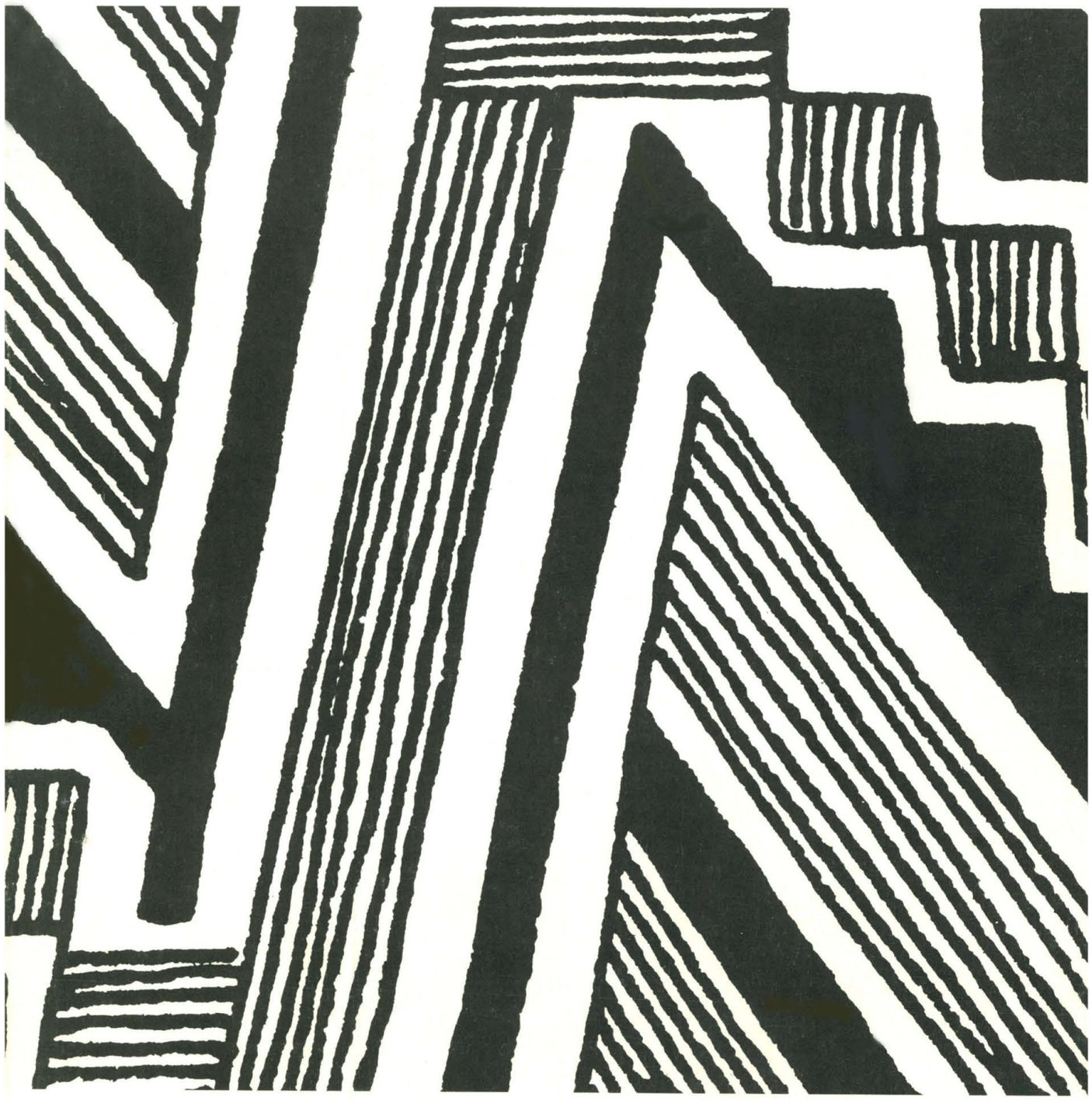
SCIENCE

24 September 1965

Vol. 149, No. 3691

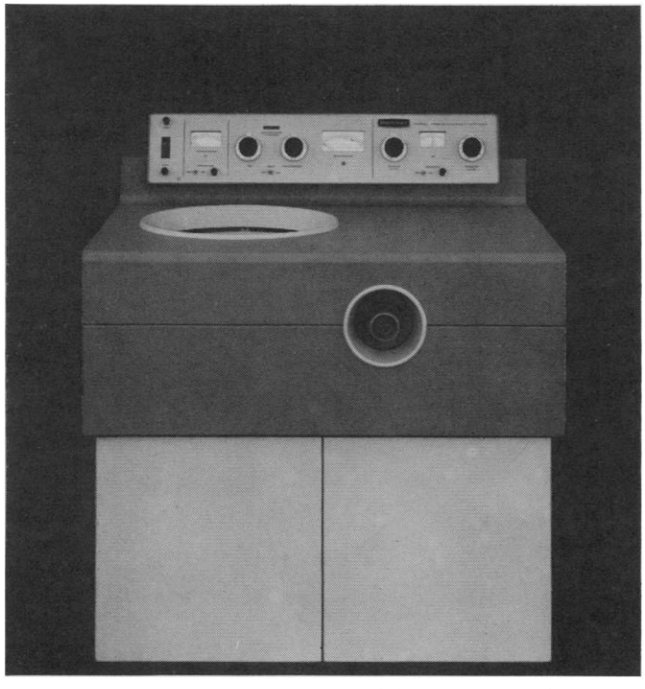
AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE



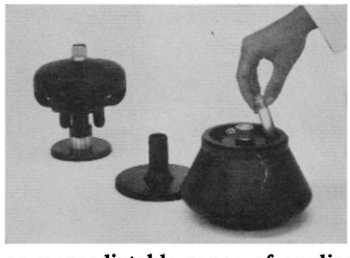
ST. JOHNS POLYCHROME DESIGN

Index Issue

Two New Beckman Ultracentrifuges

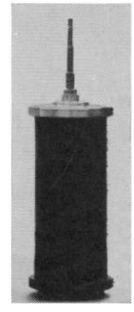


The Model L2-65—a powerful new preparative ultracentrifuge that will reduce separation times and improve resolution, and may bring some unexpected particles within the realm of routine investigation. The power of the L2-65 lies in its 65,000 rpm drive; two rotors are already available to take advantage of that speed, to



generate forces in excess of 400,000 *g*. More rotors are on their way. In addition, the L2-65 will accept all Beckman Model L and L2-50 rotors for an unprecedented variety of speeds, forces, and capacities to suit an unpredictable range of applications. Standard features of the L2-65 include exacting temperature and speed controls, automatic temperature readout from the rotor itself, a diffusion pump to increase rotor chamber vacuum to 1 micron or below.

The Model L4—a new concept in ultracentrifuges that permits introduction of sample solution and recovery of fractions during rotation, providing separations at 90,000 *g* in greater quantity than ever before. The L4 is actually three instruments in one. Its extra-deep rotor chamber accommodates a large-scale density gradient Zonal Rotor that holds 1725 ml, and a Continuous Flow Rotor that accepts sample solution at a rate of approximately two liters per hour. The large-scale Zonal and Continuous



Flow capabilities will be particularly valuable in studies of the distribution of particulates and in the production of vaccines, proteins, ribosomes, etc. And with its 65,000 rpm drive, the L4 can also utilize most Beckman Model L, L2-50, and L2-65 rotors. Other features—a removable control panel for remote use and solid-state speed control circuitry. For complete details on both these exciting new instruments—from the Company that knows ultracentrifugation best—write for Data File L24-5.

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AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

COVER

Design found on the interior surfaces of bowls from the southwestern plateau area of the United States dates back to A.D. 1175–1300. Three colors were used, hence the pottery is classified as polychrome. The interior design is black and orange; the exterior is white on black. St. Johns Polychrome was very popular and widely traded. See review of *Southwestern Archaeology*, page 1490. [University of Illinois Press]

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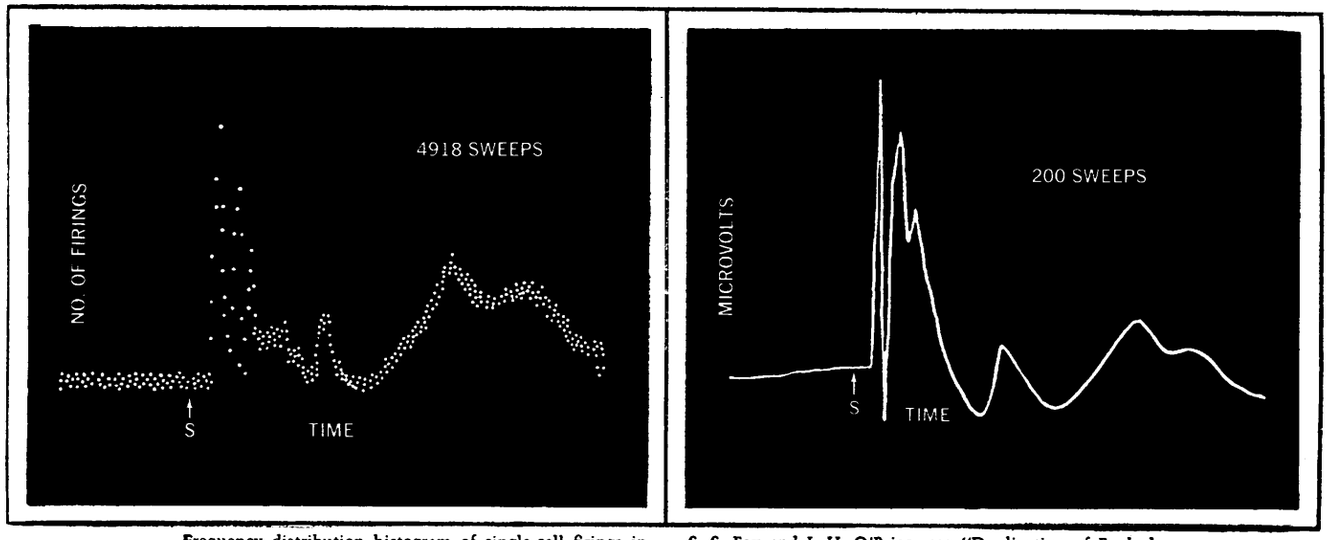
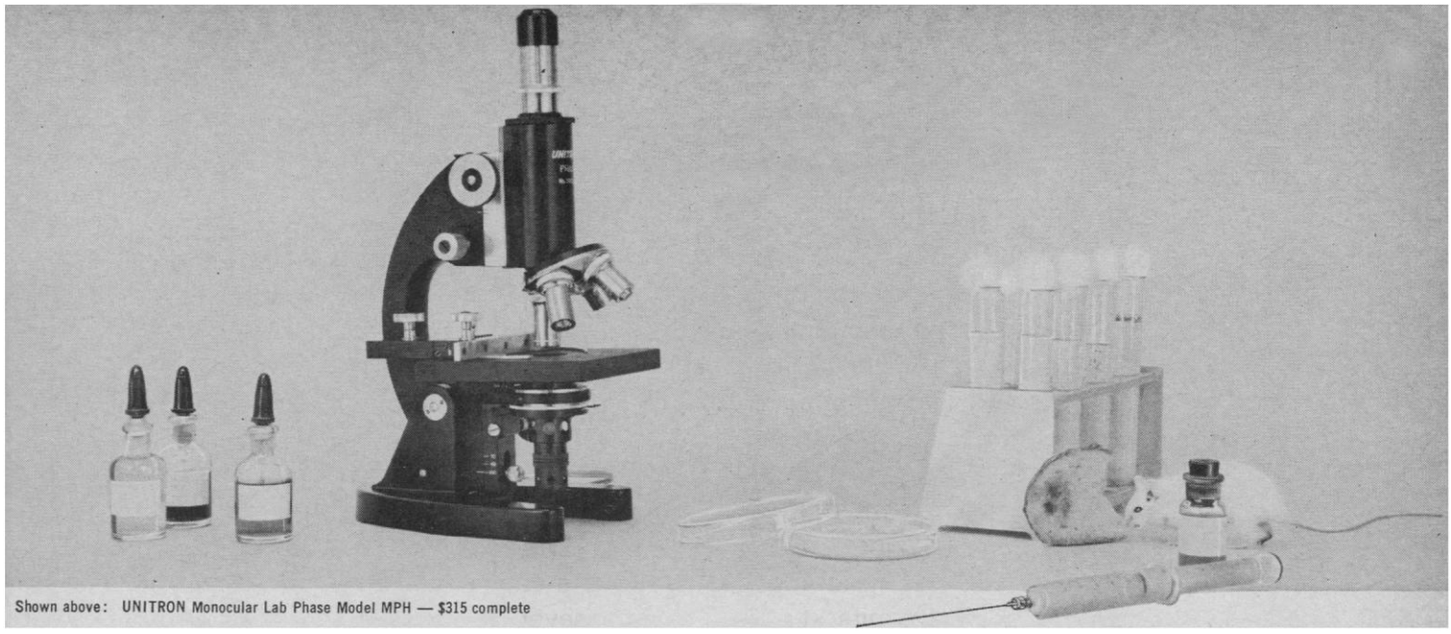


Frequency distribution histogram of single-cell firings in response to 4918 stimuli, and averaged evoked potential to 200 stimuli (visual cortex of cat). Data courtesy of S. S. Fox and J. H. O'Brien, see "Duplication of Evoked Potential Waveform by Curve of Probability of Firing of a Single Cell", SCIENCE, Vol. 147, 19 February, 1965.



