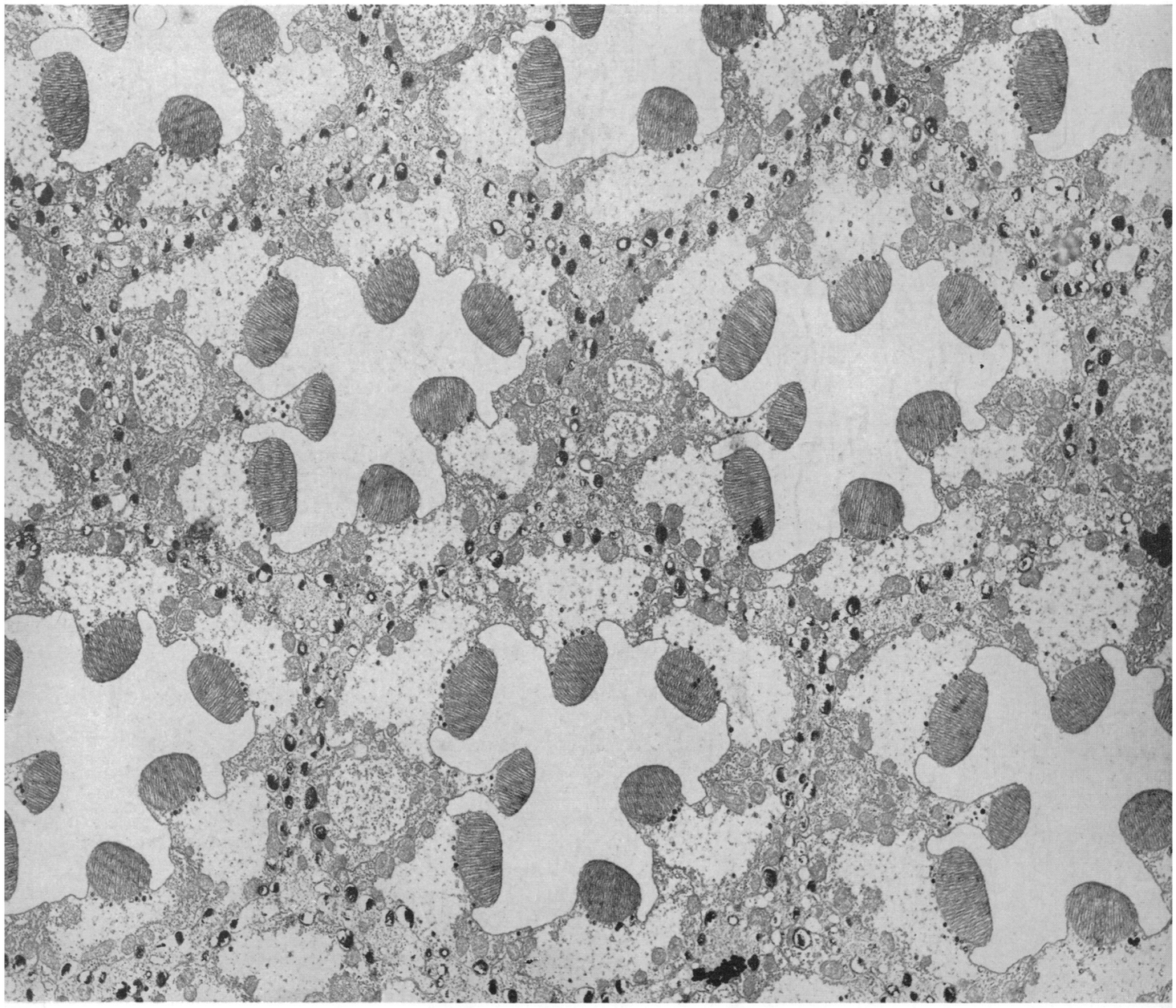
SCIENCE

24 June 1960
Vol. 131, No. 3417

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE



Index Issue

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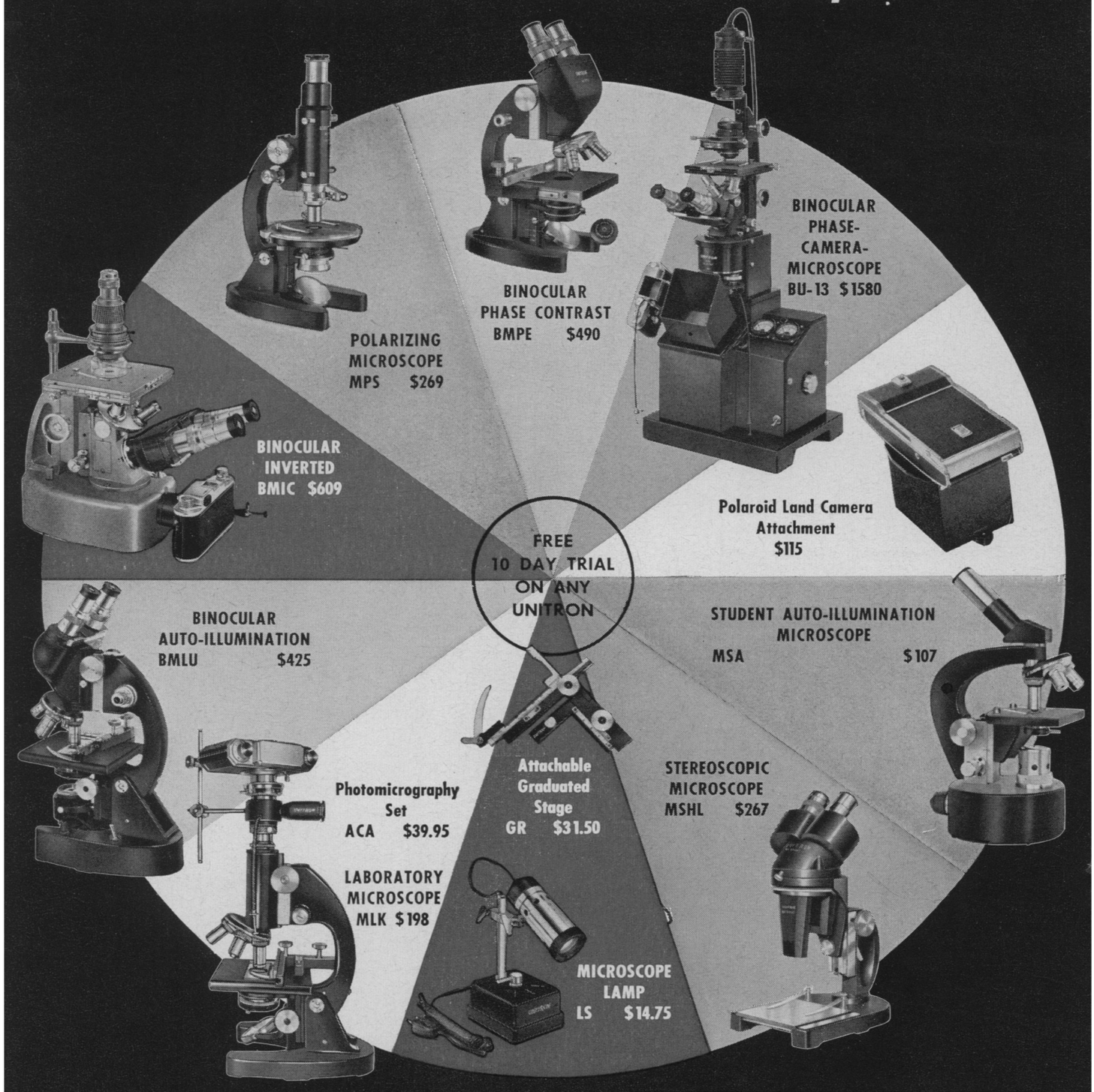

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24 June 1960, Volume 131, Number 3417

SCIENCE

Cover

Thin section through a group of ommatidia in the eye of *Drosophila melanogaster* at the late pupal stage. In each ommatidium are seven main retinula cells, each bearing a rhabdomere composed of a compact mass of tubules. The arrangement of the retinulae is rather precisely repeated from one ommatidium to the next (× 20,000). [C. H. Waddington, Institute of Animal Genetics, Edinburgh, Scotland]

A report to the members of AAAS

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published during 1959

No.		Retail	Members*
60	**Epidemiology of Mental Disorder** Benjamin Pasamanick, Ed., 336 pp., 6 illus., index	$ 6.50	$ 5.75
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52	**Evolution of Nervous Control from Primitive Organisms to Man** Allan D. Bass, Ed., 240 pp., 61 illus., index	5.75	5.00
51	**Zoogeography** Carl L. Hubbs, Ed., 520 pp., 115 illus., author index, index of scientific names	12.00	10.50

