SCIENCE

7 July 1961

Vol. 134, No. 3471

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

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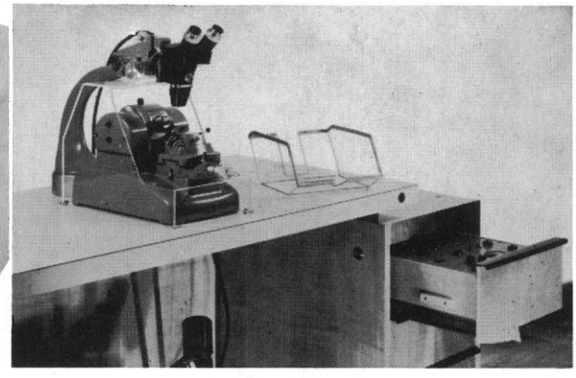

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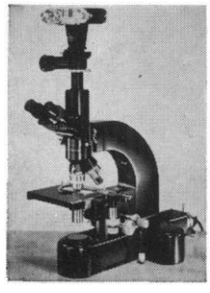

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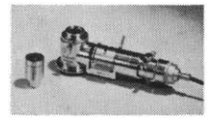

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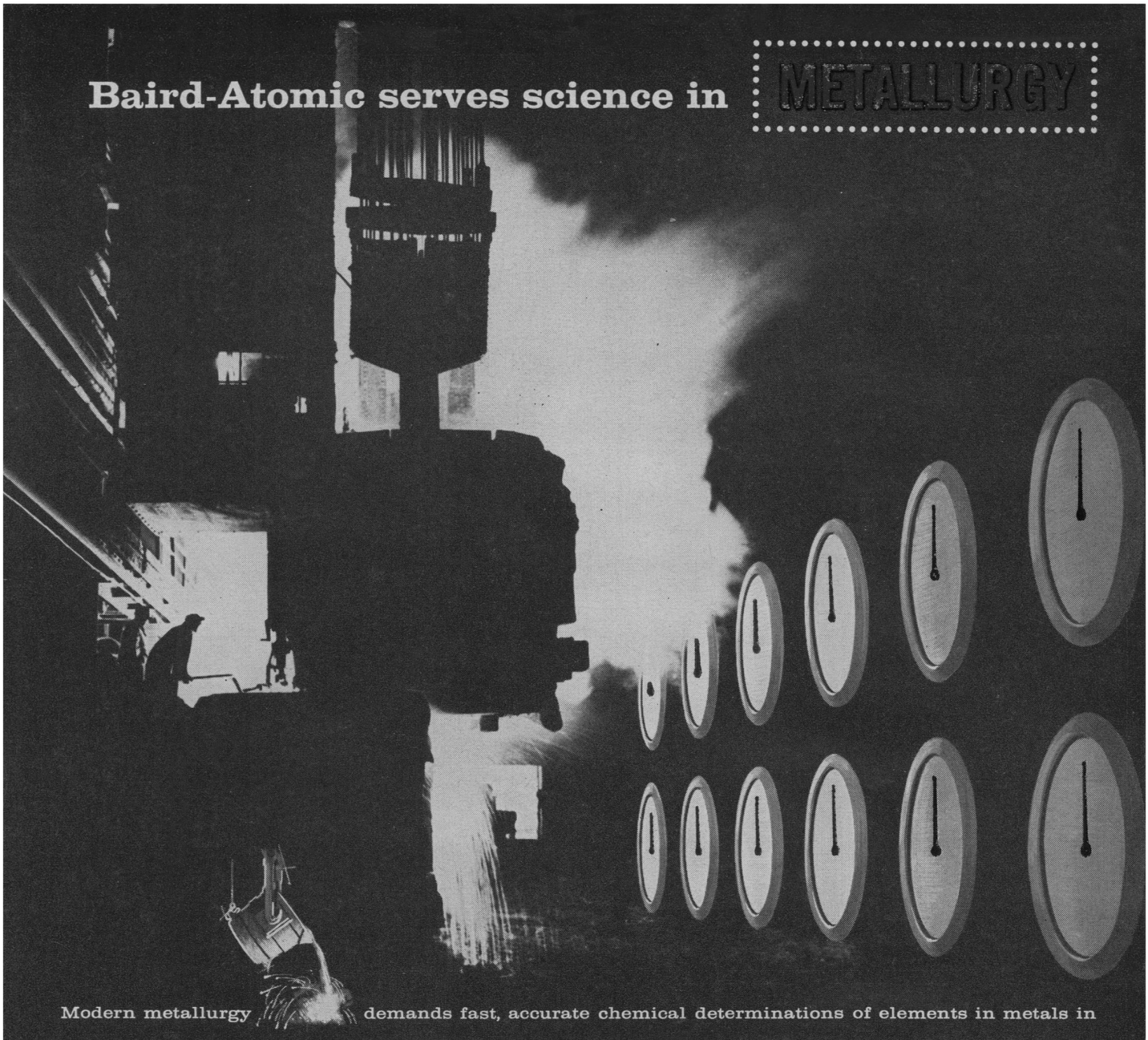

