SCIENCE

15 October 1965
Vol. 150, No. 3694

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

New...and just the ticket for amino acid analysis

6	0	2	6	9
5	0	5	3	9
4	0	6	2	5
3	0	9	0	7
2	0	3	8	0
1	0	3	6	0
0	0	3	5	5
9	1	3	3	6
8	2	1	0	8
7	0	8	6	9
6	0	2	4	8
5	0	1	5	9
4	4	5	8	7
3	0	6	7	3
2	1	2	2	4
1	1	8	3	6
0	0	7	5	5
9	0	8	7	2

The new Beckman Digital Integrator makes the most tedious part of amino acid analysis the easiest—does away with dot-counting and peak height measurements. An accessory to the Model 120 Amino Acid Analyzer, the Integrator prints out on a ticket the relative concentration of each amino acid in the sample, while the Model 120 recorder simultaneously produces the usual chromatogram. When you consider that calculations for a protein hydrolyzate ordinarily take about an hour following completion of the run, the advantages of instantaneous, automatic integration are obvious.

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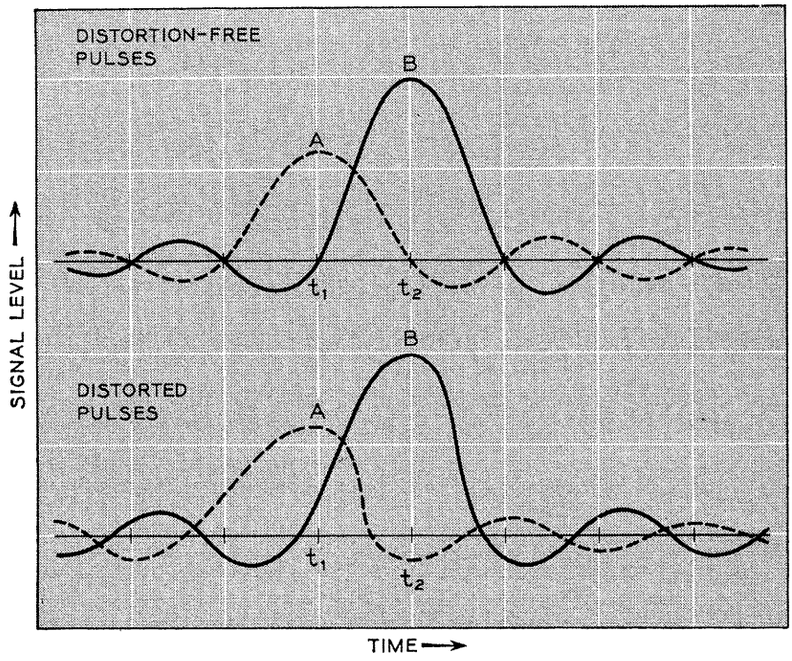


Report from

BELL LABORATORIES

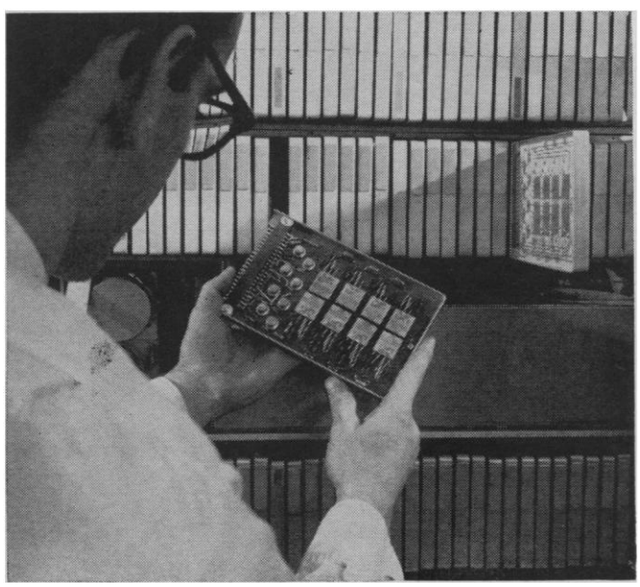
Concept of the data-distortion problem in simplified form: Two data pulses at top are undistorted because their "tails" all pass through zero signal level at sampling times t_1, t_2, etc. Thus, receiving circuit "looking" at the signal at time t_2 would "see" signal energy from pulse B only. Distorted pulses at bottom, however, have tails which do not pass through zero at sampling times. In this case, receiver at time t_2 will see energy from both pulse A and pulse B and might register a false signal level. Such distortion must be reduced to a minimum to achieve high data transmission rates.