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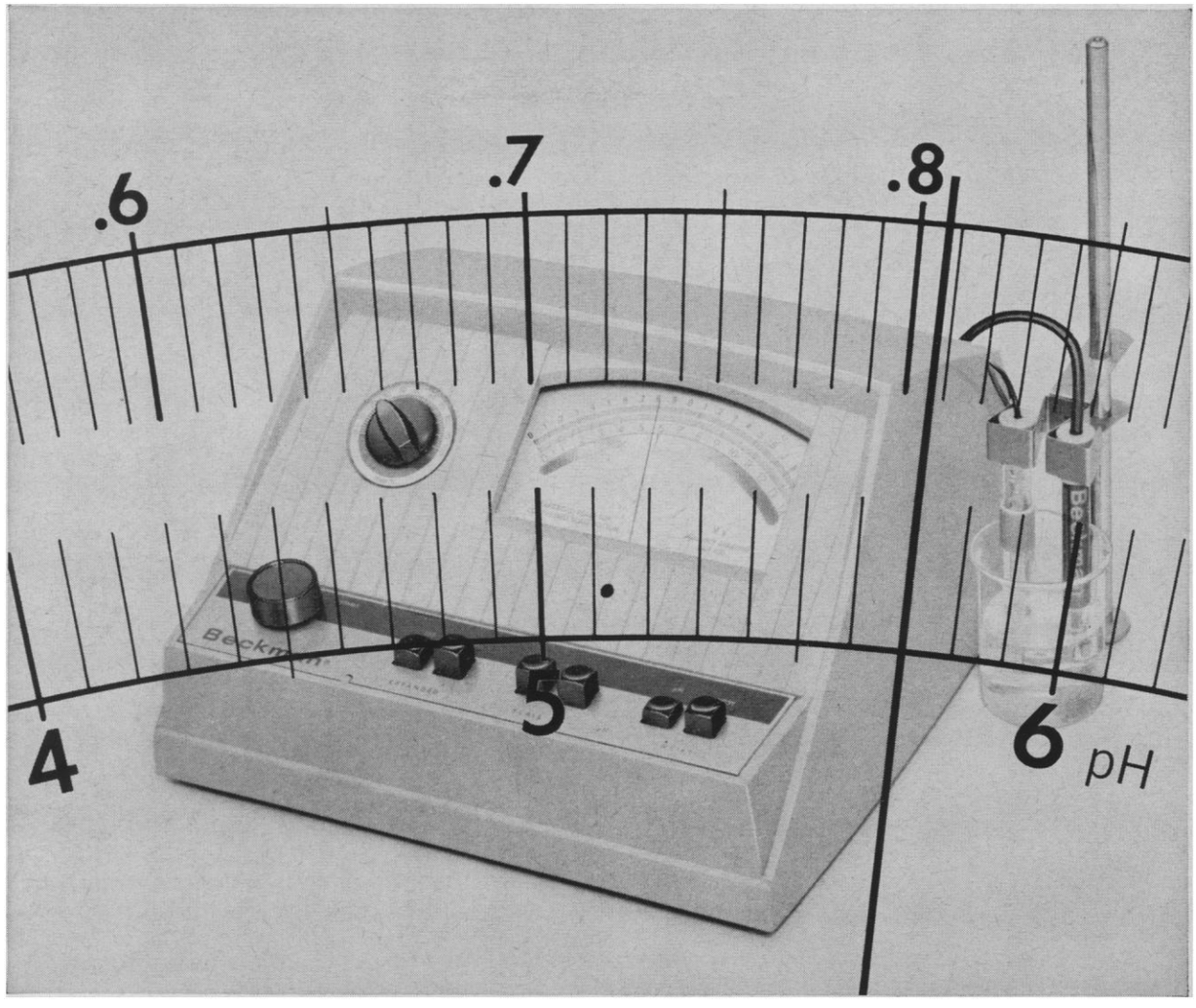

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Letters

Institute for Retired Scientists

Scientists are essentially dedicated to the seeking of truth, their chief tool being their ability to think. With the onset of retirement, in most instances, the decline in mental ability does not parallel the more rapid diminution of physical capacity. Yet this fact seems to have been overlooked in compulsory retirement policies now in force at numerous institutions. Certainly these elder citizens who have pursued truth for so long could, if properly organized, constitute a source of knowledge and wisdom as yet untapped in our quest for a more efficient utilization of a potentially great "natural" resource.

Therefore, would it not be both profitable and beneficial to create an institute for retired scientists? The following thoughts occur to me in this regard: (i) that scientists monetarily subscribe early and throughout their lives towards defraying the cost of maintaining the "institute" and insuring themselves a place later on, much as they carry insurance; (ii) that laboratory, study, and, if necessary, living space be made available; and (iii) that the institute be established in a community having a mild, even climate throughout the year.