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7 July 1961, Volume 134, Number 3471

SCIENCE

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Cover

Columnar or comb frost on the soil in a thermal area of Yellowstone National Park, 23 February 1961. The frost was produced by the freezing of wet soil and capillary growth which raised the soil surface about 4 inches. On the day the picture was taken, the air temperature dropped to −10°F and the radiant temperature of the sky dropped to −72°F. The vertical rod is a thermometer. See page 32. [David M. Gates, Boulder Laboratories, National Bureau of Standards]

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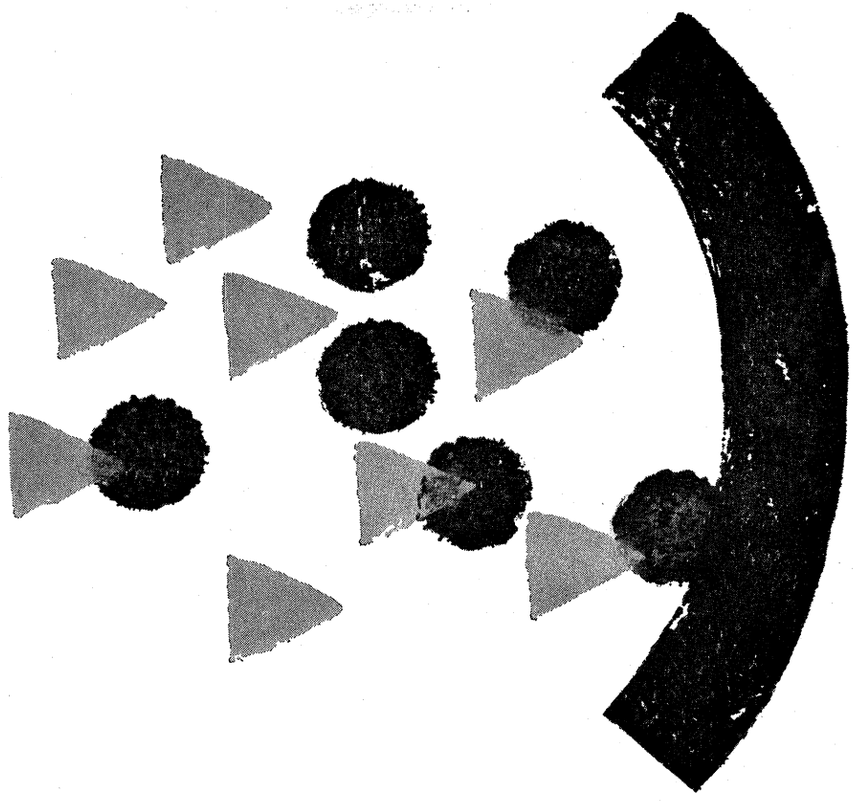

Said Michael Faraday: *"The amounts of different substances deposited or dissolved by the same quantity of electricity, are proportional to their chemical equivalent weights."*

Increasing requirements for pure, very thin films—especially those of ferro-magnetic elements and alloys—have become critical. To break this bottleneck, one production method under investigation is a chemical process from an aqueous solution—using metallic salts and a reducing agent.

Scientists at Lockheed Missiles and Space Division have conducted some highly successful experiments, in which extremely pure and thin ferro-magnetic film was deposited on such material as glass and plastics.

Thin film deposition is but one of many phenomena now being investigated at Lockheed Missiles and Space Division in Sunnyvale and Palo Alto, California, on the beautiful San Francisco Peninsula. Engineers and scientists of outstanding talent and ability naturally gravitate to Lockheed. For here they can pursue their special fields of interest in an ideal environment.

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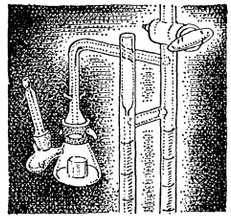
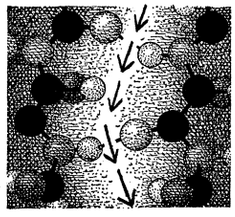
IT HAPPENED THIS MONTH...

a glance at yesterday in relation to today



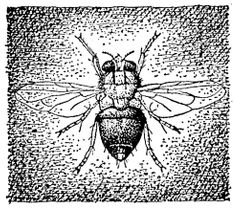
IN JULY—(1873)—Joseph Lister reviews a series of experiments supporting the germ theory of fermentation. This work utterly disproves the rival oxygen theory and shows all reported instances of spontaneous generation have been due to faulty experimentation. There is no evidence that any chemical possesses the one characteristic that distinguishes all true fermentation—self-propagation. However, it has been shown that emulsin, a peculiar albuminous principle existing in sweet and bitter almonds, can break up ten times its weight of amygdalin. "In this sense, then. as intervening between the growth of organisms and the resultant decompositions, the theory of chemical ferments might be welcomed as a valuable hypothesis."[1]