AUTOMATIC EQUALIZER MINIMIZES DATA DISTORTION

A communication signal arriving at its destination is never a perfect replica of the original. There is always some distortion, and if this distortion exceeds acceptable limits, it must be reduced by a process known as equalization.

Equalization increases the rate at which data pulses can be transmitted. Ideally, the equalization should also adapt rapidly to changing transmission characteristics, which are caused by varying temperature, humidity and other factors. Otherwise, distortion may cause receiving circuits to register false values for the data pulses (see above drawing).

To solve this problem a new data equalizer promising increased data rates—up to a threefold increase on voice-telephone channels—has been devised at Bell Telephone Laboratories. With this new equalizer, test pulses cause a series of adjustments to be made in the settings of equalizer attenuators. These adjustments, impossible to perform rapidly by hand, are performed automatically by control circuitry. As a result, the equalizer quickly reaches a condition of minimum data distortion. Later, when the transmission characteristics of the line change, the equalizer automatically adapts to the changes by making additional adjustments that keep the attenuators at their optimum settings.



Experimental automatic data equalizer devised at Bell Laboratories. Control section consists of the circuit packages; the package being inspected is one of 12 attenuators, the settings of which determine the degree of distortion-correction of the equalizer.

Bell Telephone Laboratories
Research and Development Unit of the Bell System

"Steepest descent" minimization

The new data equalizer was made possible by a discovery by R. W. Lucky at Bell Laboratories that a technique of minimizing mathematical functions is applicable to the problem of data equalization. Known as the "steepest descent" technique, it is analogous to a hiker desiring to climb down a hill in minimum time. In the equalizer application, it was shown that the steepest descent technique results in the true minimum, and not a local or relative minimum of the function. It was also shown that an equalizer based on this technique could be built with simple control circuitry. An experimental model of the equalizer (see photo) uses a 12-tap delay line in a transversal filter with an adjustable attenuator at each tap. The control circuitry extracts information from each test pulse, and for each pulse adjusts all attenuators by small steps, each step calculated to reduce distortion in the direction toward the minimum.