Shown above: UNITRON Monocular Lab Phase Model MPH — $315 complete

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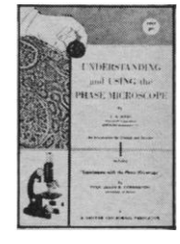

Ask for a free 10-day trial. Please specify whether you want to try Model MPH or BPH. A phase booklet is shipped with each microscope . . . or, you may request the booklet separately.

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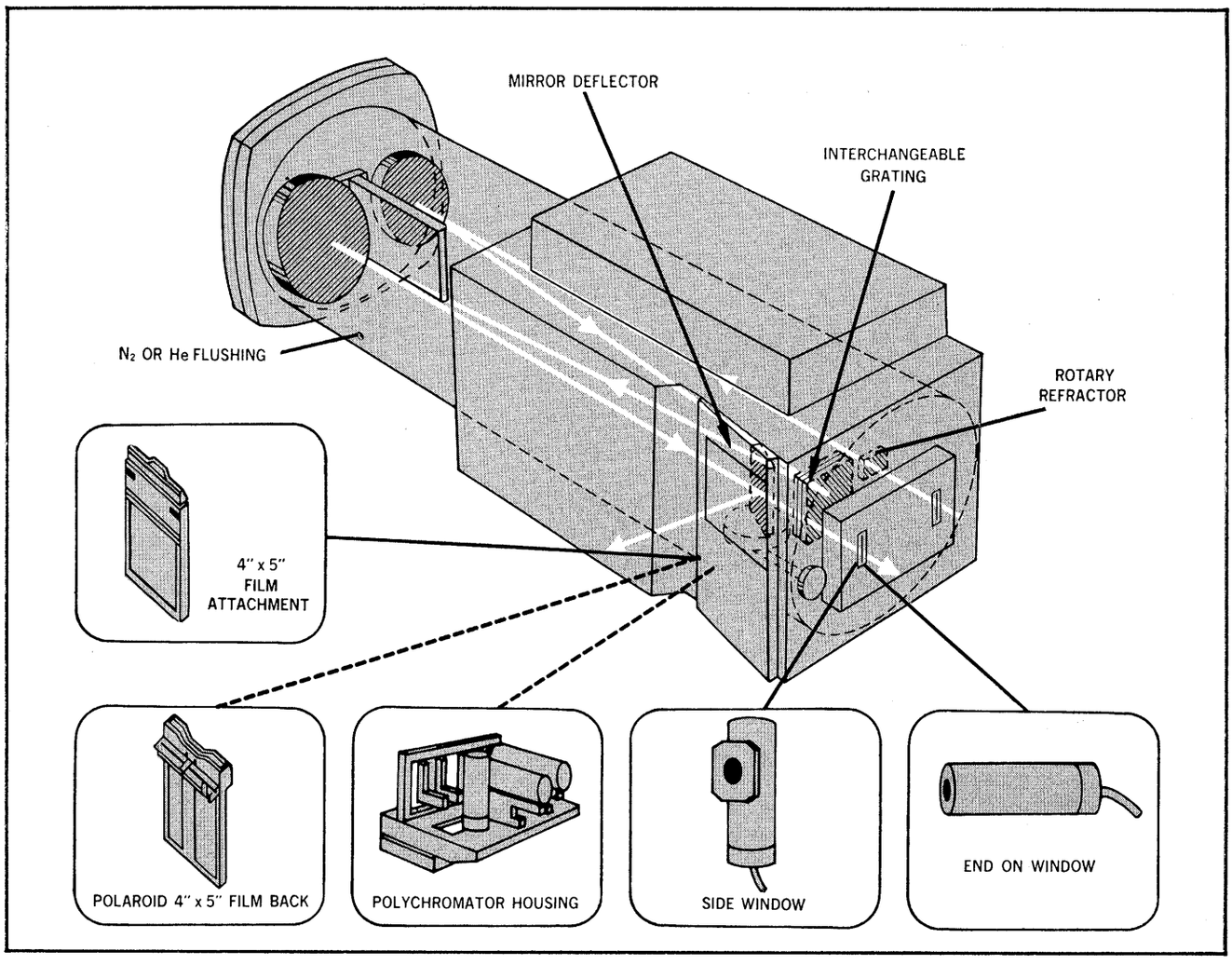

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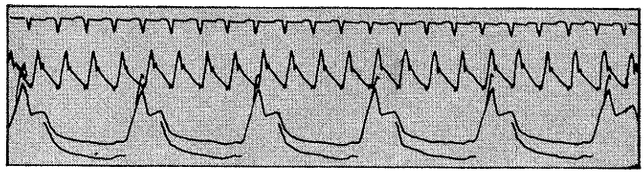


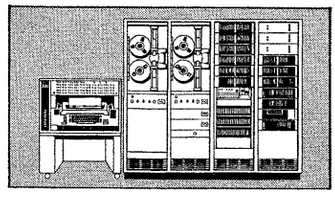
Real Time Waveform Measurement

Peak values, axis crossings, ratios of successive differences, and other characteristics of analog signals are measured in real time. Incoming signals are monitored for events of interest, using complex programmed detection criteria. In a typical biomedical application, the result is a 100-to-1 reduction in the bulk of magnetic tape output records.

$$A(n,w)=\int_0^T W(t)F(n,t)\cos(wt)dt$$
$$B(n,w)=\int_0^T W(t)F(n,t)\sin(wt)dt$$

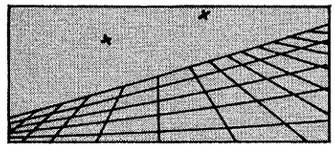
Spectrum Analysis

Parallel hybrid multiplication and summing, 2 microsecond 30-bit digital storage, and a flexible instruction format providing efficient list processing combine to make the AMBILOG 200 powerful in statistical signal analysis techniques such as Fourier transformation, auto and cross correlation, power spectrum density analysis, and generation of histograms of amplitude spectra.



Digitizing and Recording

Multiple inputs, from up to several hundred sources, are routed through a multiplexer switch array under stored program control. At no penalty in sampling rates over conventional systems, the AMBILOG 200 converts incoming data to engineering units for recording or monitoring. An analog-to-digital converter performs a complete 15-bit conversion in 4 microseconds for digital storage, recording or outputing.



Display Generation

Multiple analog outputs facilitate close man-machine relationships in systems involving visual displays. Points of an image stored in memory are rotated through three space angles and projected on a CRT at a 50 Kc rate. Co-ordinate transformation is accomplished simultaneously with digital-to-analog conversion.

For technical reports describing in detail these and similar AMBILOG 200 applications, write I. R. Schwartz, Vice President.

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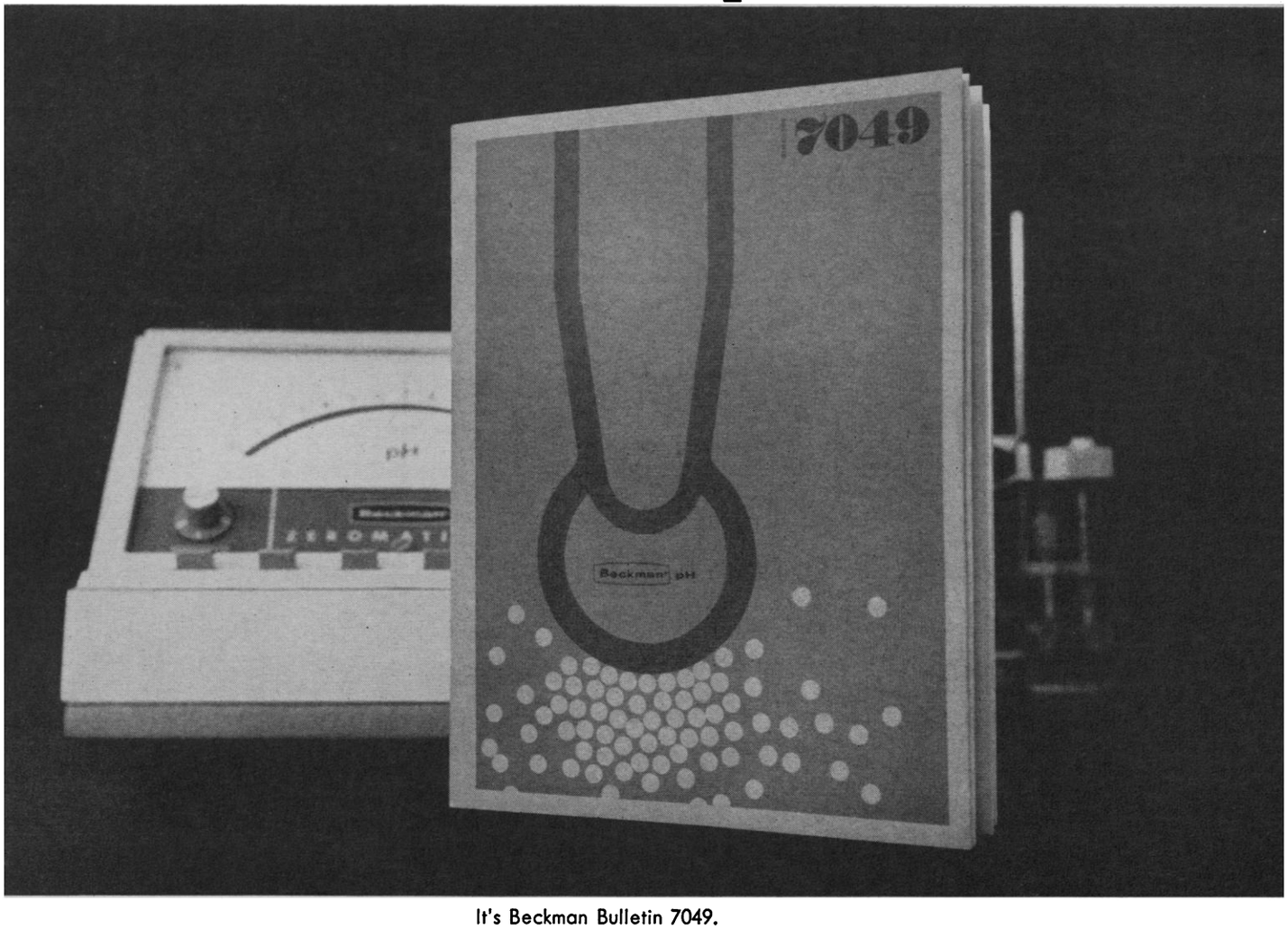
The last word in pH



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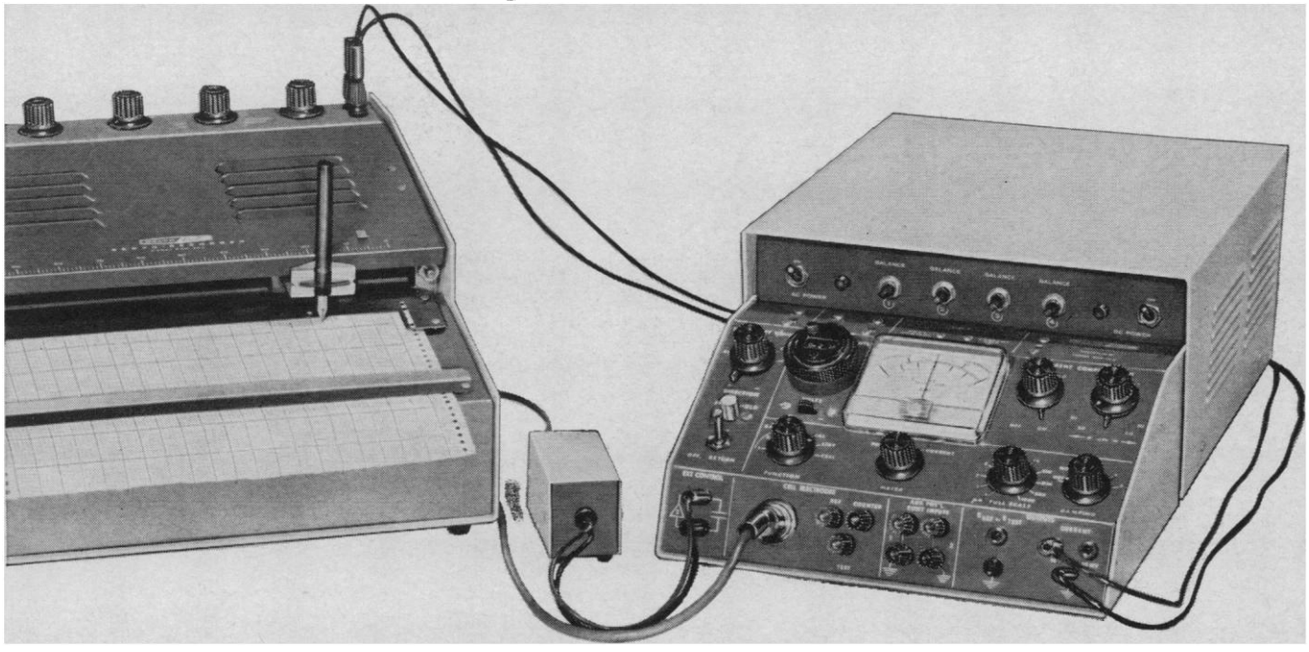