Within a short time, this theory became fully established, and the chemical ferments elaborated by yeast became known as enzymes. It has taken considerably longer for the self-propagating properties of certain chemicals to become a major subject of research. Currently the relation of the nucleic acids to genetic duplication and virus replication has become one of the focal points of research. Whether you are concerned with enzyme action or nucleic acid chemistry, the biochemical intermediates available from Schwarz BioResearch—plain or labeled with C^{14}, H^3, S^{35}, or N^{15}—may provide useful tools for your research.



IN JULY—(1933)—a report from the Lister Institute (London) considers the effect of proteolytic enzymes on the oxytocic hormone. Gulland and Macrae[2] find that two commercial trypsin preparations inactivate this hormone at widely different rates. A comparison experiment using quantities with equal tryptic activity clearly indicates that the inactivating enzyme is not trypsin. Nor is it a papainase, arginase, or prolinase. Aside from the fact that this inactivating enzyme accompanies proteolytic enzymes, there is no evidence adduced here that the oxytocic hormone contains peptide linkages.

Twenty years later, du Vigneaud received the Nobel prize for investigations which established the polypeptide structure of oxytocin through amino acid analysis, systematic degradation, and chemical synthesis. Chemists at the Yeda Research and Development Company at the Weizmann Institute (Israel) have synthesized a wide variety of peptides, polyamino acids, and intermediates for peptide synthesis which are distributed by Schwarz BioResearch. A special catalog listing these compounds is available upon request. Write for a quotation on your individual requirements.



IN JULY—(1953)—the Journal of Histochemistry and Cytochemistry discusses the function of the sarcosomes of insect flight muscle. It is suggested that these small spherical bodies play a role similar to that of mammalian mitochondria. ATP is synthesized in the sarcosomes by oxidative phosphorylation, and the energy-rich phosphate is made available for actomyosin contraction by diffusion into the adjacent muscle fibrils. Following contraction, ADP diffuses back into the sarcosomes (the sarcosomal membrane being impermeable to AMP), and the cycle is repeated.[3]

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1. Lister, J.: On the germ theory of putrefaction and other fermentative changes. Nature *8*:232 (July 17) 1873. 2. Gulland, J. M., and Macrae, T. F.: The oxytocic hormone of the posterior lobe of the pituitary gland. IV. The action of preparations of animal proteolytic enzymes, and some observations on the nature of the hormone. Biochem. J. *27*:1383, 1933. 3. Levenbook, L.: Mitochondria of insect flight muscle. J. Histochem. *1*:242 (July) 1953.

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Atoms and molecules are the same the world over, but organisms and their interactions differ from place to place. A physicist or a chemist can do his work wherever he can find suitable equipment and adequate intellectual and financial support. Not so for the student of disease. For certain diseases—some of those characteristic of the tropics, for example—may be effectively studied only in the regions where they occur. Other diseases have been abolished in some countries; cholera is no longer endemic in the United States. One can of course study the cholera organism here in the laboratory, but the disease itself with all of its epidemiological and immunological manifestations, can only be studied elsewhere.

Despite the brilliant work that many Americans have done abroad in the medical field under the auspices of the Rockefeller Foundation or the military services or the Pan American Sanitary Bureau or the World Health Organization, we still need more skilled investigators, and there are many diseases yet to be tackled through the powerful new techniques of immunology and virology. It is in this context that the International Health and Research Act of 1960 should be viewed. The act made it possible for the Public Health Service to make funds available for the establishment of an International Center for Medical Research and Training at each of several American universities. Each center makes arrangements for one or more institutions to become affiliated with it. The centers will be permanently staffed, and staff members who do field work abroad can thus have continuing and stable careers. Upon their return to the centers they will be better equipped to train others for similar activities. The primary objectives are to give investigators opportunities for research that cannot be done in the United States and to train U.S. graduate students and postdoctoral fellows both here and abroad.

The centers and the foreign collaborating institutions are as follows: University of California and the Institute of Medical Research, Kuala Lumpur, Malaya; Tulane University and Universidad del Valle, Cali, Colombia; Johns Hopkins University and the All-India Institute of Public Health, Calcutta, and the School of Tropical Medicine, Calcutta; University of Maryland and certain institutions in East and West Pakistan; and—as announced last week—Louisiana State University and the Universidad de Costa Rica, San José.

Although the program for research and training is conceived primarily in the self-interest of the United States—after all, disease now eliminated may return, and our nationals will inevitably go where the diseases are—benefits will unquestionably flow to the collaborating countries. The effects on health should become apparent within a few years, and the presence of American investigators should help the foreign institutions to develop their own research skills.