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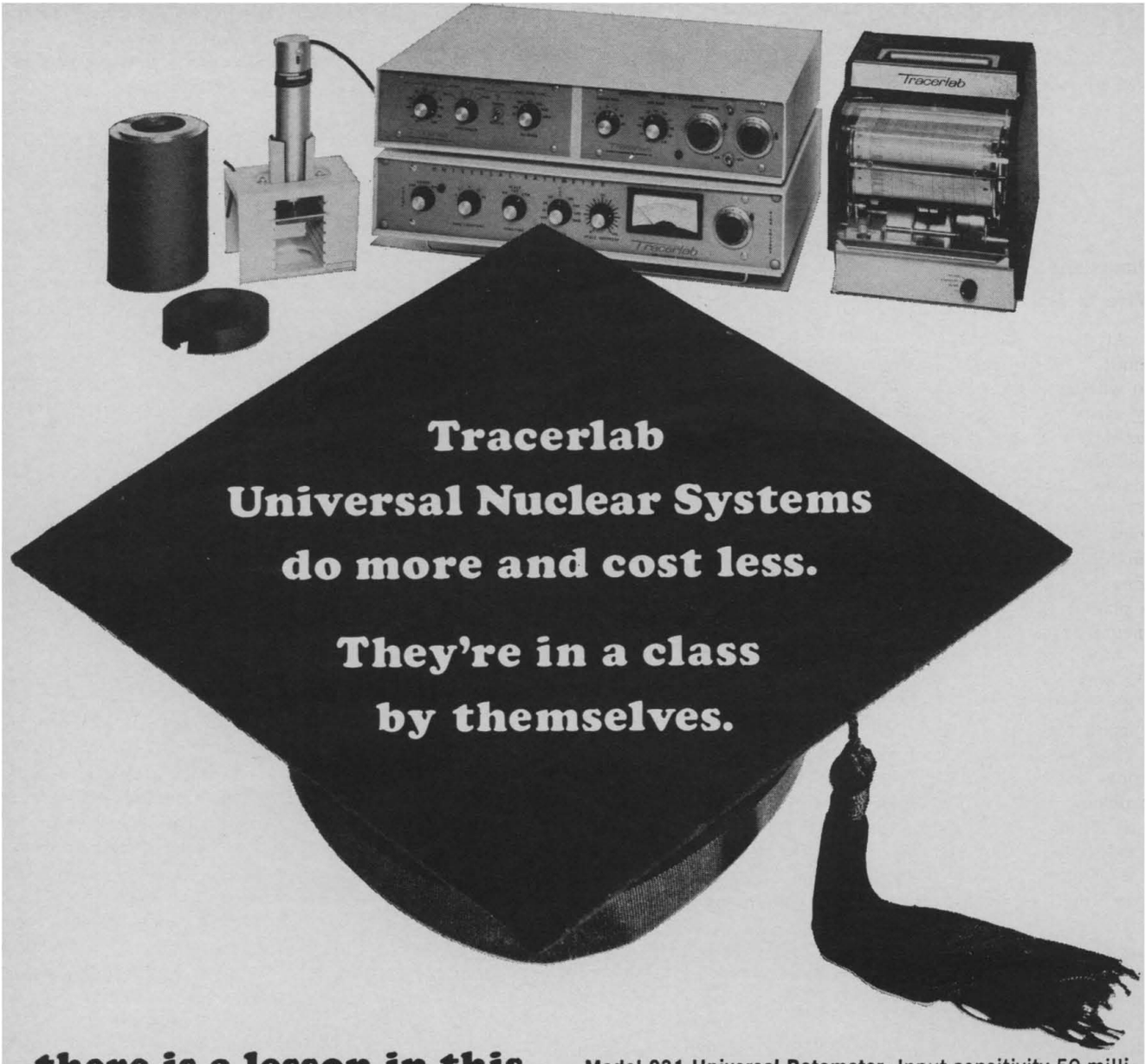
COVER

Fibroepithelial papilloma, a benign skin tumor that resembles a wart. This tumor is believed to be congenital in origin (× 18). From *Illustrated Tumor Nomenclature*, see page 336. [Armed Forces Institute of Pathology, Washington, D.C.]



there is a lesson in this

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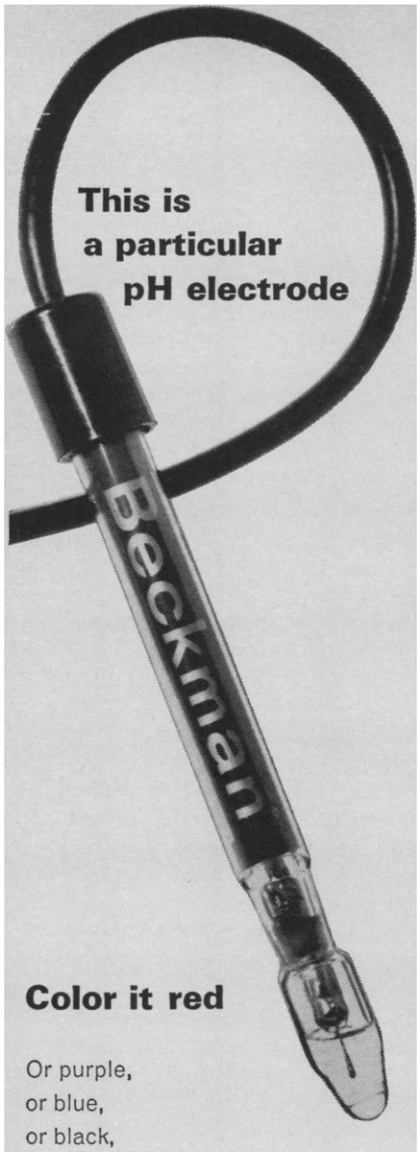

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It would seem to me that better research designs would be formulated, better information collected, and more use made of that information if all field research abroad, and probably much of the secondary research as well, were conducted in full partnership with the governments, institutions, or nationals of the countries that are the subject of the research. This should extend to defining the purposes, designing the methodology, collecting and analyzing the data, and interpreting the results. The further we move in this direction, the fewer fiascos like Camelot we will have, and the more valid and productive our research will be. Finally, the more partnership efforts of this sort we undertake, the more widely will other nations come to adopt scientific and engineering approaches to economic and social problems.