...The Heath Malmstadt-Enke EUW-401

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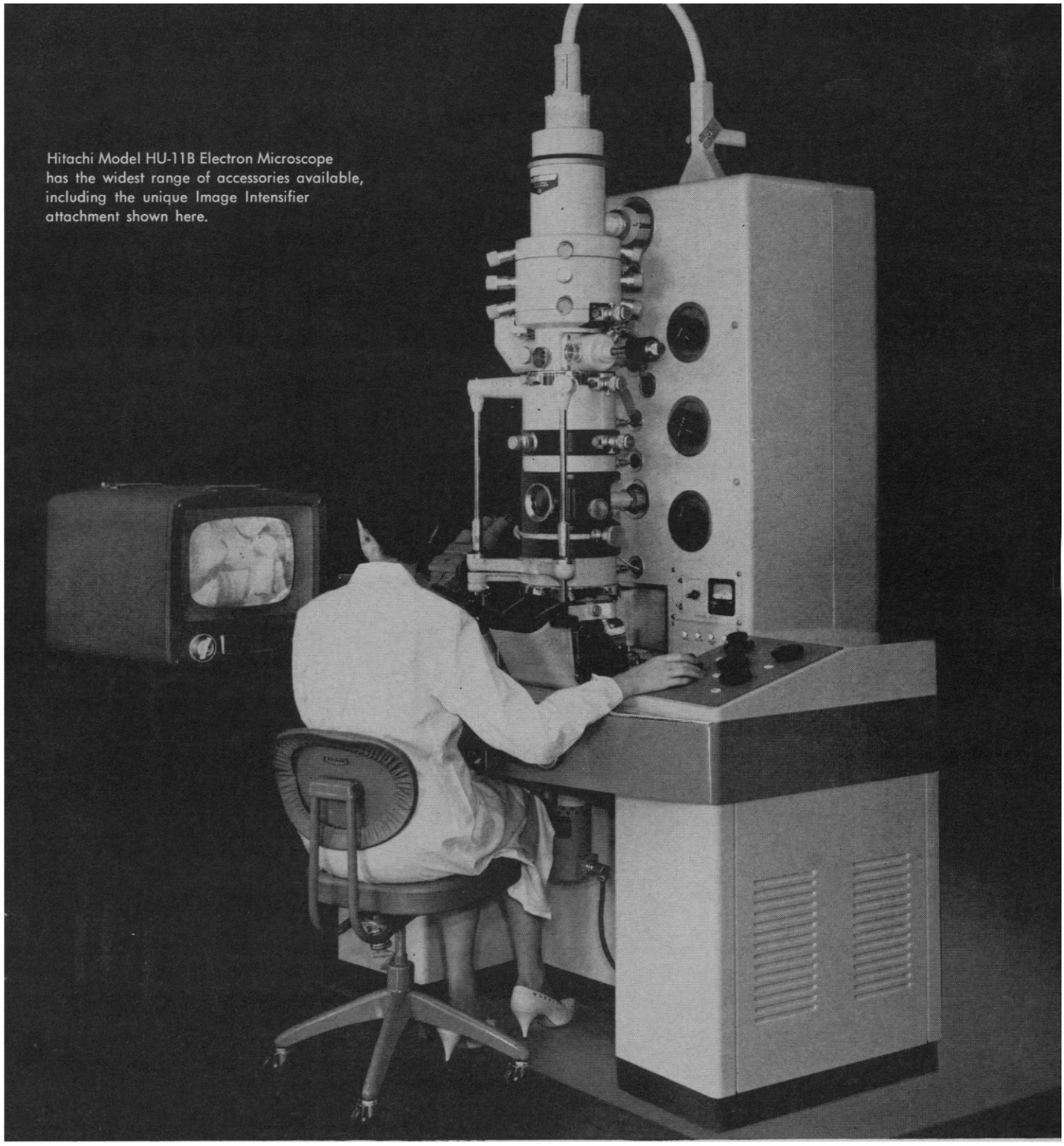

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THE HITACHI HU-11B

Many electron microscopists know this remarkable instrument as the highest-resolution electron microscope in the world. Most recently it broke its previous records by resolving the 1.81 angstrom lattice planes of copper. But the HU-11B has demonstrated something else in the more than 50 laboratories in which it is now installed. It is very easy to operate.

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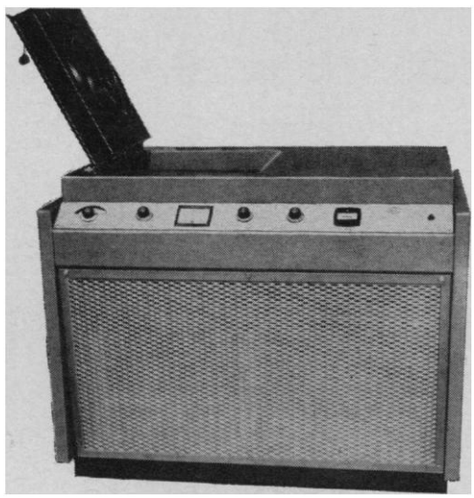
PERKIN-ELMER

The New IEC B-20 High Speed Refrigerated Centrifuge costs $500 more.



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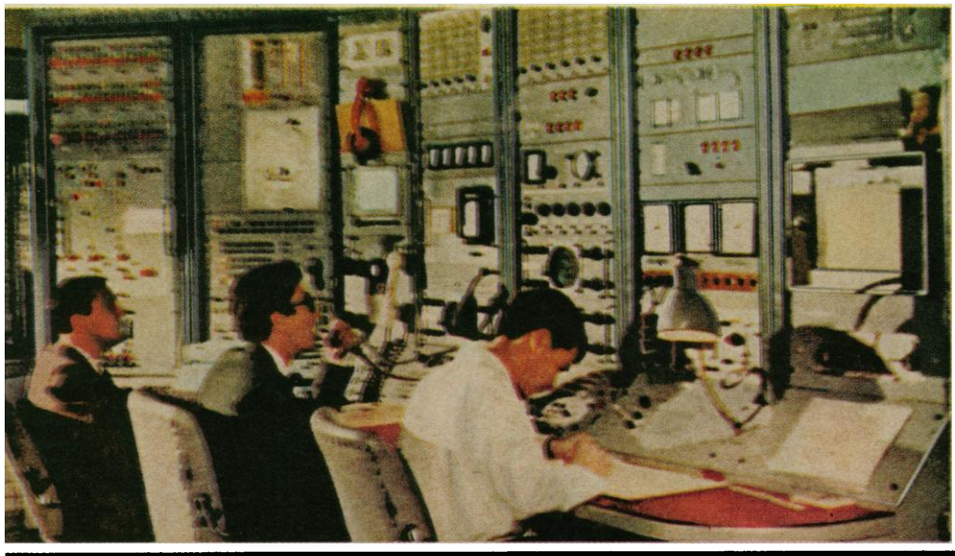

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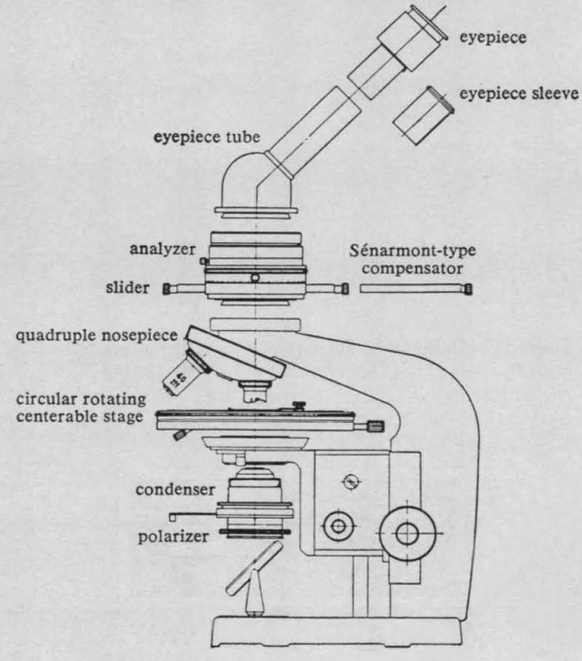
For complete details, write: Nikon Incorporated, Instrument Division, Garden City, N.Y. 11533.



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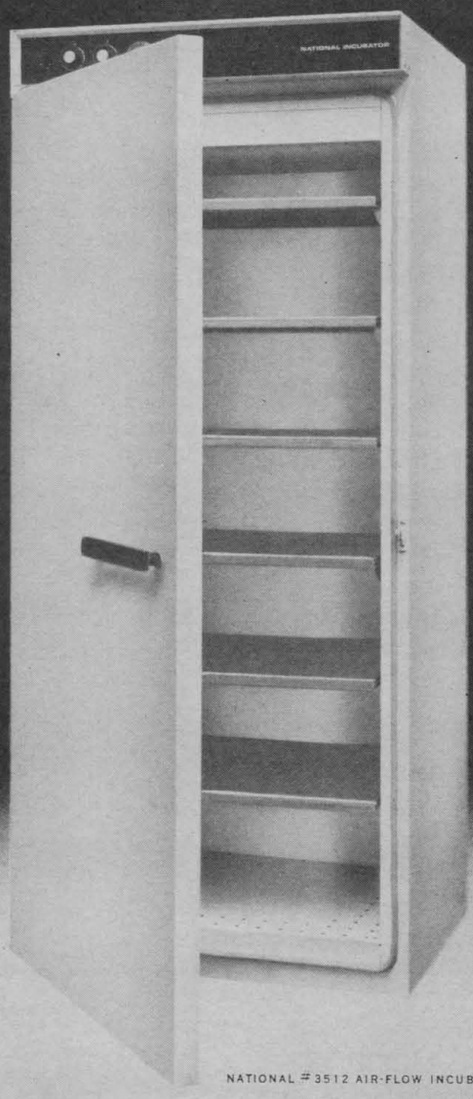

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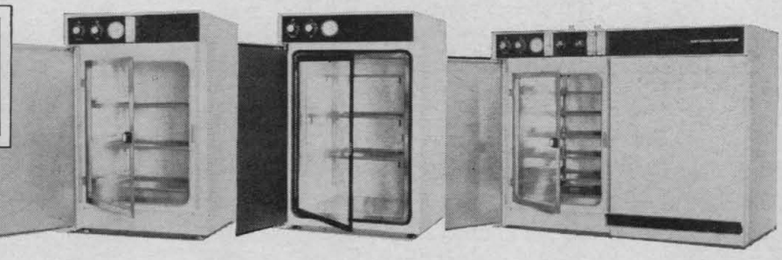

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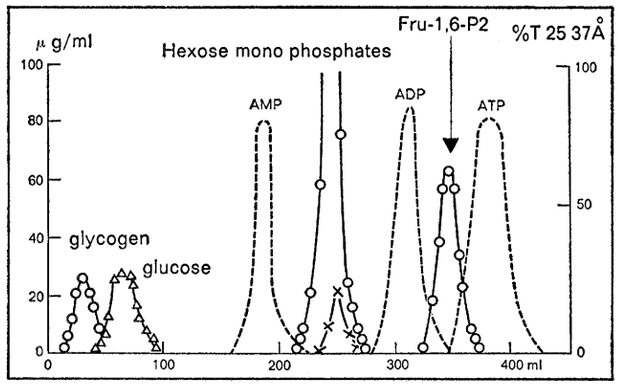

Model experiment with glycogen, glucose, sugar phosphates and adenosine phosphates on a column of DEAE-Sephadex A-25. Reproduced from Biochim. Biophys. Acta 74 (1963) 588, by permission of the author.