The benefits to be obtained would be numerous; not the least of them would be the creation of an atmosphere conducive to further utilization of the scientists' experience and knowledge and to reflective writing. It is also likely that younger scientists and students from all over the world might wish to work side by side with men they have heretofore only been able to read about. In addition, retired scientists at this institute might also be available to assume secretariat positions for the organization of various scientific meetings.

RALPH D. TANZ
Department of Physiology, School of Medicine, Western Reserve University, Cleveland, Ohio

Blood-Group Determinations of Ancient Tissue

In the article entitled "Blood groups of the ancient dead" [*Science* **131**, 699 (1960)], Madeleine Smith raises numerous questions. We wish to comment on the interference of environmental factors with blood-group determinations of ancient tissue. The author suggests that "analysis for rare sugar components of bacterial cell walls may show whether inhibition can be attributed to bacterial contaminants or not. . . . [This theory] would appear to offer at least a partial solution to the problem."

It is not evident from present information how rare sugars could serve as an indication of the origin of a given blood-group activity. Numerous bacteria possess polysaccharides immunologically and chemically similar to A and B substances and also to H(O) substances, as do many higher and lower animals and some higher plants. With the exception of blood-group-active substances in higher plants, there is at present no indication that blood-group activity is associated with any sugars other than those found in human blood-group mucoids. Conversely, contaminants from bacteria and higher plants containing rare sugars may be present in a tissue in large amounts without being blood-group-active.

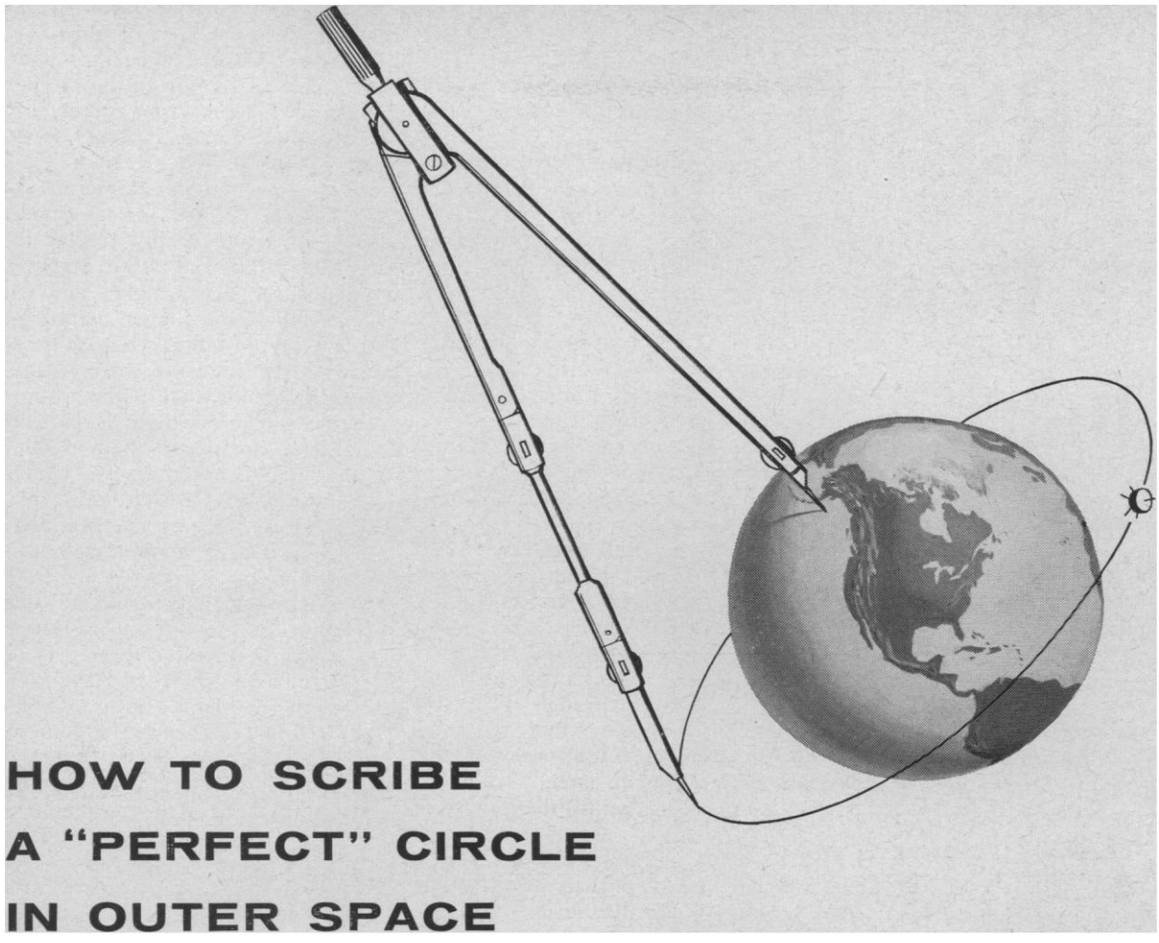
As to the enzymatic action of microorganisms on blood-group substances, destruction of blood-group A, B, and H(O) specificity by these agents is much more common than transformation of A and B into H(O). Other blood-group substances, such as the M and N referred to by the author, are destroyed by proteolytic enzymes of animal and plant origin as well as by sialidase from bacteria and viruses.