SAMUEL P. HAYES
Foreign Policy Association,
345 East 46 Street, New York 10017

Photocopying and the Journals

Parker's interesting observation (17 Sept., p. 1325) on the high percentage of foreign, compared with domestic, subscriptions to his journal does not entirely support the inference that "Americans do not, by and large, read publications," or sustain the suggestion that American scientists should "spend more time reading and less writing." In many, if not most, scientific disciplines, there are far more scientists outside the United States than there are inside the United States. Even so, it is possible that uninhibited and widespread photocopying by a significant minority of American scientists is already showing its effect on domestic subscriptions to scientific journals and on reprint sales. It is also just possible that our overseas colleagues recognize more clearly that the tempting rationale "Why buy it when we can photocopy it and nobody will know?" could wipe out many scientific journals and could make the publication of many books impossible. Is the time ripe for organized American science to formulate a code of ethics for all scientists to live by with respect to photocopying of scholarly publications?

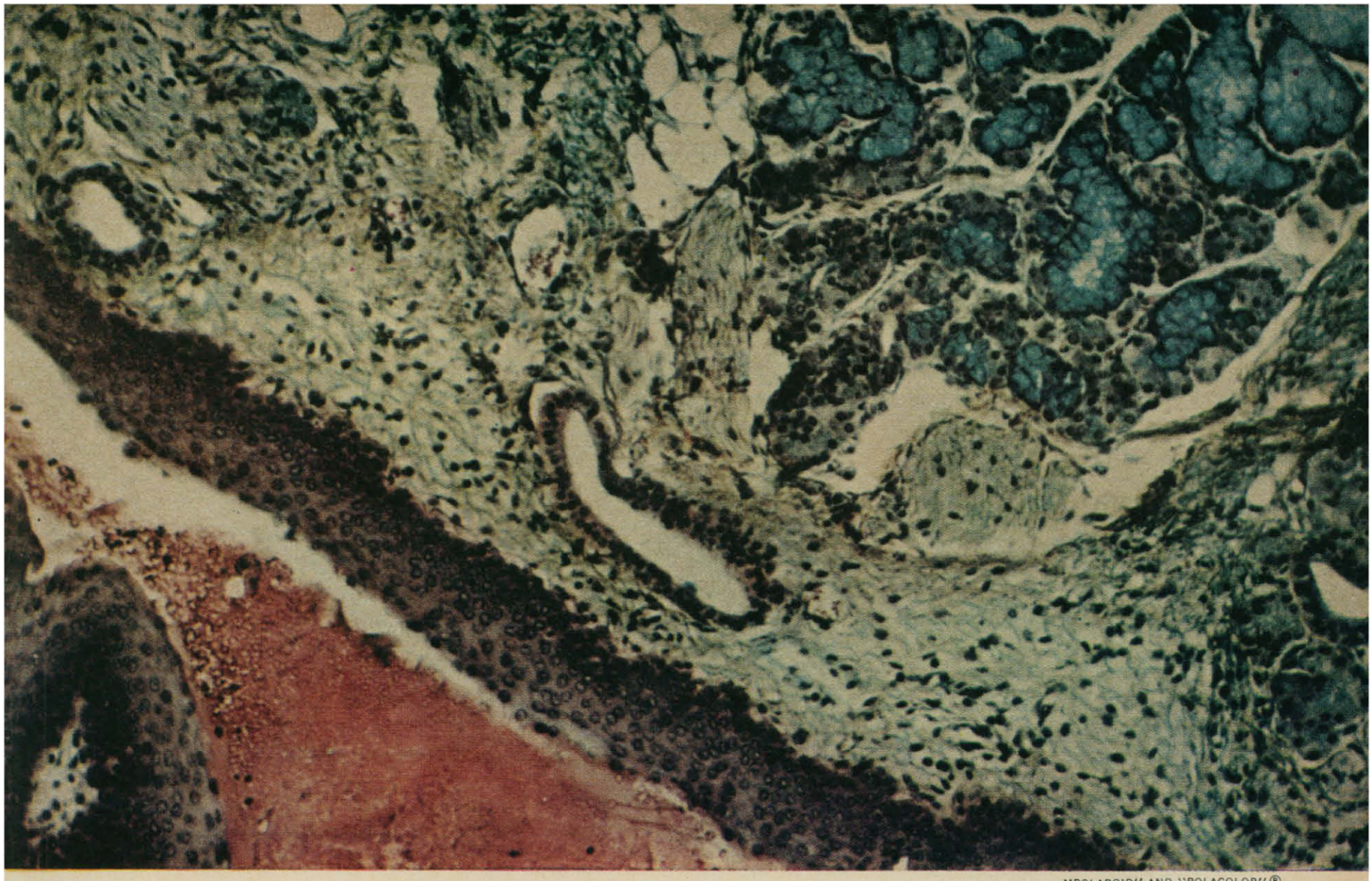
LYLE LODWICK
644 Charles Street Avenue,
Towson, Maryland