Type	Description	Ionic form	Capacity meq/g	Hemoglobin cap. g/g at pH	Particle size microns	Availability
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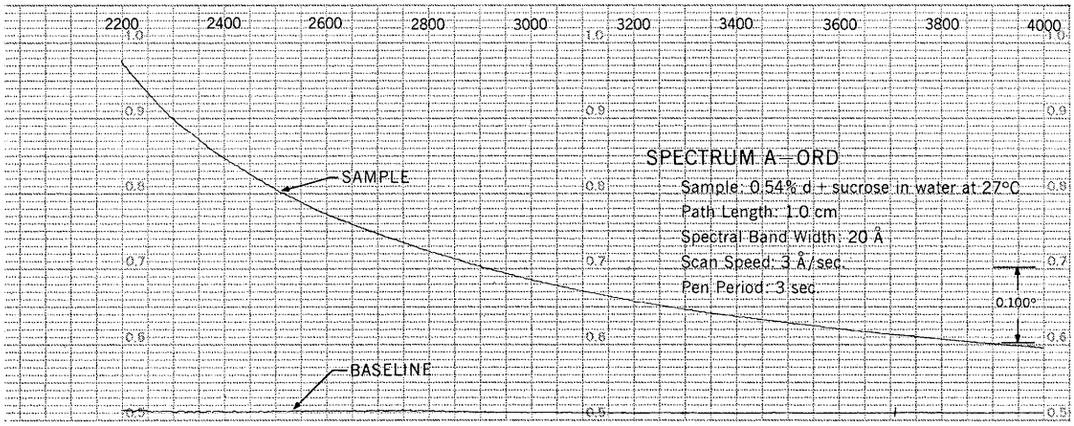
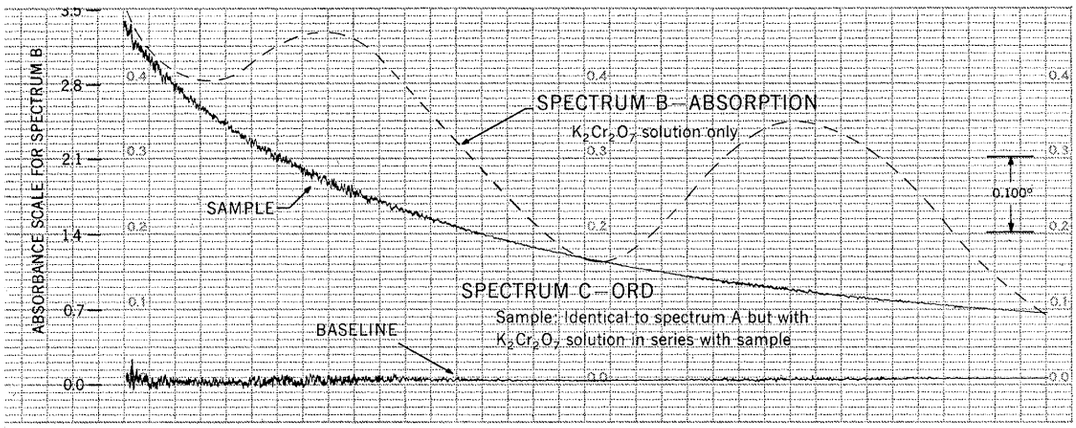
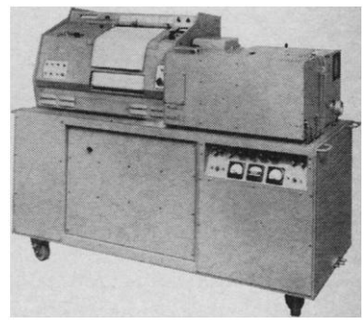


The comparison spectra, A and C, show a sucrose sample recorded under different absorbance conditions. Spectrum C demonstrates the ability of the CARY 60 to provide valid dispersion data in regions of high total absorbance, so often a critical need. Note that except for the expected increase in noise due to increased absorbance, the original dispersion spectrum is accurately reproduced. Sucrose was chosen because it gives a simple one term Drude curve on which deviations are easily seen.





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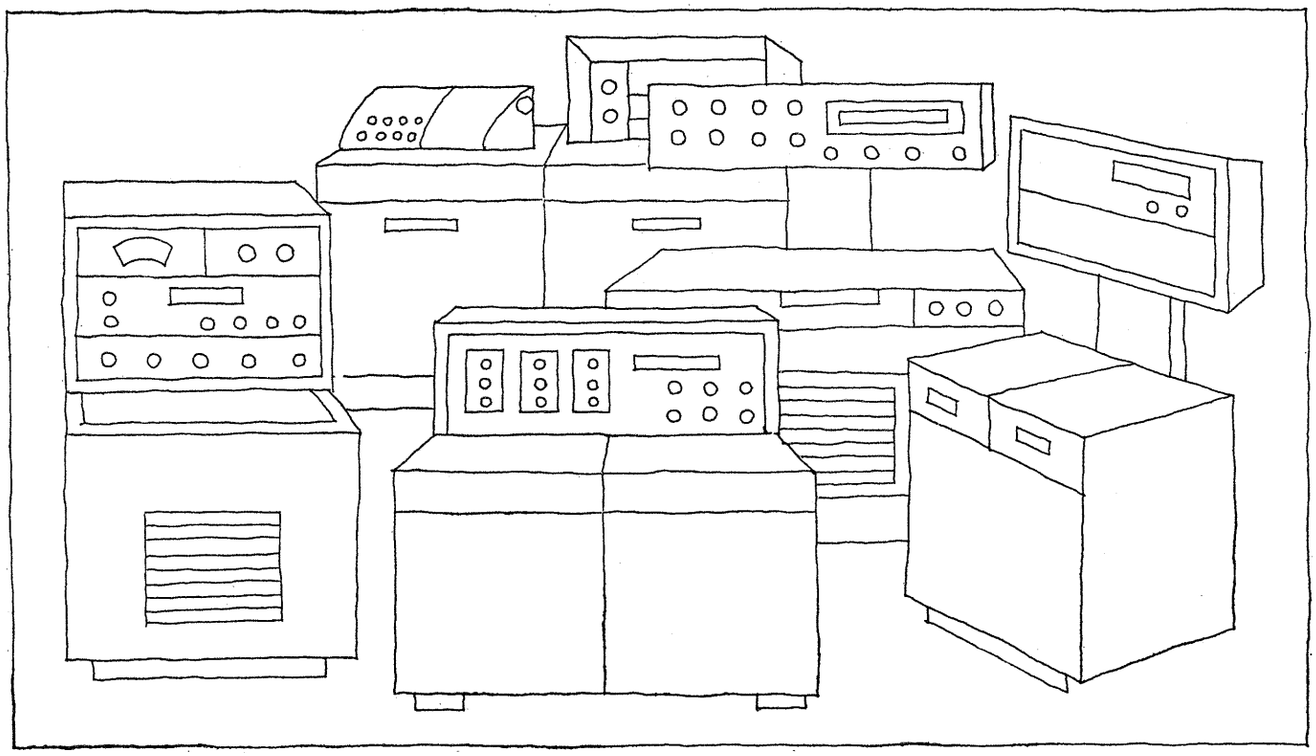

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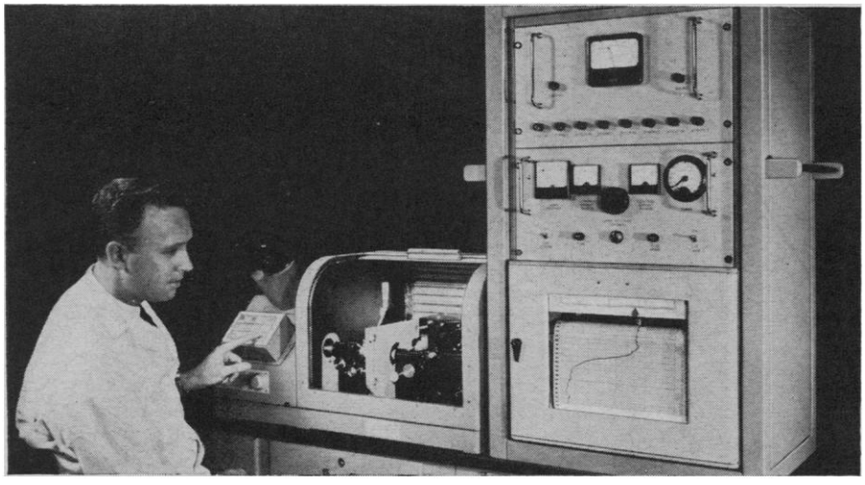

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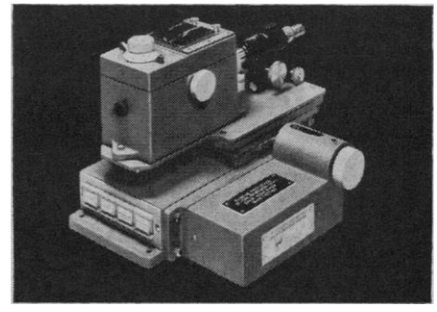

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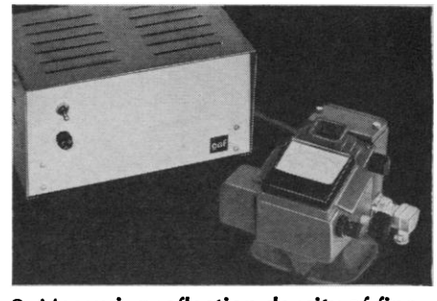

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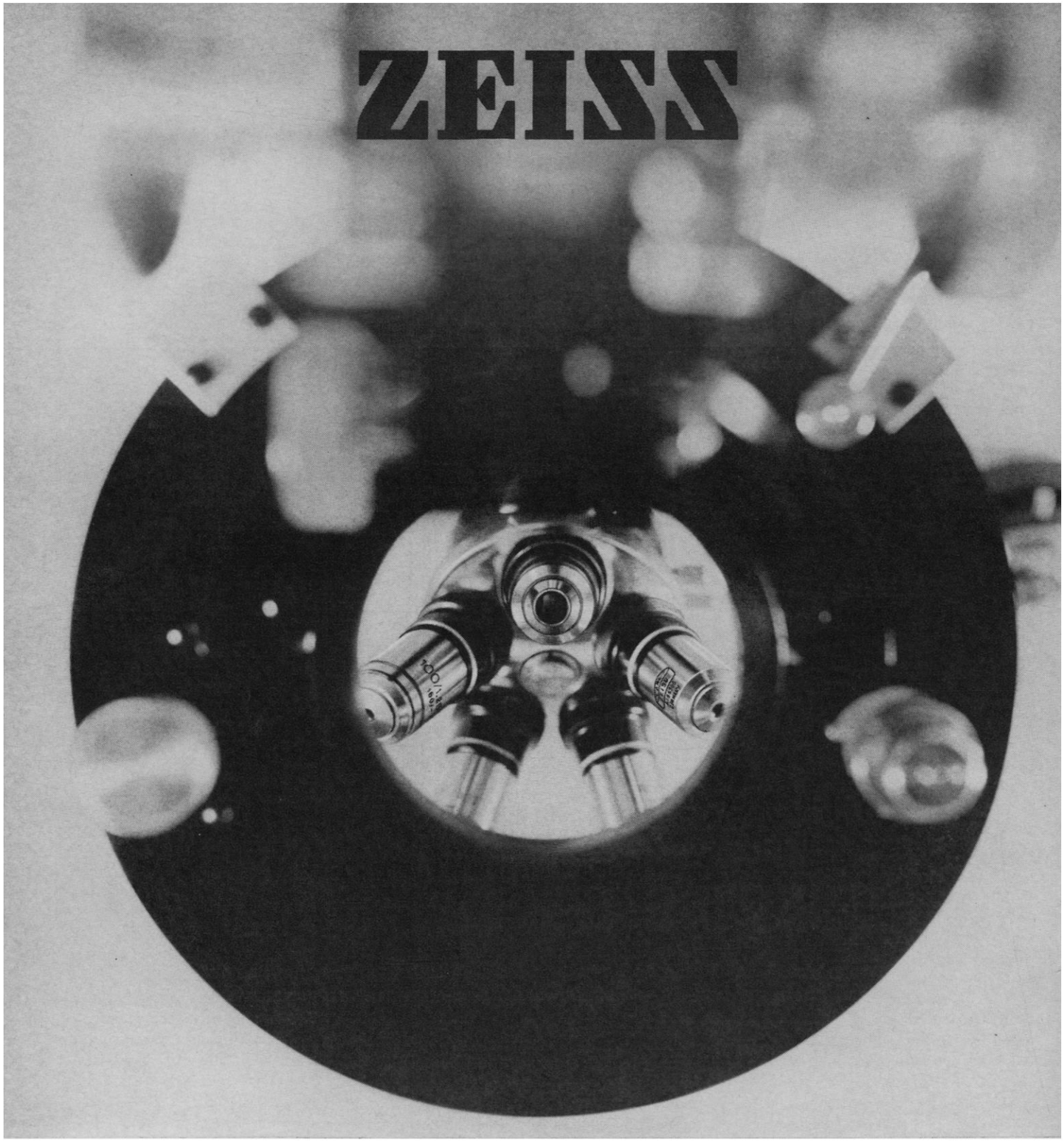

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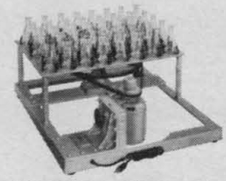