Although the leaching process in soil is mentioned, alkalinity and acidity of the soil have a more direct effect on the stability of blood-group antigens. The serologically specific glycosidic linkages are extraordinarily acid-labile, while the hexosamines are sensitive to the action of even weak alkali.

GEORG F. SPRINGER
PETER WILLIAMSON
William Pepper Laboratory and Department of Medical Microbiology, University of Pennsylvania, Philadelphia

I am glad to know that my paper has been of interest to Springer and Williamson. Their comments are most helpful in drawing attention to some of the major problems in this work. I should like to make clear, however, that it was not suggested that rare sugars should "serve as an indication of the origin of a given blood-group activity." In the presence of a reaction which might be interpreted as evidence of the presence of blood-group antigens, analysis for the rare sugars of bacterial cell walls could show whether the presence of bacterial antigens must also be postulated. It is some added evidence that the reaction is due to the blood-group antigens if these sugars are absent, although it is not claimed that such evidence is conclusive or exhaustive. It merely constitutes an added aid in the assumption that any group-

(Continued on page 1897)



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Equipped with TV cameras, tape recorders, solar cells and antennas, the world's most advanced weather satellite, the NASA Tiros I, had to be placed in a precisely circular orbit at a specified altitude to do its job well.

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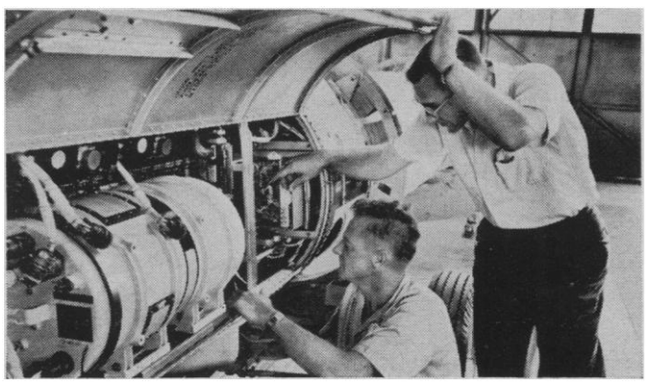
Two Bell Laboratories engineers, T. J. Grieser and D. R. Hagner, look over the second-stage section of the Air Force Thor-Able missile used to launch the NASA Tiros weather satellite.



The dependability and accuracy of Bell Laboratories' ground-controlled Command Guidance System has been proven before—in the successful test flights of the Air Force Titan intercontinental ballistic missile, and in last year's Air Force Thor-Able re-entry test shots from which the first nose-cone recoveries were made at ICBM distance. Now, with Tiros, the system contributes to a dramatic *non*-military project. Other uses are in the offing.