Indian Ocean Expedition

McElheny's article "Effects of the Indian Ocean expedition" (27 Aug., p. 957) omitted two matters of interest concerning this impressive exercise in international collaboration.

First, with respect to the scientific justifications for the expedition, some mention should be made of the Indian Ocean as a model of the world ocean. It is generally accepted that the major circulation of the surface layers of the ocean is essentially wind-driven. Thus, a picture of systems of currents related to the prevailing winds, the location of boundaries, and the rotation of the earth has arisen—western boundary currents such as the Kuroshio and Gulf Stream, eastern boundary currents such as the California, Peru, and Benguela Currents, and the zonal currents of the West Wind drift and the equatorial current system (including the recently discovered equatorial undercurrents of the Atlantic and Pacific). The Indian Ocean is like the other oceans in having meridional boundaries and in being located on a rotating planet. It differs, however, in the seasonal reversal of the surface winds, the so-called monsoon system, and physical oceanographers recognized the importance of examining a system where their wind-driven models could be tested by observing conditions under opposite regimes of surface wind stress. This feature of the Indian Ocean was a powerful attraction to physical oceanographers, and several important results of their work can already be identified. They have found, for example, that an equatorial undercurrent is present despite the absence of a westward wind stress along the equator, but the current differs in several ways from those of other oceans; that a major but temporary western boundary current, the Somali Current, is developed along the Somali Coast during the southwest monsoon, with surface speeds in excess of 6 knots; that at the same season intense upwelling develops off northern Somalia, with the lowest surface temperatures occurring anywhere in the world in such proximity to the equator.

Second, with respect to the origin and operation of the expedition, mention should be made of the Scientific Committee on Oceanic Research (SCOR), and greater recognition given to the roles of UNESCO and of the Intergovernmental Oceanographic



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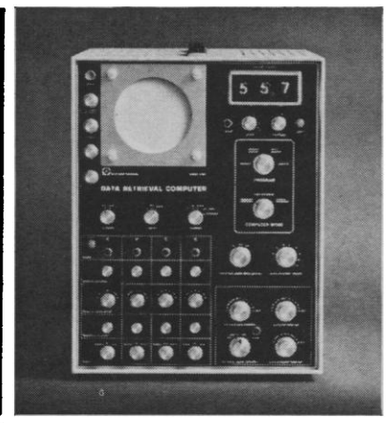