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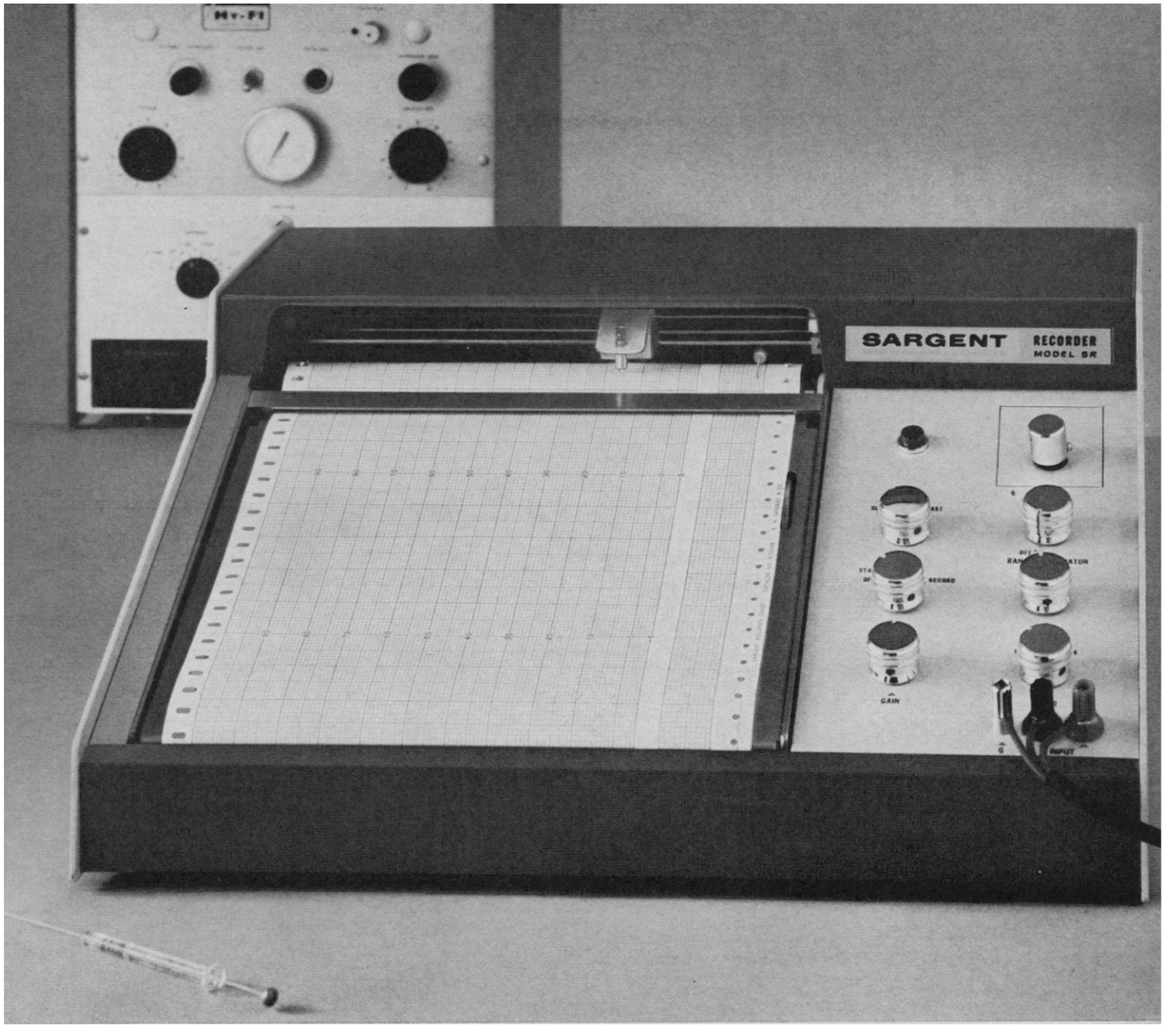

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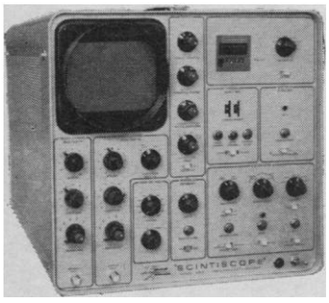

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Genetics and Soviet Science

The article on Lysenko by Caspari and Marshak (16 July, p. 275) offered little information which has not already been generally reported and generally believed. What bothers me is that they simply reinforce impressions which, while not wrong, are distorted by a lack of context.

1) To imply baldly that the failures of Soviet agriculture are due to Soviet rejection of Mendelian genetics is professionally immodest and only partly true. Are the tasteless and unattractive Soviet apples the fault of Lysenko? I doubt it. Rather, the apples lack the long history of plant breeding that Western apples enjoyed long before the first professional geneticist was hired to work on apples. (It may be recalled that Burbank was no geneticist.) Also, there has been no history of "agricultural extension" in the lands now composing the Soviet Union. For over a century in the United States, longer in England, there has been a serious organized effort to teach farmers to farm. The most casual perusal of eastern European publications (the Israel Program for Scientific Translations provides these in English) will show that an enormous number of them are devoted to primary problems of farming, which in the United States either have been solved or can be referred to efficient agencies for solution.

Other reasons for agricultural difficulties, such as the lack of mineral fertilizers, have been discussed in popular literature. Of course, the operation of a state or collective farm by people who have a very strong tradition of village farming is difficult. Nevertheless, some of these farms succeed. I visited a successful collective farm near Alma-Ata, Kazakstan. It was named for Michurian.

2) Caspari and Marshak do not differentiate between the intentions of state planning and the unpredictable product of human beings trying to operate a system. Yes, classical genetics was officially liquidated, and several geneticists (including at least one head of an All-Union scientific institute) were exterminated. Nevertheless, there was no general deterioration of Soviet science. Moreover, there was support for some fields which are starved in the United States. For example, a recent publication of the International Biological Project described the Soviet Union as "pre-eminent" in hydrobiology. In my own field of interest, soil algae, the Soviets have probably done more work than the rest of the world combined. Efforts which might have gone into genetics have not all gone to waste.

Marvelously enough, Soviet scientists (being human) are wily in twisting the system in their own directions and in finding the smallest cracks in the system to open new inquiries. In applying for support they can inflate "practical application" as ably as their American counterparts can. . . . My own observation was that a group of plant physiologists (under the acceptable banner of environmental control of development) were probing quite deeply into the mechanisms for control of development and perhaps uncovering flexibility which strong genetic determinists would not bother to seek. A more general conclusion about the capacity of the Soviet scientist to save his soul in his system was reached some time ago by A. Vucinich in *The Soviet Academy of Sciences* (Stanford Univ. Press, 1956).

3) Why has there been a revival of Mendelian genetics in the Soviet Union? I suggest that a good part of the reason has nothing to do with agriculture, but much to do with prestige. (Similar considerations are known to affect directions of research even in the United States.) The revival started under the protection of the prestige-conscious Soviet atomic energy commission—not the Academy of Sciences or the Ministry of Agriculture. I suspect that interest in genetics will increase as long as DNA is the holy trinity of science. . . .

4) Somehow the article disparages Soviet scientists, although by omission rather than by commission. If I am overly sensitive on the point, it is the result of having come to know a number of them as friends. To picture them as cogs in the central plan is a foolish underestimation; the implication that the mere provision of money and equipment will produce scientifically significant results (either in the U.S. or the U.S.S.R.) is debatable.

I can think of an old biologist the most distinguished man I have ever known) who served out his 10 to 15 years in exile and was allowed to go back to work. His studies are not

called genetics any more, but he otherwise remains unbowed.

I think, too, of the younger generation of biologists. Geneticists are among them, and they are known as geneticists in at least three institutes (to my personal knowledge). The younger generation is better and better trained, alert, imaginative, and unafraid. I found that they were well educated in the liberal arts, too, not through formal courses but because they had read and listened. Certainly they will begin to appear at genetic congresses—and elsewhere!

The authors failed to note that a volume on *Genetics and Selection of Microorganisms* was published in the Soviet Union in 1964—not earth-shaking perhaps, but indicative of scientific adeptness and speed.

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Rochester, New York 14611

Making the Scene

Have we stressed molecular biology too much? In a recent examination on evolution, I asked the students to "list the five epochs of the Tertiary Period." One answer I received was: "Pliocene, Miocene, Oligocene, Eocene, and *Cytosine*"!

JAMES H. CARLSON
Fairleigh Dickinson University,
Madison, New Jersey

More on Metrics: Clocks, Compasses, Music, and Milk Bottles

. . . We count by tens because we have ten fingers. But twelve is a much better base, and its advantages are so great that duodecimal currencies, weights, and measures have, I suppose, paralleled the decimal counting system throughout history. Even in France, where the metric system has been longest established, the duodecimal system still flourishes; for example a dozen is used there as it is with us, and eighty is expressed as "four score"; and the divisions of the circle, of the year, day, hour, and minute, once decimal, have reverted to the duodecimal system. Book sizes, time division in music, and the intervals of the diatonic scale, in fact the physiology of the sense of hearing, are all incorrigibly nondecimal. I suspect that a little reflection would produce many other similar instances.

It seems to me that the French and Russian revolutionaries missed their greatest opportunity to improve the world: rather than adopting the minor improvement of a decimal system of weights and measures, they could have made a major improvement by adopting the duodecimal system of counting, and a consistent compatible system of weights and measures. . . .

S. T. FISHER
53 Morrison Avenue,
Mount Royal, Montreal 16

. . . Great numbers of persons are already using the metric system in the U.S., and conversion will be of importance to the scientist. But we have to realize that the whole population of the U.S. is not scientists, and the common man has always been very reluctant to change the units he is used to. In many countries the metric system was enforced by law, and there were fines and prison sentences for those not accepting it. To illustrate the slowness of change, I may cite an experience of our engineering firm. Here in Madrid, 100 years after Spain's adoption of the metric system, in a design project for a new highway the prices of the land were given to us for our counterpart of acres and square feet (which are different from the British and different even from those of other Spanish regions). Of course in our plans we have used metric units. . . .

To gain mass support for a conversion, I have proposed a metricized British system [M. Mateos, *Mech. Eng.* **85**, 50 (1963)]. In this system, by making the quart and the pound slightly bigger we could have 1 metric quart (1 m-quart) = 1 liter, and 1 metric pound (1 m-pound) = ½ kilogram; and by making the inch a bit shorter, 1 metric inch (1 m-inch) = 25 millimeters. This change should be made in stages over a period of at least 10 years. It could be done first as a trial by one big industry —for instance the milk or gasoline industry—in order to appraise the results.

MANUEL MATEOS
Torán y Compañía,
Apartado 14432,
Madrid, Spain

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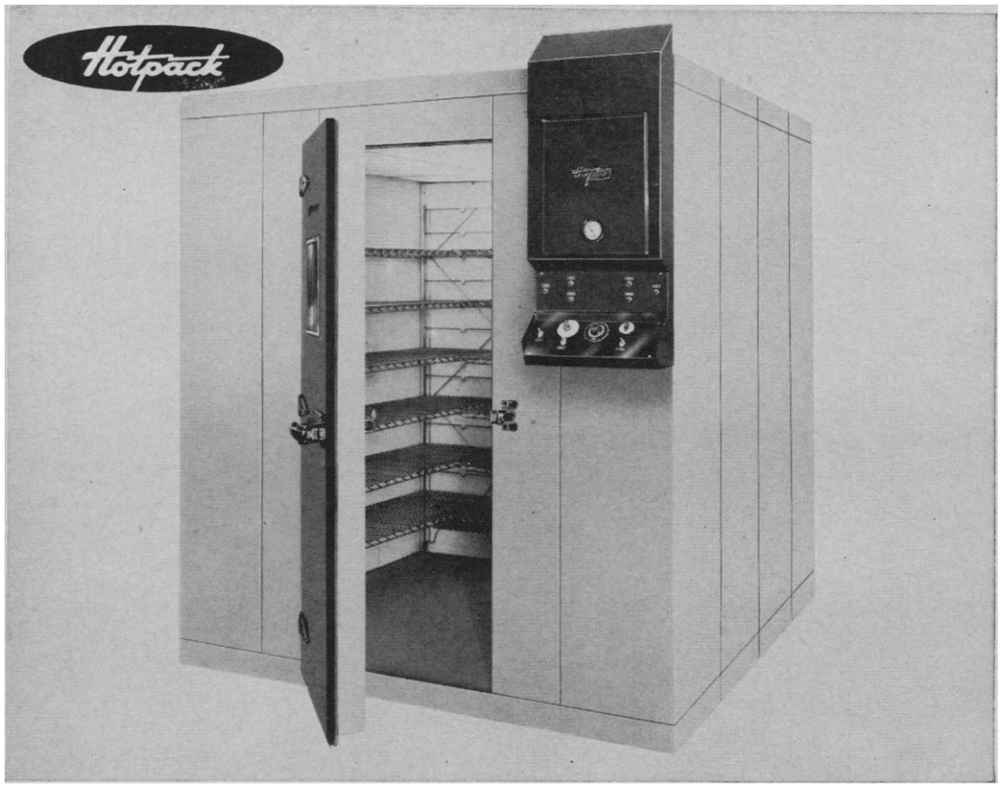

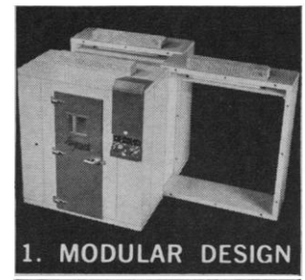
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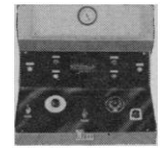
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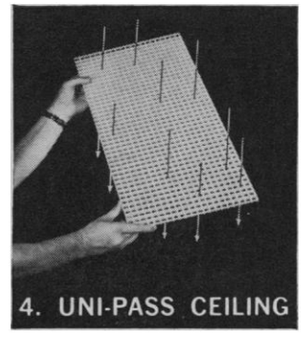
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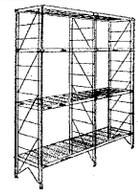
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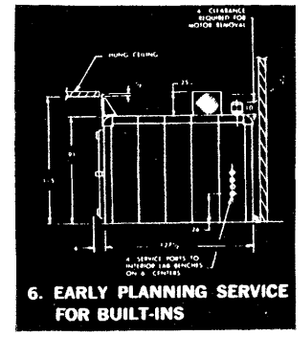

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24 September 1965, Volume 149, Number 3691

SCIENCE

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The Freshman Class

Newspapers over the country are reporting record college enrollments and the largest freshman classes ever. The increase is largely attributable to the jump in number of births that occurred in 1947; but there is also a continuing tendency for a larger percentage of young people to enter college. Moreover, many college presidents are claiming that their freshmen are smarter than those of earlier years. The facts seem to justify these claims, not only in those colleges that have become more selective but for the nation as a whole.