Other and more general benefits may be expected. The knowledge gained through this research program will undoubtedly be widely applied in countries other than those directly engaged. And—although this is more remote—the procedure may well be extended to the social and behavioral sciences, perhaps through the support of private foundations. A means of helping yourself while helping others is worthy of philanthropic interest.—G.DuS.

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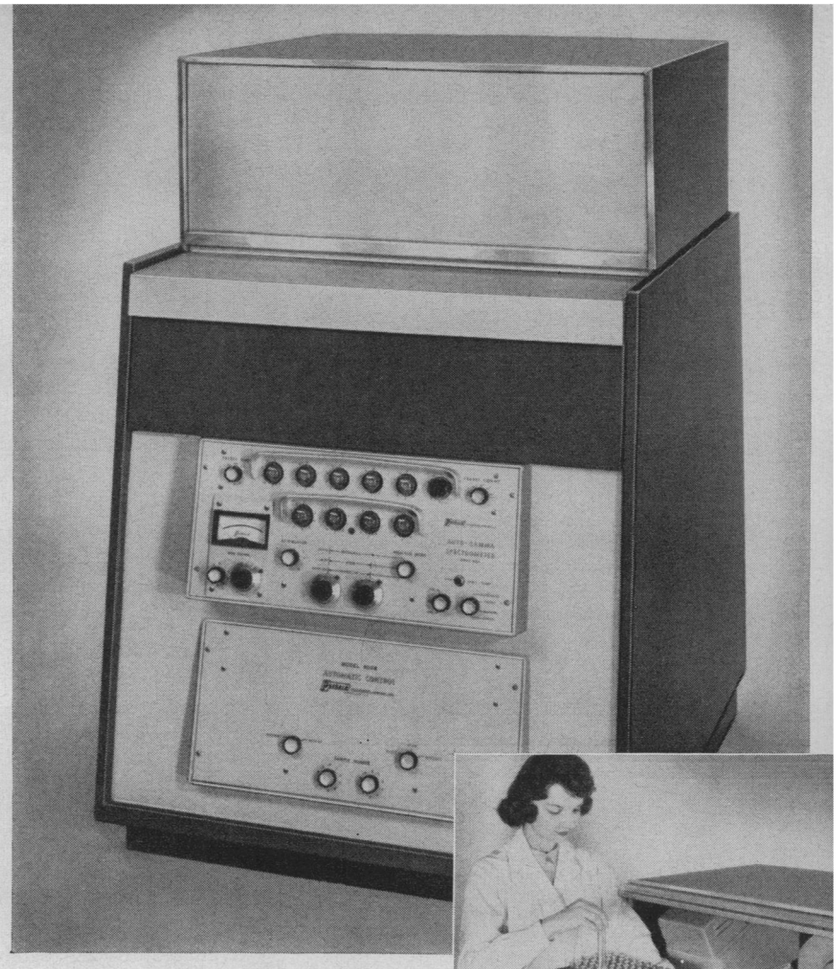

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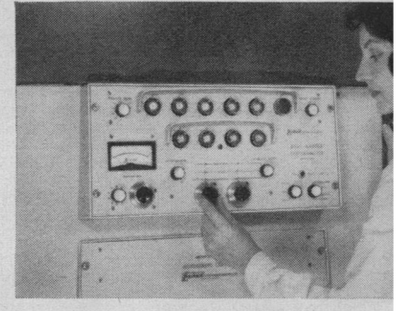

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Meetings

Forthcoming Events

July

31–4. American Crystallographic Assoc., Boulder, Colo. (W. M. Macintyre, Univ. of Colorado, Boulder)

31–4. Biophysics, 1st intern. congr., Stockholm, Sweden. (B. Lindström, Dept. of Medical Physics, Karolinska Institutet, Stockholm 60)

31–4. Differential Equations in Non-Linear Mechanics, Air Force Acad., Colorado Springs, Colo. (J. P. Lasalle, 7212 Bellona Ave., Baltimore 12, Md.)

31–11. Physics of the Solar System and Re-entry Dynamics, conf., Blacksburg, Va. (Bureau of Public Relations, Virginia Polytechnic Inst., Blacksburg)

31–12. Electric Power and Problems of Nuclear Power, seminar, U.N. Economic Commission for Latin America, Mexico, D.F. (A. Dorfman, Chief, Energy and Water Resource Program, Avenue Providencia 871, Santiago, Chile)

August

1–15. Pan American Inst. of Geography and History, 7th general assembly, Buenos Aires, Argentina. (I. Marquina, Secretary General, Instituto Panamericano de Geografia e Historia, Ex-Arzobispado 29, Mexico 18, D.F.)