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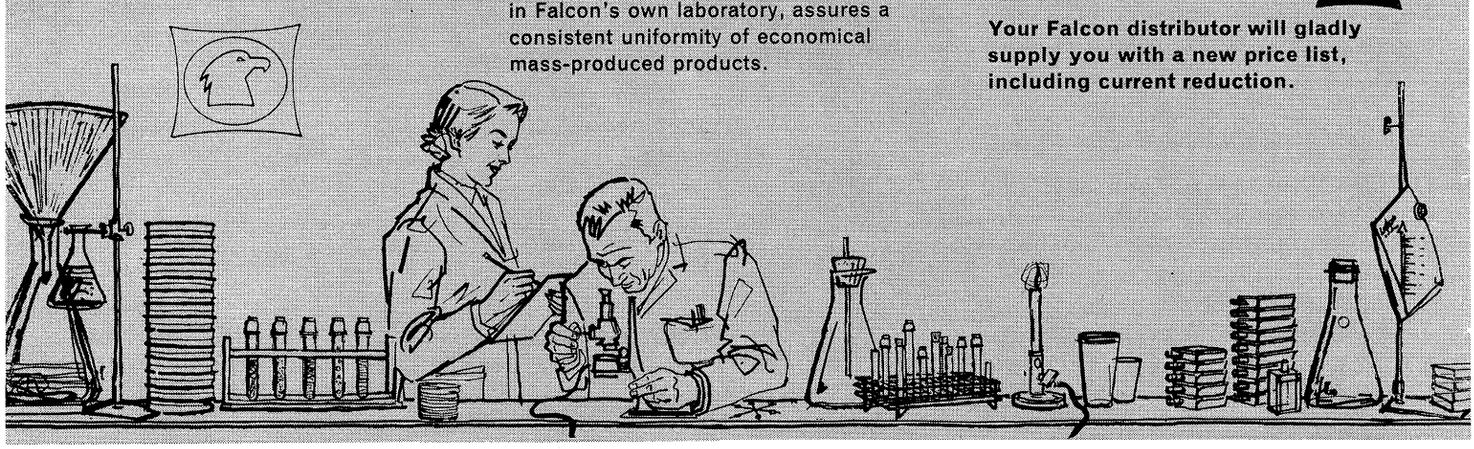

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24 June 1960, Volume 131, Number 3417 **SCIENCE**

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To the Detriment of None

In Paris in mid-May, delegates from 33 nations (including the Soviet Union and the United States; Israel and the United Arab Republic) brought to conclusion a harmonious and highly successful meeting. Although there were minor differences, there was general agreement about the major problems to be attacked and about the importance of continued international cooperation. The meeting was held at UNESCO House, not at the Palais de Chaillot; the delegates were scientistss, not heads of states; and the subject was the application of science to human welfare, not international politics.

Since 1951 UNESCO has been concerned with the problems of arid lands, which, if semi-arid regions are included, comprise about one-third of the land area of the world. In 1956 UNESCO organized a six-year attack on these problems, concentrating on the deserts of North Africa, the Middle East, and Southeast Asia. The Paris meeting was designed to appraise the progress so far, to facilitate exchange of information, and to decide whether to continue along the same lines beyond 1962.

Reports from the conference show steady advance in research results, point up some difficulties, and suggest some new undertakings. Although progress has been made in desalting water for irrigation, the best methods are still some ten times too costly. A cheap source of power is still to be developed; improved methods for converting the energy of sun and wind into usable power have been devised, but none is yet economically practical.

The difficulties in reclaiming deserts are formidable. Artificial induction of rain is still in the experimental stage. Irrigation brings in its wake salt and silt and, as B. P. Uvarov of the United Kingdom pointed out, creates an environment that favors catastrophic increase of desert insects, especially locusts.

Luna B. Leopold of the U.S. Geological Survey warned that the semi-arid southwestern region of the United States is, thanks to rapid agricultural and industrial expansion, depleting its underground reservoirs as it draws water from them at much more than replacement rate.

A sharp change in the direction of thinking about desert reclamation was voiced by Gilbert F. White of the University of Chicago. A decade ago trees were planted to anchor shifting sands and to provide favorable agricultural environments, but some trees, the tamarisk for example, use more water than do crops and they should be planted sparingly.

White also pointed out that technology itself will not be enough. Social attitudes toward the use and misuse of water must be modified: "The human problems are more difficult than the technical."

Among the proposals put forward for new projects were the following: a cooperative international pilot project in a particular desert area to determine what is possible, to "recreate the Garden of Eden"; a survey of underground water resources in North Africa; the creation of an international laboratory (or phytotron) for studying plants in a controlled environment; and extension of arid zone research to South America.

The course of future arid zone research under UNESCO's auspices cannot be forecast, but from the tone of the conference there can be no doubt that cooperation among scientists of many disciplines and many countries will continue, to the detriment of none and to the ultimate gain of all.—G.DuS.

Meetings

Union of International Engineering Organizations

UNESCO, in the pursuit of its basic aims, continually has to enlist the support of science and engineering, for it is through progress in these two spheres that mutual understanding develops between peoples. It was for the better organization of this support that UNESCO, after establishing a close relationship with the International Council of Scientific Unions and after helping to set up the Council for International Organizations of Medical Sciences, undertook to establish a federation of international groups concerned in various branches of applied sciences. Such was the origin, in 1951, of the Union of International Engineering Organizations (more commonly known as UATI, from the French version of its name).

