cong., Munich, Germany. (Sekretariat des 9 Internationalen Kongresses für Radiologie, Reitmorstrasse 29, Munich 22.)

26-30. International Psychoanalytical Assoc., Copenhagen, Denmark. (Miss P. King, 37 Albion St., London, W.2.)

27-4. International Federation of Translators, Bad Godesberg, Germany. (Dritter Internationaler FIT-Kongress, Kongress Sekretariat, Bundesverband der Dolmetscher und Übersetzer e. V. (BDÜ) Hausdorfstrasse 2, Bonn, Germany.)

30-31. Computers and Data Processing, 6th annual symp., Estes Park, Colo. (W. H. Eichelberger, Denver Research Inst., Univ. of Denver, Denver 10, Colo.)

August

1-8. World Congress of Esperantists, 44th, Warsaw, Poland. (Office of Intern. Conferences, Dept. of State, Washington 25.)

4-5. American Astronautical Soc., 2nd annual western, Los Angeles, Calif. (A. P. Mayerik, AAS, 6708 53 Rd., Maspeth 78, N.Y.)

6-8. Human Pituitary Hormones, colloquium (by invitation only), Buenos Aires, Argentina. (G. E. W. Wolstenholme, Ciba Foundation, 41 Portland Place, London W.2, England.)

9-12. American Soc. of Mechanical Engineers (Heat Transfer Div.), conf., Storrs, Conn. (D. B. MacDougall, ASME, 29 West 39 St., New York 18.)

9-15. Physiological Sciences, 21st intern. cong., Buenos Aires, Argentina. (C. F. Schmidt, Univ. of Pennsylvania School of Medicine, Philadelphia 4.)

10-13. National Medical Assoc., Detroit, Mich. (J. T. Givens, 1108 Church St., Norfolk, Va.)

(See issue of 15 May for comprehensive list)