1–26. Functional Analysis, 8th American Mathematical Soc. summer institute, Stanford, Calif. (P. D. Lax, AMS, 190 Hope St., Providence 6, R.I.)

2–5. International Conf. of Pure and Applied Chemistry, 21st, Montreal, Canada. (R. Morf, Hoffmann-LaRoche, S.A., Grenzachterstrasse 124, Basel, Switzerland)

3–5. Canadian Chemical Conf. and Exhibition, 44th, Montreal. (Chemical Inst. of Canada, 48 Rideau St., Ottawa 2, Ont.)

4–5. Pennsylvania Acad. of Science, 36th summer, Grove City. (J. J. McDermott, Franklin and Marshall College, Lancaster, Pa.)

5–9. International Rorschach Soc., 5th congr., Fribourg-en-Brisgau, Germany. (A. Friedemann, Chemin des Pêcheurs 6, Bienne, Switzerland)

6–10. Occupational Medicine and Toxicology, 3rd Inter-American conf., Miami, Fla. (W. B. Deichmann, School of Medicine, Univ. of Miami, Coral Gables, Fla.)

6–12. Atmospheric Ozone and General Circulation, symp., Arosa, Switzerland. (H. U. Duetsch, 20 Carl Spittelerstrasse, Zürich 53, Switzerland)

6–12. Chemical and Thermodynamic Properties at High Temperatures, symp., Montreal, Canada. (N. F. H. Bright, Natl. Research Council, Ottawa, Canada)

6–12. International Congr. of Pure and Applied Chemistry, 18th, Montreal, Canada. (L. Marion, Natl. Research Council, Ottawa 2, Canada)

7–9. Guidance and Navigation Conf., American Rocket Soc., Palo Alto, Calif. (J. J. Harford, ARS, 500 Fifth Ave., New York, N.Y.)

7–9. International Committee of Electro-Chemical Thermodynamics and Kinetics, 13th meeting, Montreal, Canada. (N. Ibl, Eidg. Technische Hochschule, Laboratorium für Physikalische und Elektrochemie, Universitätsstrasse 6, Zürich 6, Switzerland)

7–9. Space Age Astronomy, intern. symp., Pasadena, Calif. (D. W. Douglas, Jr., Douglas Aircraft Co., Inc., Santa Monica, Calif.)

7–10. National Medical Assoc., New York, N.Y. (J. T. Givens, 1108 Church St., Norfolk, Va.)

7–11. High Temperature Chemistry and Thermodynamics, symp., Montreal, Canada. (L. Brewer, Dept. of Chemistry, Univ. of California, Berkeley)

7–11. Seminar on Fast and Intermediate Reactors, International Atomic Energy Agency, Vienna, Austria. (IAEA, 11 Kärtner Ring, Vienna 1)

8–11. Poultry Science Assoc., State College, Pa. (C. B. Ryan, Texas A & M College, College Station)

8–16. Society of Protozoologists, Prague, Czechoslovakia. (N. D. Levine, College of Veterinary Medicine, Univ. of Illinois, Urbana)

10–16. International Congr. of Biochemistry, 5th, Moscow, U.S.S.R. (N. M. Sissakian, Leninsky prospekt, 33, Moscow)

10–16. International Union of Biochemistry, 4th general assembly, Moscow, U.S.S.R. (R. H. S. Thompson, IUB, Dept. of Chemical Pathology, Guy's Hospital Medical School, London, S.E.1, England)

12–19. Fast Reactions, summer school, Cambridge, England. (Secretary of the Summer School, Dept. of Physical Chemistry, Lensfield Road, Cambridge)

13–18. Microchemical Techniques, intern. symp., University Park, Pa. (H. J. Francis, Jr., Pennsalt Chemical Corp., P.O. Box 4388, Chestnut Hill Post Office, Philadelphia 18, Pa.)

13–18. Theoretical Aspects of Magnetohydrodynamics, seminar, University Park, Pa. (Conference Center, Pennsylvania State Univ., University Park)

13–19. International Assoc. of Applied Psychology, 14th congr., Copenhagen, Denmark. (Congress Secretariat, 19 Sankt Pederstraede, Copenhagen K.)

13–19. Training for Research in the Processes of Vision, 1st intern. conf., Rochester, N.Y. (Office of Public Information, River Campus Station, Rochester)

14–17. Calorimetry Conf., intern., Ottawa, Canada. (J. E. Kunzler, Bell Telephone Laboratories, Murray Hill, N.J.)