The best basis for predicting what a person will do in the future is knowledge of what he has done under similar circumstances in the past. It is therefore reasonable to find that school grades and tests of academic aptitude or intelligence constitute the best predictors of college grades. Data recently published by Project Talent (200 South Craig Street, Pittsburgh) and similar data published in 1954 by the Commission on Human Resources and Advanced Training lead to curves showing the relationship between the intelligence test scores of high school graduates and the probability of their entering college. Comparison of the two curves shows that students from the bottom third of their high school classes are just about as likely to get to college now as they were a dozen years ago; those from the middle of the class are a little more likely now than then to enter college; those from the top third are substantially more likely now to enter college. So far, the rise in numbers has been accompanied by a rise in average quality.

It is reassuring to know that quality is not being watered down and that fewer of the highly talented are having their education cut off prematurely. But the measures of general academic ability and aptitude that justify these reassuring statements leave much to be desired in the help they can give in the identification, encouragement, and utilization of all of the diverse talents in the student population. The star in mathematics may not do equally well in other studies. The most creative writer may not shine so brightly in mathematics or physics. The correlations are positive, but a considerable number of students who are not in the top 10 or 20 or 30 percent on an overall basis may have very high potential in music or mathematics or something else.

Moreover, as both everyday observation and more precise psychological studies demonstrate, college grades and the measures that best predict them are relatively poor predictors of other kinds of achievement and of later success in most professional fields. Stories of the class dunce who turns out to be the most successful alumnus are at best atypical, but the correlations between intelligence or class standing and later success in science, medicine, law, military life, or any other profession are usually discouragingly close to zero. Completely accurate predictions could never be expected; other variables are important in professional success, and much happens after the school years are over. Yet it is nevertheless true that good predictors of professional accomplishment are stubbornly elusive.

Here, then, is a nice problem for anyone interested in the development and utilization of all the diverse forms of human talent. Research on this complex problem goes on, and more should be encouraged. It is useful to know how to select students who can earn good grades. It would be more useful to know better how to select those who will be real achievers in a variety of fields.

—DAEL WOLFLE

Theoretische Physik, Universität, Mainz, Germany)

4–13. International Council for the **Exploration of the Sea**, 53rd annual meeting, Rome, Italy. (The Council, Charlottenlund Slot, Charlottenlund, Denmark)

4–13. **Commonwealth Medical** Conf., Edinburgh, Scotland. (Mrs. J. Hotchkiss, Ministry of Overseas Development, Stag Place, London, S.W.1, England)

5–7. Industrial and Commercial **Power Systems**, conf., Buffalo, N.Y. (T. O. Zittel, Bethlehem Steel Co., 3555 Lake Shore Rd., Buffalo 14219)

5–8. International Committee of **Weights and Measures**, session, Sèvres, France. (Intern. Bureau of Weights and Measures, Pavillon de Breteuil, Sèvres, Sein-et-Oise, France)

5–9. **Infectious Pathology**, 4th intern. congr., Freiburg im Breisgau, Germany. (G. Mossner, Hugerterstr. 55, Freiburg im Breisgau)

5–9. **Tuberculosis**, 18th intern. conf., Munich, Germany. (Intern. Union Against Tuberculosis, 15, rue Pomereu, Paris 16e, France)

6–8. **Dynamics of Fluids and Plasmas**, symp., Univ. of Maryland, College Park. (S. I. Pai, Inst. for Fluid Dynamics and Applied Mathematics, Univ. of Maryland, College Park 20742)

6–8. **Optical** Soc. of America, annual meeting, Philadelphia, Pa. (M. E. Warga, OSA, 1155 16th St., NW, Washington, D.C. 20036)

6–8. Royal Inst. of **Public Health and Hygiene**, annual conf., Weymouth, England. (Secretary, RIPHH, 28 Portland Place, London, W.1, England)

6–10. **Wood and Organisms**, intern. symp., Berlin, Germany. (German Soc. for Wood Research, Danneckerstr. 37, Stuttgart S, Germany)

7–8. **Fiber** Soc., meeting, Wilmington, Del. (Fiber Soc., Box 625, Princeton, N.J.)

7–9. **Seismological** Soc. of America, eastern sec. 37th annual, Lamont Geological Observatory, Palisades, N.Y. (J. Dorman, Lamont Geological Observatory, Palisades 10964)

8–9. **Atlantic Coastal Plain Geological** Assoc., field trip, South Carolina. (D. J. Colquhoun, Dept. of Geology, Univ. of South Carolina, Columbia)

8–9. **Indiana** Acad. of Science, fall meeting, Notre Dame. (C. F. Dineen, St. Mary's College, Notre Dame)

9. **Paleontological Research** Inst., Ithaca, N.Y. (K. V. W. Palmer, Paleontological Research Inst., 109 Dearborn Pl., Ithaca)

9–10. **Gastroenterology**, French conf., Paris, France. (R. Biguie, 79, Boulevard Malesherbes, Paris 8e)

9–13. American Soc. of **Clinical Hypnosis**, Chicago, Ill. (F. D. Nowlin, ASCH, 800 Washington Ave., SE, Minneapolis, Minn. 55414)

9–17. Electrical, Electronics, and Mechanical **Engineering**, first Pan American congr., Mexico, D.F. (Inst. of Electrical and Electronics Engineers, Box A, Lenox Hill Station, New York 10021)

10–14. **Water Pollution Control** Fed., 38th annual, Atlantic City, N.J. (R. E. Fuhrman, 4435 Wisconsin Ave., NW, Washington, D.C. 20016)

10–15. International Federation for **Documentation**, congr., Washington, D.C. (Secretariat, FID, 9650 Wisconsin Ave., Washington 20014)

10–15. **Electrochemical** Soc., meeting, Buffalo, N.Y. (Executive Secretary, ES, 30 E. 42 St., New York 10017)

10–15. **Endocrinology**, 6th Pan American conf., Mexico, D.F. (G. Gual, Inst. Nacional de la Nutrición, Dr. Jimenez No. 261, Mexico 7)

10–16. American **Documentation** Inst., Washington, D.C. (J. E. Bryan, 2000 P St., NW, Washington, D.C. 20036)

10–17. **Bronchoesophagology**, 1st Latin American congr., Rio de Janeiro, Brazil. (F. Aprigliano, Rua Alcindo Guanabara, 24, Sob-Loja 206, Rio de Janeiro)

10–17. **Otorhinolaryngology**, 14th Brazilian congr., Rio de Janeiro, Brazil. (W. Benevides, Rua Alcindo Guanabara, 24, Sob-Loja 206, Rio de Janeiro)

10–17. **Plastic Surgery**, 10th Latin American congr., Buenos Aires, Argentina. (J. Norberto Spera, Riglos 624, Buenos Aires)

11–13. **Color Centers in Alkali Halides**, symp., Univ. of Illinois, Urbana. (D. W. Compton, Dept. of Physics, Univ. of Illinois, Urbana)

11–13. **Communications**, 11th natl. symp., Utica, N.Y. (G. E. Brunette, Communications Div. (EMCT) Rome Air Development Center, Griffiss AFB, New York 13442)

11–13. Metabolic Roles of **Lipids**, symp., Cincinnati, Ohio. (C. H. Hauber, American Oil Chemists' Soc., 35 East Wacker Dr., Chicago 1, Ill.)

11–13. **Manned Spaceflight**, 4th meeting, St. Louis, Mo. (J. F. Yardley, McDonnell Aircraft Corp., P.O. Box 516, St. Louis)

11–13. **National Acad. of Sciences**, fall meeting, Univ. of Washington, Seattle. (H. Neurath, Dept. of Biochemistry, Univ. of Washington, Seattle 98105)

11–13. American **Record Management** Assoc., 10th annual conf., Minneapolis, Minn. (L. Loveless, Office Services, Honeywell, Inc., 2701 Fourth Ave., S, Minneapolis 55408)

11–14. Association of **Official Agricultural Chemists**, 79th annual, Washington, D.C. (L. G. Ensminger, AOAC, Box 540, Benjamin Franklin Station, Washington 20044)

11–14. American **Oil Chemists'** Soc., fall meeting, Cincinnati, Ohio. (AOCS, 35 E. Wacker Dr., Chicago, Ill. 60600)

11–15. Fall **Metallurgy** Days, Paris, France. (Soc. Française de Metallurgie, 25 rue de Clichy, Paris 9e)

11–16. **Stomatology**, 19th French congr., Paris. (R. Cayron, 99, rue de Courcelles, Paris 17e)

11–23. International Organization for **Standardization**, Milan, Italy. (Soc. of Motion Picture and Television Engineers, 9 E. 41 St., New York 10017)

12–13. **Cardio-Renal Consequences of Sustained Hypertension**, seminar, Philadelphia, Pa. (Miss S. Rosen, Symposium Office, Hahnemann Medical College and Hospital, 230 N. Broad St., Philadelphia 19102)

12–14. **Analytical Chemistry in Nuclear Technology**, 9th conf., Gatlinburg, Tenn. (C. D. Susano, Oak Ridge Natl. Laboratory, P.O. Box X, Oak Ridge, Tenn.)

12–16. **Communications**, 13th intern. congr., Genoa, Italy. (Inst. for Intern. Communications, Viale Brigate Partigiane, 18, Genoa)

13. **Medical Physics**, seminar, New York, N.Y. (American Inst. of Physics, 335 E. 45 St., New York 10017)

13. **Animal Nutrition Research** Council, 26th annual, Washington, D.C. (J. C. Fritz, 12314 Madeley Lane, Bowie, Md. 20715)

13–15. **Detonation**, 4th symp., White Oak, Silver Spring, Md. (S. J. Jacobs, U.S. Naval Ordnance Laboratory, White Oak, Silver Spring 20910)

13–15. American Assoc. of **Petroleum Geologists**, mid-continent regional meeting, Tulsa, Okla. (E. W. Ellsworth, AAPG, Box 979, Tulsa 74101)

13–16. **Tau Beta Pi** Assoc., Inc., Univ. of Maryland, College Park. (R. H. Nagel, 508 Dougherty Engineering Bldg., Univ. of Tennessee, Knoxville)

13–17. **Soil Biology**, first Latin American colloquium, Bahia Blanca, Argentina. (Organizing Committee, Inst. de Edafologia e Hidrologia, Alem 925, Bahia Blanca, Argentina)

13–19. **Instrumentation and Automation**, 3rd intern. congr., Düsseldorf, Germany. (Nordwestdeutsche Ausstellungs- und-Messe-Gesellschaft, Ehrenhof 4, 4000 Düsseldorf 10)

14. Association of **Vitamin Chemists**, Chicago, Ill. (D. Olson, Dawe's Laboratories, 4800 S. Richmond St., Chicago)

14–15. International Federation of **Surgical Colleges**, 8th annual, Philadelphia, Pa.; *17*, Atlantic City, N.J. (K. Cassels, Royal College of Surgeons, Lincoln's Inn Fields, London W.C.2, England)

14–16. British **Orthopaedic** Assoc., fall meeting, London, England. (Joint Secretariat, 47 Lincoln's Inn Fields, London, W.C.2)

15. **Southern California Acad.** of Science, Los Angeles. (C. Rozaire, Los Angeles County Museum, 900 Exposition Blvd., Los Angeles 90007)

15–16. Contributions of Cytogenetics to the **Determination of Phylogenies**, 12th symp., Missouri Botanical Garden, St. Louis. (H. C. Cutler, Missouri Botanical Garden, St. Louis 63110)

15–16. National Soc. of **Professional Engineers**, 3rd annual conf., Oklahoma City, Okla. (NSPE, 2029 K St., NW, Washington 20006)

15–17. American **Heart** Assoc., Scientific sessions, Bal Harbour, Fla. (AHA, 44 E. 23 St., New York 10010)

16–17. **Infectious Diseases** Soc. of America, Washington, D.C. (E. H. Kass, IDS, Boston City Hospital, Boston, Mass. 02118)

17–21. **Antimicrobial Agents and Chemotherapy**, 5th interscience conf./4th intern. congr. of chemotherapy, Washington, D.C. (R. W. Sarber, American Soc. for Microbiology, 115 Huron View Blvd., Ann Arbor, Mich.)