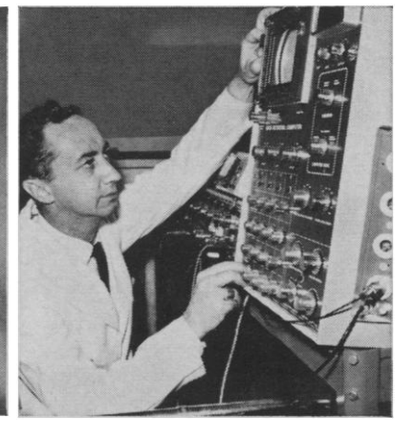

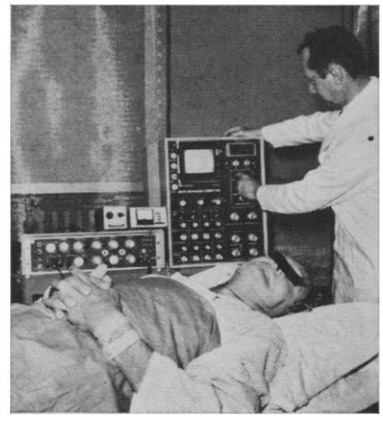

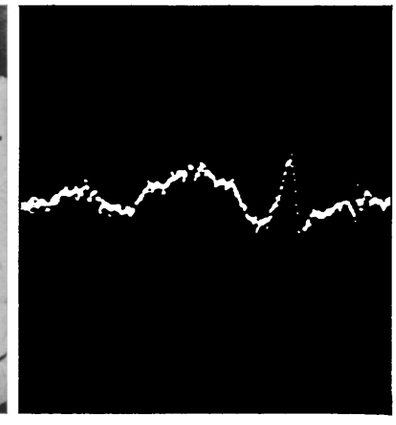

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Photos showing Data Retrieval Computer being used for evaluation of evoked scalp potentials courtesy of Biophysics Laboratory, Milwaukee County General Hospital.

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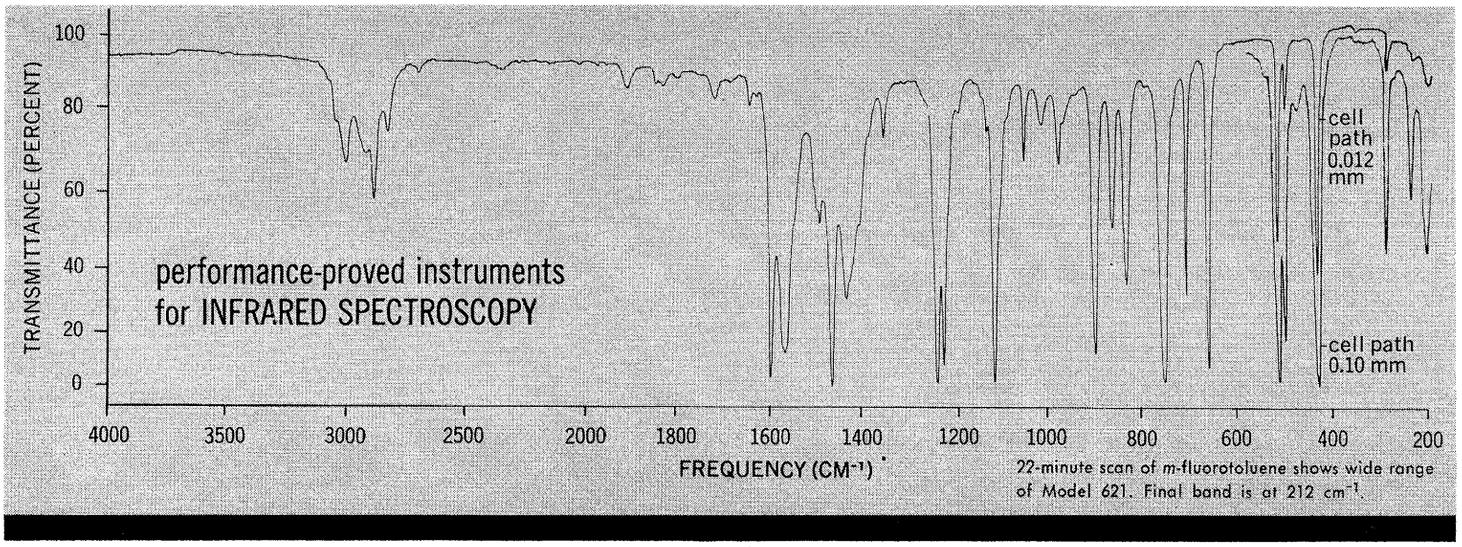