14–19. International Medical Conf. on Mental Retardation, 2nd, Vienna, Austria. (Miss E. Langer, Div. of Maternal and Child Health, State House, Augusta, Maine)

14–19. Symposium on Radiation, Vienna, Austria. (World Meteorological Organization, 1 Avenue de la Paix, Geneva, Switzerland)

14–25. Israel Medical Assoc., 5th world assembly, Jerusalem, Israel. (Beth-Harofeh, 1 Heffman St., Tel-Aviv, Israel)

14–26. Plant Pathology, conf., Lafayette, Ind. (J. F. Schafer, Dept. of Botany and Plant Pathology, Purdue Univ., Lafayette)

14–26. World Eucalyptus Conf., 2nd, São Paulo, Brazil. (Intern. Agency Liaison Branch, Office of the Director General, Food and Agriculture Organization, Viale delle Terme di Caracalla, Rome, Italy)

15–17. International Assoc. of Milk and Food Sanitarians, Jekyll Island, Ga.

Kodak reports on:

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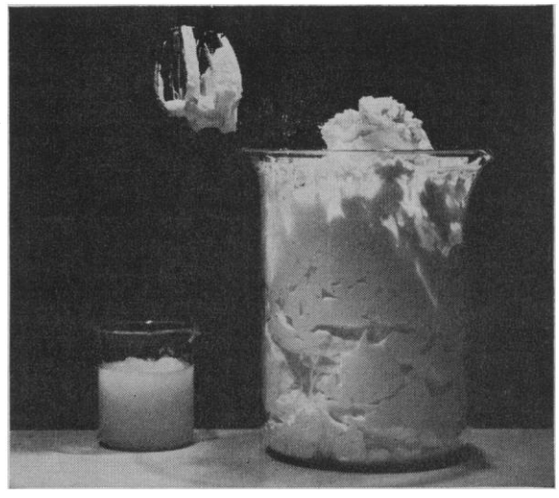

Millions of Americans now facing a biological problem without significant precedent in all human history may well sit up and take notice of this picture. Theirs is the problem of avoiding more calories than their doctors say are good for them while enjoying the primal delight of good eating to which evolution has attuned the nervous system.

Both beakers contain the same quantity of applesauce. The one on the right contains only two additional ingredients: 1% of *Myverol Distilled Monoglycerides, Type 18-00* and 1000% of air. Both of these added ingredients are recognized by competent authorities to be as harmless as applesauce itself. One adds the monoglyceride, warms, and whips warm or cold. An ordinary kitchen mixer will do. If the result is a bit too airy for the common taste, one can either use more strongly flavored applesauce, freeze while mixing (as in making ice cream), or both. Even unfrozen, the fruit-fluff is every bit as stiff as it looks in the picture and stays so for several hours. If you want more time, you can dry it down to a powder, package it, ship it to a store, and let a customer whip it after reconstituting with hot water.

It doesn't have to be applesauce, either. We have made the idea work just as well with pears, bananas, peaches, tomato juice, grape juice, and sweet potatoes. We don't see why it wouldn't work with any other strained or pureed fruit or vegetables, or even with puree-like materials for purposes other than food.

We don't sell applesauce or any other purees. We don't even sell Myverol Distilled Monoglycerides in family-size quantities. We love to sell them, though, in processor-size quantities and love to talk to processors about them. The address is Distillation Products Industries, Rochester 3, N. Y. (Division of Eastman Kodak Company).

Our connections with the heavens

We have three connections with the heavens:

1. Years ago we threw our weight on the side of the angels by a Good Deed. We went to work for the astronomers, a group noted for the slimness of their budgets. We made them the special photographic plates needed for all the projects that have seemed pressing to them, like measuring the angular momentum of galaxies. This work has netted us a medal or two but no wealth. That's all right. Questions about these plates are answered by Eastman Kodak Company, Special Sensitized Products Division, Rochester 4, N. Y. Professional astronomers know that address very well.

2. Amateur astronomers are among the most numerous of scientific-type hobbyists. Many thousands of persons who have to deal all day with tiresome human affairs like to reach out toward the ultimate verities through a backyard telescope. But, being human themselves, they hanker for tangible trophies of the sport. These photography can provide. To guide, we provide a free booklet, "Astrophotography with Your Camera," from the same address the professionals know. The amateur astronomers far outnumber the professionals and buy standard Kodak films at popular prices.

3. A protostar evolving from clouds of dust a million light-years away and an ICBM a thousand miles from the U. S. border have a certain resemblance in the infrared. At Ohio State University we have some astronomers working for us on an astronomical job which lack of suitable equipment has long delayed—preparation of an atlas of infrared emitters on the celestial sphere to 13.5 microns. We made them the missing equipment. We need the atlas. We have our reasons. The equipment includes a drift-free homodyne amplifier which takes a signal from our liquid-helium-cooled copper-doped germanium detector on the 69-inch Perkins Observatory telescope. It can cramp down to a .0011 cycle/sec scanning bandwidth so that in 20 minutes it can distinguish the emission of a single star from intergalactic infrared noise. Those who have need and funds for such up-to-date infrared systems should get in touch with Eastman Kodak Company, Apparatus and Optical Division, Rochester 4, N. Y.

Why snip in the dark?