17–21. **Metallurgical** Soc. of American Inst. of Mining, Metallurgical, and Petroleum Engineers, Detroit, Mich. (American Inst. of Mechanical Engineers, 345 E. 47 St., New York 10017)

18. **Industrial Pharmacy** sect., American Pharmaceutical Assoc., 4th annual midwest regional meeting, Chicago, Ill. (C.

Schroeter, Abbott Laboratories, North Chicago, Ill.)

18–19. American Inst. of **Aeronautics and Astronautics**/Canadian Aeronautics and Space Inst., Toronto, Ont., Canada. (D. L. Raymond, 1290 Sixth Ave., New York 10019)

18–19. **Systems Science**, conf., Case Inst. of Technology, Cleveland, Ohio. (Inst. of Electrical and Electronics Engineers, Box A, Lenox Hill Station, New York 10021)

18–20. **Dynamic Stability of Structures**, intern. conf., Evanston, Ill. (G. Herrmann, Technological Inst., Northwestern Univ., Evanston 60201)

18–20. **Electromagnetic Radiation in Agriculture**, intern. conf., Roanoke, Va. (D. P. Brown, Niagara Mohawk Power Corp., 300 Erie Blvd. W., Syracuse, N.Y. 13202)

18–20. American Soc. of **Lubrication Engineers**, San Francisco, Calif. (D. B. Sanberg, 5 North Wabash Ave., Chicago, Ill.)

18–20. Canadian Inst. of **Mining and Metallurgy**, annual western meeting, Winnipeg, Canada. (CIMM, 906 Drummond Bldg., 1117 St. Catherine St. W., Montreal 2, P.Q., Canada)

18–20. **Nuclear Science**, 12th symp., San Francisco, Calif. (Inst. of Electrical and Electronics Engineers, Box A, Lenox Hill Station, New York 10021)

18–20. Applied **Spectroscopy**, 12th symp., Ottawa, Ont., Canada. (R. V. Baker, Aluminum Co. of Canada, Arvida, P.Q., Canada)

18–21. Advances in **Gas Chromatography**, 3rd intern. symp., Houston, Tex. (A. Zlatkis, Dept. of Chemistry, Univ. of Houston, Houston)

18–21. **Management Information** and Data Transfer Systems, American Univ., Washington, D.C. (R. I. Cole, Center for Technology and Administration, American Univ., 2000 G St., NW, Washington, D.C. 20006)

18–22. American Soc. of **Civil Engineers**, Kansas City, Mo. (W. H. Wisely, ASCE, 345 E. 47 St., New York 10017)

18–22. Society for **Nondestructive Testing**, 25th natl. conv., Detroit, Mich. (N. H. Cale, Anaconda American Brass Co., Research and Technical Center, P.O. Box 747, Waterbury, Conn.)

18–22. American **Public Health** Assoc., 93rd annual, Chicago, Ill. (APHA, 1790 Broadway, New York, N.Y.)

18–22. **Radioisotope Instruments** in Industry and Geophysics, Warsaw, Poland. (J. H. Kane, Div. of Special Projects, U.S. Atomic Energy Commission, Washington, D.C.)

18–22. American Soc. for **Metals**, natl. congr., Detroit, Mich. (A. R. Putnam, ASM, Metals Park, Ohio)

18–22. Application of **Radioisotopes in Gastroenterology**, symp., Lausanne, Switzerland. (A. Vannotti, Clinique Médicale Universitaire, Hôpital Cantonal, Lausanne)

18–22. American College of **Surgeons**, annual clinical congr., Atlantic City, N.J. (American College of Surgeons, 55 East Erie St., Chicago, Ill. 60611)

19–20. International **Rhinologic** Soc., 1st congr., Kyoto, Japan. (H. A. E. van Dishoeck, Academisch Ziekenhuis, Leiden, Netherlands)

19–21. Association of **Analytical Chemists**, 13th conf., Detroit, Mich. (G. Schenk, Dept. of Chemistry, Wayne State Univ., Detroit 48202)

19–21. **Cloud Physics and Severe Storms**, conf., American Meteorological Soc., Reno, Nev. (K. C. Spengler, 45 Beacon St., Boston 8, Mass.)

19–21. Radio Astronomical and Satellite **Studies of the Atmosphere**, 2nd symp., Boston, Mass. (G. A. Cushman, Wentworth Inst., 550 Huntington Ave., Boston)

19–22. Economics of **Automatic Data Processing**, symp., Rome, Italy. (Intern. Computation Center, Viale della Civilia del Lavoro, 23, P.O.B. 10053, Rome)

20–21. **Airborne Infection**, 2nd intern. symp., Johns Hopkins School of Medicine, Baltimore, Md. (E. K. Wolfe, Fort Detrick, Frederick, Md. 21701)

20–21. International Soc. of **Audiology**, 2nd congr., Kyoto, Japan. (M. Goto, Dept. of Otolaryngology, Kyoto Univ., Shogoin, Sakyo-ku, Kyoto)

20–22. **Circuit and System Theory**, Allerton Conf., Univ. of Illinois, Monticello. (M. E. Van Valkenburg, Dept. of Electrical Engineering, Univ. of Illinois, Urbana 61803)

20–22. **Design of Experiments**, 11th conf., Hoboken, N.J. (F. G. Dressel, Army Research Office-Durham, Box CM, Duke Station, Durham, N.C. 27706)

20–22. **Parenteral Drug** Assoc., annual conv., New York, N.Y. (PDA, Western Saving Fund Bldg., Broad and Chestnut St., Philadelphia, Pa. 19107)

21. **New Mexico** Acad. of Science, Albuquerque. (K. S. Bergstresser, 739 42nd St., Los Alamos, N.M.)

21–22. **Copolymer** conf., Ludwigshafen, Germany. (Deutsche Bunsen-Gesellschaft für Physikalische Chemie, Varrentrappstr. 40-42, 6 Frankfurt am Main, Germany)

21–22. **Electrochemical Current Sources**, symp., Frankfurt am Main, Germany. (Gesellschaft Deutscher Chemiker, Postfach 9075, 6 Frankfurt am Main)

21–23. **Microminiaturization in Automatic Control**, symp., Munich, Germany. (G. Müller, Siemens & Halske AG, Wernerwerk für Messtechnik, Postfach 834, Karlsruhe, Germany)

21–23. Society of **Photographic Scientists** and Engineers, symp., Washington, D.C. (W. S. Dempsey, Houston Fearless Corp., 1413 K St., NW, Washington 20005)

22–23. **Data Processing** in Public Libraries, conf., Drexel Inst. of Technology, Philadelphia, Pa. (M. D. Warrington, Graduate School of Library Science, Drexel Inst. of Technology, Philadelphia 19104)

23–28. American Acad. of **Pediatrics**, annual, Chicago, Ill. (R. G. Frazier, AAP, 1801 Hinman Ave., Evanston, Ill. 60204)

24–27. Society of American **Foresters**, annual, Detroit, Mich. (Society of American Foresters, 1010 16th St., NW, Washington 20036)

24–29. **Stable Isotopes**, 4th symp., Leipzig, East Germany. (Inst. für Stabile Isotope, Deutsche Akademie der Wissenschaften, Permoserstr. 15, 705 Leipzig)

24–30. American College of **Gastroenterology**, Bal Harbour, Fla. (D. Weiss, 33 W. 60 St., New York 10023)

25–27. **Chemical Engineering**, 15th

conf., Quebec, Que., Canada. (Chemical Inst. of Canada, 48 Rideau St., Ottawa 2, Ont.)

25–27. Functional Organization of the **Compound Eye**, symp., Karolinska Inst., Stockholm, Sweden. (W. E. Savely, Air Force Office of Scientific Research, Washington, D.C. 20333)

25–27. **Electrical Insulation**, Natl. Acad. of Sciences–Nat. Research Council conf., Buck Hill Falls, Pa. (D. W. Thornhill, NAS, 2101 Constitution Ave., NW, Washington, D.C.)

25–27. **Electronics**, natl. conf., Chicago, Ill. (R. G. Brown, Dept. of Electrical Engineering, Iowa State Univ., Ames 50010)

25–27. **Nuclear and Engineering Ceramics**, conf., Harwell, England. (G. H. Stewart, British Ceramic Soc., Shelton House, Shelton, Stoke-on-Trent, England)

25–27. Society of **Rheology**, Case Inst. of Technology, Cleveland, Ohio. (J. C. Miller, Union Carbide Plastics Co., Bound Brook, N.J.)

25–29. **Hypotensive Polypeptides**, intern. symp., Florence, Italy. (E. G. Erdös, Dept. of Pharmacology, Univ. of Oklahoma Medical Center, Oklahoma City 73104)

27–29. **Electronic Data Processing Systems** for State and Local Governments, 2nd natl. conf., New York Univ., New York, N.Y. (H. G. Berkman, Graduate School of Public Administration, 4 Washington Sq. N., New York 10003)

27–30. **Neurological Surgeons**, 15th annual congr., Chicago, Ill. (J. R. Russell, 1815 N. Capitol Ave., Indianapolis, Ind. 46202)

28–29. **Educational Records** Bureau, 13th annual conf., New York. (A. E. Traxler, Educational Records Bureau, 21 Audubon Ave., New York 10032)

28–29. **Energy Conversion and Storage**, 3rd annual conf., Oklahoma State Univ., Stillwater. (C. M. Summers, School of Electrical Engineering, Oklahoma State Univ., Stillwater 74075)

28–29. **Microwave Acoustics**, symp., Hanscom Field, Bedford, Mass. (T. G. Burnhagen, Air Force Cambridge Research Laboratories, Cambridge, Mass.)

28–30. American Soc. for **Aesthetics**, Washington, D.C. (J. R. Johnson, Cleveland Museum of Art, Cleveland, Ohio 44106)

28–4. **Psychology** as a Theoretical and Applied Discipline, seminar, Gujarat Univ., Ahmedabad, India. (P. H. Prabhu, School of Psychology, Education, and Philosophy, Gujarat Univ., Ahmedabad 9)

29–30. Society for the **Scientific Study of Religion**, annual, New York, N.Y. (SSSR, 1200 17th St., NW, Washington, D.C. 20036)

30–31. **Bronchoesophagology**, 11th intern. congr., Hakone, Japan. (C. M. Norris, 3401 N. Broad St., Philadelphia, Pa. 19140)

30–2. American **Speech and Hearing** Assoc., Chicago, Ill. (K. O. Johnson, 1001 Connecticut Ave., NW, Washington, D.C.)

31–4. American Soc. of **Agronomy**, 57th annual, Columbus, Ohio. (ASA, 677 South Segoe Rd., Madison, Wis. 53711)

31–5. Society of **Motion Picture and Television Engineers**, 98th technical conf., Montreal, P.Q., Canada. (SMPTE, 9 E. 41 St., New York 10017)

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(Continued from page 1486)

potential and actual output is narrowed, however, greater attention must be paid to measures for increasing productivity and enlarging the growth potential, Ackley said. Speeding up the application of new technology by means of the technical services program, he said, should be a major step in raising productivity.

President Johnson, in his remarks on the program, emphasized the importance of "local initiative and local imagination," and added: "The vehicles for success will be 250 colleges and technical schools throughout the land. They will distribute the information. They will serve as the economic planning centers for their areas." The careful cultivation of these institutions' interest in the technical services program contributed to the ease with which the bill cleared the Congress. So little opposition was there that the measure was approved by both House and Senate on voice votes without roll calls.

As early as December 1962, an advisory committee on which universities and colleges, the Department of Agriculture, and industry were represented was created by Commerce and asked to draft a plan for a university-industry technical service. Enough interest had been aroused by late 1963 that the Association of State Universities and Land-Grant Colleges adopted a resolution in favor of the proposed service.

In early 1964, and again this past May, Hollomon called national conferences at which the technical services program was taken up as part of a broad review of state science and technology. Representatives from nearly all of the states attended, many of them from college and university extension programs and from the budding agencies for the diffusion of science and technology which some states had created already.

The conferences each brought more than 100 persons to Washington, some of whom called on their congressmen and senators to urge their support of a federally aided state technical services program. Governors were apprised of plans for the program when, in late 1964, draft legislation was sent to them for comment. A survey of the responses indicated that in their attitude to the program only six of the 50 governors were lukewarm or "reserved."

As a result of this careful political

foundation work, the Congress that convened in January was to be receptive to the technical services program. Hollomon had learned from his earlier mistakes and knew better than to try to get an appropriation without specific legislative authority. So the authorizing measure was duly introduced with an impressive list of sponsors in both houses. The commerce committees of the two houses held hearings on the measure in June, and the testimony was nearly all favorable.

The National Association of Manufacturers, which opposes most administration proposals almost as a reflex, could not bring itself to favor this one, although Commerce had said no government-sponsored research would be undertaken. The NAM did not testify, but in a statement for the record said the program was unnecessary. "We submit that it is not the lack of programs or dissemination of information that limits the growth potential of small business," it said. "It is a well documented fact that small business problems center around two factors—lack of management skills, and inadequate financing."

The Consulting Engineers Council and the National Society of Professional Engineers favored the program, but said the bill needed stronger safeguards against competition by state agencies with their members. The Council, for example, proposed that the bill prohibit services that are "now available or could be made available as practicably" by professional consultants. As finally passed, however, the bill simply proscribed services that are "economically and readily available" from private sources.