This union, with headquarters in Paris, now comprises 16 international organizations. Several of these were in existence before UNESCO itself was organized, and most of them have spread their activities over several continents, thereby aiding UNESCO in its task of assisting the economically underdeveloped parts of the world. The member organizations seek to promote the development of engineering and other applied sciences by means of international meetings, publications, preparation of multilingual vocabularies and bibliographical bulletins, and exchanges of persons between countries.

The union enjoys the advantages of the status of a consultant for UNESCO and of enrollment on the register of the U.N. Secretary-General. It brings the support of its member organizations to bear upon all those lines of research which UNESCO is promoting through the existing international advisory committees for the arid zone, the humid tropical zone, and the marine sciences, respectively. Further, the union is permanently represented on the International Advisory Committee for Research in the Natural Sciences Program of UNESCO.

The union, as such, takes no technical part in researches which are the concern of its member organizations. but it helps them to organize their congresses and symposia, and to publish the reports and proceedings of those meetings.

The union has endeavored to guide the activities of its members through two special means—publication of multilingual vocabularies and bibliographical documentation—observing in these matters the directives of UNESCO's Department of Natural Sciences.

The Union of International Engineering Organizations is continually undergoing expansion and welcomes application for membership from qualified organizations. An organization which wishes to join the union must fulfill the following conditions: (i) it must be concerned with international collaboration within the field of the engineering sciences; (ii) its objectives as disclosed by its constitution, must cover a clearly defined part of that field; (iii) it must have, in at least ten countries not situated in the same geographical region, national committees or a substantial number of members; (iv) its governing body must have an international composition, without geographical limitation; and (v) it must be a nongovernmental organization.

Further information may be obtained from: Union des Associations Techniques Internationales, 62, rue de Courcelles, Paris 8e, France.

B. DE COMMINGES
Union des Associations Techniques Internationales, Paris, France

Forthcoming Events

July

18–22. Peaceful Application of Nuclear Energy, 3rd Inter-American symp., Petropolis, Rio de Janeiro, Brazil. (J. D. Perkinson, Jr., Inter-American Nuclear Energy Commission, c/o Pan American Union, Washington 6)

18–23. Endocrinology, 1st intern. cong., Copenhagen, Denmark. (G. Pincus, 1st Intern. Cong. of Endocrinology, Worcester Foundation, Shrewsbury, Mass.)

18–25. French Assoc. for the Advancement of Science, 79th cong., Grenoble. (Association Française pour l'Avancement des Sciences, 28 rue Serpente, Paris 6e)

19–22. International Conf. on Scientific Problems of Crop Protection, Budapest, Hungary. (Z. Király, Research Inst. for Plant Protection, Budapest)

21–27. Medical Electronics, 3rd intern. conf., Olympia, London, England. (Secretary, Institution of Electrical Engineers, Savoy Pl., London. W.C.2)

23–28. Otolaryngology, 7th intern. cong., Paris, France. (H. Guillon, 6, avenue MacMahon, Paris, 17e)

24–19. Modern Physical Theories and Associated Mathematical Developments. Boulder, Colo. (K. O. Friedricks, New York Univ., 25 Waverly Pl., New York)

25–6. International Assoc. of Physical Oceanography, 13th general assembly, Helsinki, Finland. (B. Kullenberg, c/o Oceanografiska Institutet, P.O. Box 1038, Goteborg 4, Sweden)

26–28. Poliomyelitis, 5th intern, conf., Copenhagen, Denmark. (S. E. Henwood, International Poliomyelitis Congress, 120 Broadway, New York 5)

27–12. Mathematical Statistics and Probability, symp., Berkeley, Calif. (A. P. Burroughs, Air Force Office of Scientific Research, Research Information Office, AFOSR/USAF, Washington 25)

28–29. Computers and Data Processing, 7th annual symp., Estes Park, Colo. (W.

H. Eichelberger, Denver Research Inst. Univ. of Denver, Denver 10, Colo.)

30–6. Institute on Religion in an Age of Science, 7th annual conf., Star Island, N.H. (R. Burhoe, American Acad. of Arts and Sciences, 280 Newton St., Brookline 46, Mass.)

31–5. Alcohol and Alcoholism, 26th intern. cong., Stockholm, Sweden. (A. Tongue, Bureau International contre l'Alcoolisme, Case Gare 49, Lausanne, Switzerland)

31–5. Photobiology, 3rd intern. cong., Copenhagen, Denmark. (A. Hollaender, Biology Div., Oak Ridge Natl. Laboratory, Oak Ridge, Tenn.)