The "cultural lag" they talk about in sociology serves in simple ways to restrain technology from advancing too fast.

X-rays were discovered through their effect on the photographic emulsion. Photographic emulsion comes on photographic film. Photographic film is mostly used to take pictures by visible light. Visible light won't pass through paper. Paper therefore protects from light. The converse yields the principle that a sheet of film must be extracted from its paper protection before use. This principle seems sort of fundamental to photography. Though modern radiography employs a different kind of film and even omits a camera, the principle of transferring the film from its package to a separate exposure holder before use has been respectfully preserved (except by dentists who seem, in this respect at least, a little brighter than the rest of us).

The chains that bind have now been sundered. *Kodak Industrial X-ray Film* in sheets has been available for some little time now in a *Ready Pack* form, enclosed in individual lighttight packets. Now one can also buy a 200-foot roll of 70mm, 35mm, or 16mm x-ray film with a paper skin on it. One cuts off what one needs, seals the end with opaque tape, and strips off the paper just before processing.

You can get Kodak Industrial X-ray Film, Type AA *and* Type M *this way. (Type M is the one that trades speed for maximum resolution.) Eastman Kodak Company, X-ray Division, Rochester 4, N. Y. can supply the name of the nearest dealer.*

This is another advertisement where Eastman Kodak Company probes at random for mutual interests and occasionally a little revenue from those whose work has something to do with science

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TRADEMARK

(H. L. Thomasson, P.O. Box 437, Shelbyville, Ind.)

15–18. Technical Assoc. of the Pulp and Paper Industry, 12th testing conf., Montreal, Canada. (TAPPI, 155 E. 44 St., New York 16)

15–24. International Astronomical Union, 11th general assembly, Berkeley, Calif. (D. H. Sadler, Royal Greenwich Observatory, Hailsham, Sussex, England)

16–18. Hypersonics Conf., intern., Cambridge, Mass. (J. J. Harford, American Rocket Soc., 500 Fifth Ave., New York, N.Y.)

18–21. Association of American Geographers, East Lansing, Mich. (M. F. Burrill, 1785 Massachusetts Ave., NW, Washington 6)

19–30. Agricultural Economists, 11th intern. conf., Cuernavaca, Mexico. (J. Ackerman, Farm Foundation, 600 S. Michigan Ave., Chicago, Ill.)

20–23. International Ergonomics Assoc., 1st congr., Stockholm, Sweden. (T. Olson, Dept. of Industrial Physiology, G.C.I. Lidingövägen 1, Stockholm)

20–24. American Veterinary Medical Assoc., Detroit, Mich. (H. E. Kingman, AVMA, 600 S. Michigan Ave., Chicago 5, Ill.)

21–23. International Hypersonics Conf., Cambridge, Mass. (F. Ridell, Avco Research Laboratory, 301 Lowell St., Wilmington, Mass.)

21–24. Biological Photographic Assoc., Chicago, Ill. (Mrs. J. W. Crouch, Box 1668, Grand Central P.O., New York 17)

21–24. International Conf. on Photoconductivity, Ithaca, N.Y. (E. Burstein, Dept. of Physics, Univ. of Pennsylvania, Philadelphia)

21–26. International Congr. of Psychotherapy, 5th, Vienna, Austria. (W. Spiel, Lazarettg. 14, Vienna 9)

21–26. World Traffic Engineering Conf., Washington, D.C. (Intern. Road Federation, 1023 Washington Bldg., Washington 5)

21–27. International Assoc. of Dental Students, congr., London, England. (D. H. Clark, Royal Dental Hospital, Leicester Sq., London, W.C.2)

21–31. United Nations Conf. on New Sources of Energy, Rome, Italy. (United Nations, New York, N.Y.)

21–2. International Congr. of Practical Medicine, Merano, Italy. (Bundesärztekammer, 1 Hädenkampfstrasse, Cologne, Germany)

21–6. Pacific Science Congr., 10th, Honolulu, Hawaii. (Secretary General, 10th Pacific Science Congr., Bishop Museum, Honolulu)

22–25. International Pharmacological Meeting, 1st, Stockholm, Sweden. (A. Wretlind, Karolinska Institutet, Stockholm 60)

22–30. International Conf. on Protozoology, Prague, Czechoslovakia. (N. D. Levine, College of Veterinary Medicine, Univ. of Illinois, Urbana)

23–25. Gas Dynamics, symp., biennial, Evanston, Ill. (J. J. Harford, American Rocket Soc., 500 Fifth Ave., New York, N.Y.)

23–26. Electron Microscope Soc. of America, Pittsburgh, Pa. (Miss M. L. Rollins, Agricultural Research Service, U.S. Department of Agriculture, P.O. Box 19,687, New Orleans 19, La.)