The administration wanted a 5-year program and a $140-million authorization; instead it got a 3-year program with spending limited to $60 million: $10 million the first year, $20 million the second, and $30 million the third. Thirty to 35 states, most of which already have technical services programs of sorts, are expected to participate the first year. They will be able to get $25,000 planning grants for each of the first 3 years on a nonmatching basis; but grants to implement the program, which could go up to $2 million for the largest state, must be matched dollar for dollar from state or other nonfederal sources.

The formula for deciding each state's share will reflect population, technical resources, and degree of economic and industrial development and productive

efficiency. Two or more states, if they desire, can join in a regional program. The agency responsible for the state or regional program is expected, in most cases, to be a state university, although some state science or economic development units may be designated. The agency will draw up a 5-year plan outlining the area's technological and economic conditions and identifying its major industrial problems; general methods for solving the problems through the technical assistance program will be explained. This 5-year plan, together with an annual technical services program, containing a detailed budget and description of specific steps (such as contract proposals) for aiding industry, must be approved by the Secretary of Commerce before any grants (other than for planning) are made.

An Office of State Technical Services will be established under Hollomon; the staff, limited to about 30 persons including clerical help, is expected to be headed by someone well respected in university or industry circles; his salary will be about $24,500 a year. The Office will maintain a central reference service, drawing on such special resources as the Clearinghouse for Federal Scientific and Technical Information and the Science Information Exchange, as well as on federal information centers such as those of the Department of Defense and the space agency.

A credo of the Commerce officials in charge of the program is that in many cases technical information will not be well used unless an active personal interchange occurs between donor and recipient. Technical documents mailed to the hard-pressed owner of a small, obsolescent manufacturing plant are likely to go into the trash unread. If the representative of a state technical services agency calls on the plant owner, the chance of engaging his interest in information that may upgrade his operation is much improved. Accordingly, such existing state technical services programs as those run by Iowa and Georgia, both of which practice intensive field work, are held out as models. Seminars and workshops are viewed as other means of bringing about direct personal contact between industrialists who need help and the agencies prepared to give it.

How critical such help can be is suggested by the plight of a veneer company in North Carolina a year or so ago. Air pollution caused by another

firm nearby was making it impossible for the plant to operate; the veneer firm was thinking of moving, although this would mean the loss of a substantial investment and unemployment for several hundred persons. The industrial extension service staff at the state university helped the offending company abate the nuisance, thus avoiding a major economic loss to the community. Commerce Department files tell of other cases where small industrialists have received help from state technical advisers.

The State Technical Services Act is only a remnant—though an important one—of the ambitious plan Commerce lost in Congress in 1963. But if it manages to achieve anything approaching the successes that President Johnson has predicted for it, the act may encourage enough innovation to end all thought of direct federal support for industrial research. The act, together with other encouragement for technological change, perhaps resulting from such initiatives as the current studies of patent, tax, and antitrust policy, could facilitate the kind of industrial dynamism about which Hollomon has been talking.—LUTHER J. CARTER

Announcements

A group of about 15 laboratory business managers and administrative associates at Yale have formed an **Organization of Administrative Associates**, representing the university's various science, engineering, health, and personnel departments. The group aims to explore means for more effectively utilizing business managers to free department chairmen and laboratory heads to concentrate more on professional and policy matters. Ken Hartford, laboratory business manager in the biology department at Yale, was elected chairman of the organization.

A **Center for Research on Language and Language Behavior** (CRLLB) has been established at the University of Michigan, Ann Arbor. Plans call for programs of basic research on language learning with people of all ages and levels of language proficiency; activities to improve the techniques of language learning; applied research to field-test instructional techniques, materials, and devices; and distribution of information for the enhancement of research, development, and instruction in language learning. The Center is organized with

representatives from the various disciplines at the university that are involved with research in speaking, hearing, and language. Harlan L. Lane is the director.

The **Philadelphia Museum of Art** has an exhibit of paintings, sculpture, surgical instruments, and other objects, depicting the history of medicine in Philadelphia from its British origins to the present. "The Art of Philadelphia Medicine" is part of that city's observance of the bicentennial of medical education in the U.S., which began with the founding of the medical school at the University of Pennsylvania. The exhibit, which began last week, will continue through 7 December.

A group of retired scientists, engineers, and other technically or professionally qualified persons are members of TEAM, Inc., an organization to provide **part-time advisers to government** and other public and social agencies "acting in the public welfare and for the human good." Technically Experienced Associates, Mobilized, offers its services gratis in the areas of research management, scientific and technical education, public health and welfare, conservation and development of natural and human resources, and national defense. Members register their experience, qualifications, and interests with the TEAM central office, which in turn notifies institutions that may have a use for them. TEAM members donate their services for specific projects arranged by the central office, and are reimbursed only for travel and expenses. Additional information is available from TEAM, Inc., 541 Hunting Ridge Road, Stamford, Connecticut 06903.

Meeting Notes

A series of seminars on **biophysics and physical chemistry of connective tissue** will be held at Stowe, Vermont, 10–16 October, sponsored by the rheumatism research unit, University of Vermont, the life sciences division of the U.S. Army Research Office; and the Geigy Chemical Corporation. Subjects to be covered include biological lubrication, water binding, macromolecular metabolism, water structure, electrolytes and hydrogen ion regulation of viscosity of biological solutions, osmotic pressure, transport mechanisms, and the bionics of connective tissue. The meeting is by invitation only and about 50 participants will attend from Britain, Europe, Scandinavia, Australia, New Zealand, and the United States. (Federation of American Societies for Experimental Biology, 9650 Wisconsin Ave., Bethesda, Maryland)

The National Academy of Sciences division of earth sciences plans to hold a symposium on "time and stratigraphic problems in the **evolution of man**" 16 October at the Carnegie Institution of Washington. The symposium is intended to emphasize the importance of fundamental paleontologic and stratigraphic research in the study of the earth's history. (M. Gordon Wolman, Carnegie Institution of Washington, 1530 P Street, NW, Washington, D.C.)

The tenth **scintillation and semiconductor counter** symposium will be held in Washington, 2–4 March. Papers are invited on scintillation counters, scintillators, and photomultipliers;

semiconductor detectors and associated circuitry; detector logic, circuits, and data processing; spark chambers and track imaging. Emphasis is primarily on radiation detectors, secondarily on applications and related techniques. Deadline for receipt of abstracts: *30 November.* (W. Higinbotham, Brookhaven National Laboratory, Upton, L.I., New York 11973)

The winter meeting of the Society of **Rheology** will be held at the U.S. Naval Post Graduate School, Monterey, California, 31 January to 2 February. Contributed papers are being solicited for oral presentation, and will be considered for publication in the society's Transactions. Duplicate copies of a 200- to 400-word abstract are required. Deadline: *19 November.* (D. J. Meier, Shell Development Company, 1400 53 Street, Emeryville, California)

A symposium on **transmission of viruses by the water route** will be sponsored by the U.S. Public Health Service in Cincinnati 6–8 December. Sessions will be held on epidemiology, methods for detection and quantitation of small amounts of virus in large volumes of water, minimal infective doses, viruses that may be important in water transmission, and quantitative studies on viruses in water and sewage. Attendance will be limited. (G. Berg, U.S. Public Health Service, 4676 Columbia Parkway, Cincinnati, Ohio 45226)

Courses

A meeting on **information retrieval** will be held at the University of Minnesota 10–13 November. It will focus on recent developments in indexing theories and search strategies, library mechanization of bibliographic records, and the relation of regional and specialized information services to national agencies and activities, with special reference to the biomedical sciences. A $25 registration fee is required. (Director, Center for Continuation Study, University of Minnesota, Minneapolis)

The fourth short course on **electronic information display** will be presented by American University, Washington, 15–18 November. The purpose of the course is to introduce the theory, use, and general hardware aspects of electronic displays; fundamentals of display requirements; human factors; and programming. The tuition fee is $200.

(P. W. Howerton, Center for Technology and Administration, American University, 2000 G Street, NW, Washington, D.C. 20006)

The Association of Clinical Scientists will present an applied seminar on the **clinical pathology of infancy**, 12–13 November in Washington. The topics to be covered include: diagnosis of congenital biochemical disorders; jaundice; clinical pathology of systemic diseases; endocrinology and metabolism; cytogenetics. Enrollment will be limited to 300, and the registration fee is $60. (F. W. Sunderman, 1833 Delancey Place, Philadelphia, Pennsylvania)

Grants, Fellowships, and Awards

The American Heart Association has established two **teaching scholarships in cardiology** to encourage medical teachers to devote the major part of their efforts to teaching. The scholarships will support the recipients for 5 years; stipends are $11,000 the first year, with $1000 annual increment and $1000 a year to the teacher's institution to cover expenses for travel, minor items of equipment, and teaching materials. The teaching scholars will work primarily at the undergraduate medical school level as full-time faculty members; they may not have private practice. Candidates should have completed their residency or fellowship training; they may be either physicians or Ph.D.'s, less than 40 years old, and citizens of the United States or Canada. Deadline for receipt of applications: *1 November*. (F. J. Lewy, Department of Medical Education, American Heart Association, 44 East 23 Street, New York 10010)

Nominations of candidates for the **Woodrow Wilson fellowships** for 1966–67 will be accepted until 31 October. Candidates should be seniors or graduates of colleges in the U.S. or Canada, planning a career in college teaching, but not yet registered in a graduate school; they must be nominated by their professors. The Woodrow Wilson Fellowship Foundation primarily supports candidates in the humanities and social sciences. Science and mathematics majors may be nominated, but if they are U.S. citizens they must apply for a NSF fellowship and accept that if it is offered. Recipients of the Wilson fellowships will receive stipends of $2000 for one academic year; tuition

and fees will be paid by the foundation to the graduate school. Nominations should be sent to the chairman of the selection committee in the college's region; names and addresses of the 15 regional chairmen can be obtained from the foundation, 32 Nassau Street, Princeton, New Jersey.

Scientists in the News

A. B. Kinzel, who has retired as vice president for research of the Union Carbide Corporation, has become president and chief executive officer of the Salk Institute for Biological Studies, San Diego. He recently was elected president of the National Academy of Engineering.

He succeeds **Jonas Salk**, who will continue as director and senior fellow of the Institute. Salk plans to devote his efforts to research and the academic development of the institute.

The National Science Foundation has announced the appointments of the following program directors in the social sciences:

Anthropology: **Richard W. Lieban,** on leave from the University of North Carolina, replacing **Allan H. Smith,** who has returned to Washington State University.

Economics: **Howard W. Nicholson**, on leave from Clark University, succeeding **Howard W. Hines**, who has become director of the division.

Sociology and Social Psychology: **Carl W. Backman**, on leave from the University of Nevada, succeeding **Robert L. Hall**, who has joined the University of Illinois at Chicago Circle.

S. Douglas Cornell, executive officer of the National Academy of Sciences–National Research Council, has been named president of Mackinac College, Mackinac Island, Michigan. He will be succeeded at NAS–NRC by **John S. Coleman**, staff deputy for plans and programs, and executive secretary of the division of physical sciences.

John J. Pritchard, head of the department of anatomy at Queen's University, Belfast, Northern Ireland, is visiting professor of anatomy at the University of Illinois college of medicine for the 1965–1966 term.

Robert W. Weiger, assistant director of the National Cancer Institute, has

been named chief of the Office of Pesticides in the Public Health Service. He will direct a national program to improve public health protection in the use of pesticides.

Hurlon C. Ray, of the Soil Conservation Service, Albuquerque, New Mexico, has been appointed chief of the pesticide intelligence system in the Department of Health, Education, and Welfare. The division, part of the recently formed Office of Pesticides, will assemble, evaluate, and issue reports on the presence of pesticides in the environment.

Gilbert P. Haight, Jr., of Swarthmore College, has become a visiting professor for chemical education for the American Chemical Society and the Texas Academy of Sciences. He will be a professor of inorganic chemistry at Texas A&M University, and will be in charge of the freshman chemistry program.

John G. Daunt, formerly professor of physics at Ohio State University, has become professor in the physics and electrical engineering departments at Stevens Institute of Technology.

The new president of Fordham University is **Leo P. McLaughlin**, formerly president of St. Peter's College, Jersey City. He succeeds **Vincent T. O'Keefe**, who has been named assistant to the superior general of the Jesuit order in Rome.

The U.S. Naval Observatory has appointed **Victor M. Blanco**, former professor of astronomy at Case Institute of Technology, as director of its astrometry and astrophysics division; and **Gerald E. Kron**, former astronomer at the Lick Observatory, University of California, as director of the Observatory at Flagstaff, Arizona.

Martin B. Biles, scientific representative in the U.S. Mission to EURATOM, has been appointed the U.S. Atomic Energy Commission's scientific representative in Paris. He succeeds **Abraham B. Friedman**, who will return to the AEC headquarters in the division of research as deputy assistant director for chemistry programs.

Hans Gaffron, research professor of biochemistry and plant physiology at Florida State University, has received the 1965 Charles F. Kettering award