31–6. Psychology, 16th intern. cong., Cologne, Germany. (Prof. Undeutsch, Psychology Inst. Universität, Cologne)

31–7. Anthropological and Ethnological Sciences, 6th intern. cong., Paris, France. (H. Vallis, Directeur, Musée de l'Homme, Palais de Chaillot, Place du Trocadéro, Paris 16e)

August

1–3. Global Communications, 4th symp., Washington, D.C. (R. L. Clark, c/o Office of Director of Defense Research and Engineering, Washington 25)

1–6. Esperanto Cong., 45 annual intern., Brussels, Belgium. (45-a Universala Kongreso de Esperanto, Brussels)

1–12. Modulation Theory and Systems, Cambridge, Mass. (E. J. Baghdady, Dept. of Electrical Engineering, Massachusetts Inst. of Technology, Cambridge)

2–5. Poultry Science Assoc., Davis, Calif. (C. B. Ryan, PSA, Dept. of Poultry Husbandry, Texas A & M College, College Station)

3–6. Gas Chromatography (Infrared Spectroscopy Inst.), Nashville, Tenn. (N. Fuson, Fisk Infrared Inst., Fisk Univ., Nashville 8)

3–6. Rarefied Gas Dynamics, 2nd intern. symp. (by invitation only), Berkeley, Calif. (Engineering and Science Extension, Univ. of California, 2451 Bancroft Way, Berkeley 4)

6–12. International Geographical Cong., 19th, Stockholm, Sweden. (IGC, Postfach, Stockholm 6)

7–10. American Soc. of Clinical Hypnosis, Miami, Fla. (S. Hershman, 6770 N. Lincoln Ave., Chicago 46, Ill.)

7–12. Gerontology, 5th intern. cong., San Francisco, Calif. (L. Kuplan, Intern. Cong. of Gerontology, P.O. Box 2103, Sacramento 10, Calif.)

7–13. Industrial Research Conf., Harriman, N.Y. (Miss M. F. Garvey, Industrial and Management Engineering Dept., Columbia Univ., New York 27)

8–11. American Astronautical Soc., Seattle, Wash. (R. M. Bridgforth, AAS, Propulsion Unit, Boeing Airplane Co., Aero-Space Div., P.O. Box 3707, Seattle)

8–12. American Inst. of Electrical Engineers, San Diego, Calif. (R. S. Gardner, AIEE, 33 W. 39 St., New York 18)

8–13. World Federation for Mental Health, 13th annual, Edinburgh, Scotland. (Secretariat, WFMH, 19 Manchester St., London, W.1, England)

8–20. American Soc. of Criminology, London, England. (D. E. J. MacNamara, New York Inst. of Criminology, 115–117 W. 42 St., New York 36)

9–13. Hail Storms, intern conf., Verona, Italy. (H. G. M. Ligpa, American Meteorological Soc., Stanford Research Inst., Stanford, Calif.)

11–13. Rocky Mountain Radiological Soc., Denver, Colo. (J. H. Freed, 4200 E. Ninth Ave., Denver 20)

11–16. Canadian Teachers Federation, Winnipeg, Manitoba. (G. G. Croskery, 444 MacLaren St., Ottawa 4, Ontario)

14–19. American Pharmaceutical Assoc., Washington, D.C. (R. P. Fischelis, APA, 2215 Constitution Ave., NW, Washington 7)

14–19. International Cong. of Clinical Chemistry, Edinburgh, Scotland. (S. C. Frazer, Clinical Laboratory, Royal Infirmary, Edinburgh)

14–20. Cardiology, 6th Inter-American cong., Rio de Janeiro, Brazil. (H. Alqueres, P.O. Box 1594, Rio de Janeiro)

15–16. National Assoc. of Boards of Pharmacy, Washington, D.C. (P. H. Costello, 77 W. Washington St., Chicago, Ill.)

15–17. Heat Transfer Conf., ASME and AICE, Buffalo, N.Y. (A. B. Conlin, Jr., ASME, 29 W. 39 St., New York 18)

15–17. Organic Scintillation Detectors, intern. conf., Albuquerque, N.M. (G. H. Daub, Chemistry Dept., Univ. of New Mexico, Albuquerque)

15–18. American Veterinary Medicine Assoc., Denver, Colo. (H. E. Kingman, Jr., 600 S. Michigan Ave., Chicago 5, Ill.)

(See issue of 17 June for comprehensive list)