23–26. Institute of Management Sciences, 8th annual intern., Brussels, Belgium. (W. Smith, Inst. of Science and Technology, Univ. of Michigan, Ann Arbor)

23–1. Radioisotopes in the Biological Sciences, conf., Intern. Atomic Energy Agency, Vienna, Austria. (IAEA, 11 Kärtner Ring, Vienna 1)

24–26. Physiology of the Hippocampus, intern. colloquium, Montpellier, France. (Mme. Mineur, Centre National de la Recherche Scientifique, 13 Quai Anatole France, Paris 7)

26–1. Radiology, 10th intern. congr., Montreal, Canada. (C. B. Peirce, Suite 204, 1555 Summerhill, Montreal 25)

26–2. History of Science, 5th intern. congr., Ithaca, N.Y., and Philadelphia, Pa. (Secretary, 5th Intern. Congress of the History of Science, Cornell Univ., Ithaca)

27–29. International Congr. of Group Psychotherapy, 3rd, Paris, France. (W. Warner, P.O. Box 819, Grand Central Station, New York 17)

27–29. Psychosomatic Aspects of Neoplastic Disease, 2nd annual conv., Paris, France. (L. L. LeShan, Intern. Psychosomatic Cancer Study Group, 144 E. 90 St., New York 28)

27–31. American Soc. of Plant Psysiologists, Lafayette, Ind. (C. O. Miller, Indiana Univ., Bloomington)

27–1. American Congr. of Physical

Medicine and Rehabilitation, Cleveland, Ohio. (D. C. Augustin, 30 N. Michigan Ave., Chicago 2, Ill.)

27–1. American Inst. of Biological Sciences, annual, Lafayette, Ind. (J. R. Olive, AIBS, 2000 P St., NW, Washington 6)

27–1. Coordination Chemistry, 6th intern. conf., Detroit, Mich. (S. Kirschner, Dept. of Chemistry, Wayne State Univ., Detroit 2)

28–30. Mathematical Assoc. of America, Stillwater, Okla. (H. L. Alder, MAA, Univ. of California, Davis)

28–30. Oak Ridge Inst. of Nuclear Studies, 8th annual summer symp., Gatlinburg, Tenn. (Symposium Office, University Relations Division, Oak Ridge Inst. of Nuclear Studies, P.O. Box 117, Oak Ridge, Tenn.)

28–30. Scandinavian Symp. on Fat Rancidity, 3rd, Sandefjord, Norway. (E. Törnudd, Gaustadallen 30, Blindern, Norway)

28–31. American Assoc. of Clinical Chemists, natl., New York, N.Y. (B. Klein, Chemistry Dept., Kingsbridge V.A. Hospital, Bronx, N.Y.)

28–31, American Soc. for Pharmacology and Experimental Therapeutics, Rochester, N.Y. (K. H. Beyer, Merck, Sharp and Dohme Research Laboratories, West Point, Pa.)

28–31. Botanical Soc. of America, Lafayette, Ind. (B. L. Turner, Dept. of Botany, Univ. of Texas, Austin 12)

28–31. Chemical Physics of Nonmetallic Crystals, intern. conf., Evanston, Ill. (O. C. Simpson, Argonne National Laboratory, 9700 South Cass Ave., Argonne, Ill.)

28–1. Heat Transfer Conf., intern., Boulder, Colo. (S. P. Kezios, American Soc. of Mechanical Engineers, 29 W. 39 St., New York 18)

28–1. Ionization Phenomena in Gases, 5th intern. conf., Munich, Germany. (Secretariat, Oskar von Miller Ring 18, P.O. 463, Munich 1)

28–1. Radioactive Metrology, symp., Oxford, England. (B. W. Robinson, Applied Physics Division, National Physical Laboratory, Teddington, Middlesex, England)

28–1. Rockets and Astronautics, 3rd intern. symp., Tokyo, Japan. (Japanese Rocket Soc., 1-3, Ginza-Nishi, Chuo-Ku, Tokyo)

28–2. European Soc. of Haematology, 8th congr., Vienna, Austria. (H. Fleischhracker, Frankgasse 8, Billrothhaus, Vienna 9)

28–2. International Assoc. of Medical Laboratory Technologists, general assembly, Stockholm, Sweden. (Miss M. Westenins, Statens Bakteriologiska Laboratorium, Box 764, Stockholm 1)

28–2. Detonation Waves, intern. colloquium, Gif-sur-Yvette, France. (G. M. Ribaud, Centre National de la Recherche Scientifique, 13 Quai Anatole France, Paris 7, France)

28–2. Mechanics of Turbulence, intern. colloquium, Marseilles, France. (A. Favre, Faculté des Sciences, Université, Marseilles)

29. American Soc. for Horticultural Science, Lafayette, Ind. (R. E. Marshall, Dept. of Horticulture, Michigan State Univ., East Lansing)

(See issue of 16 June for comprehensive list)