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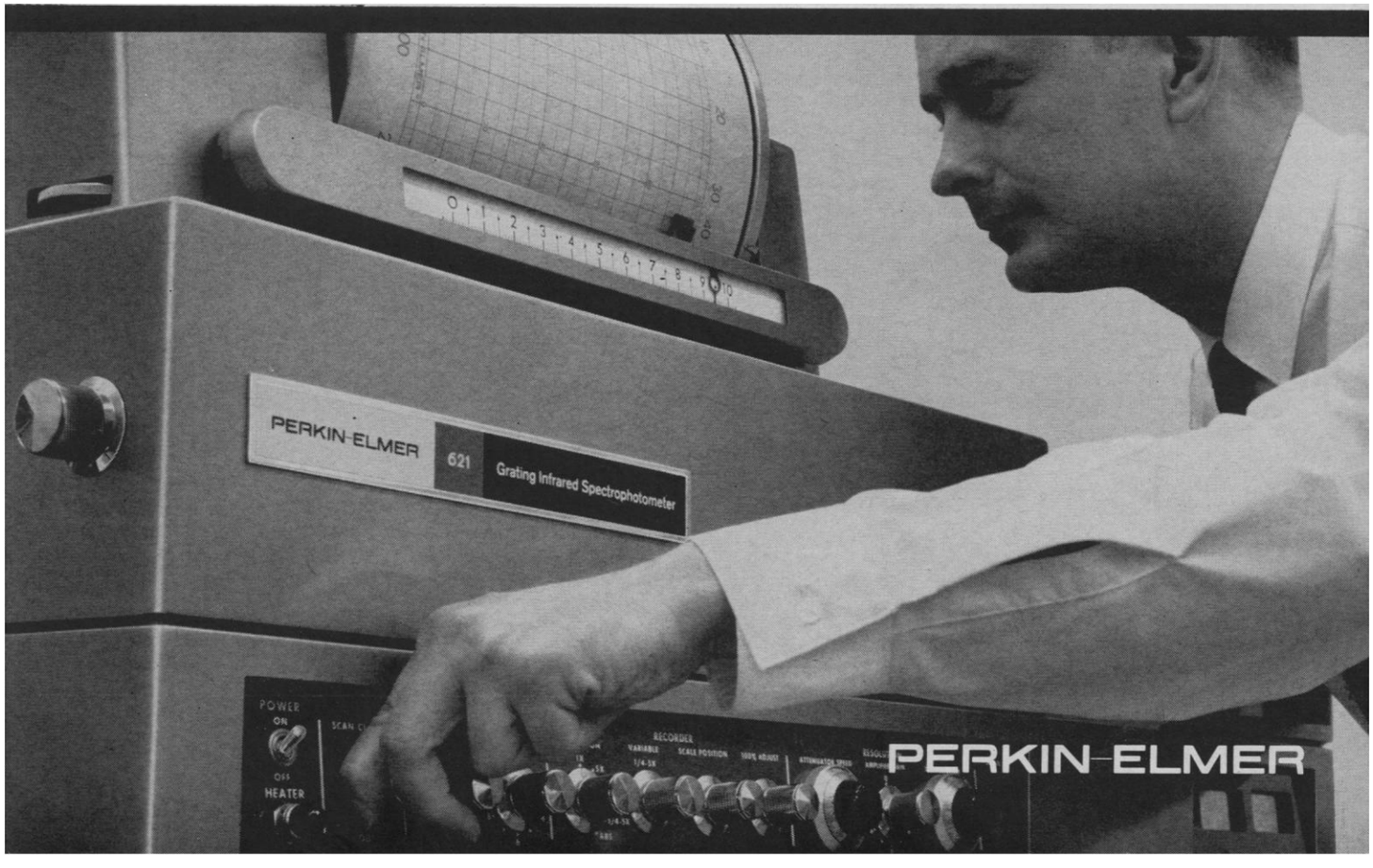

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Barriers to Innovation

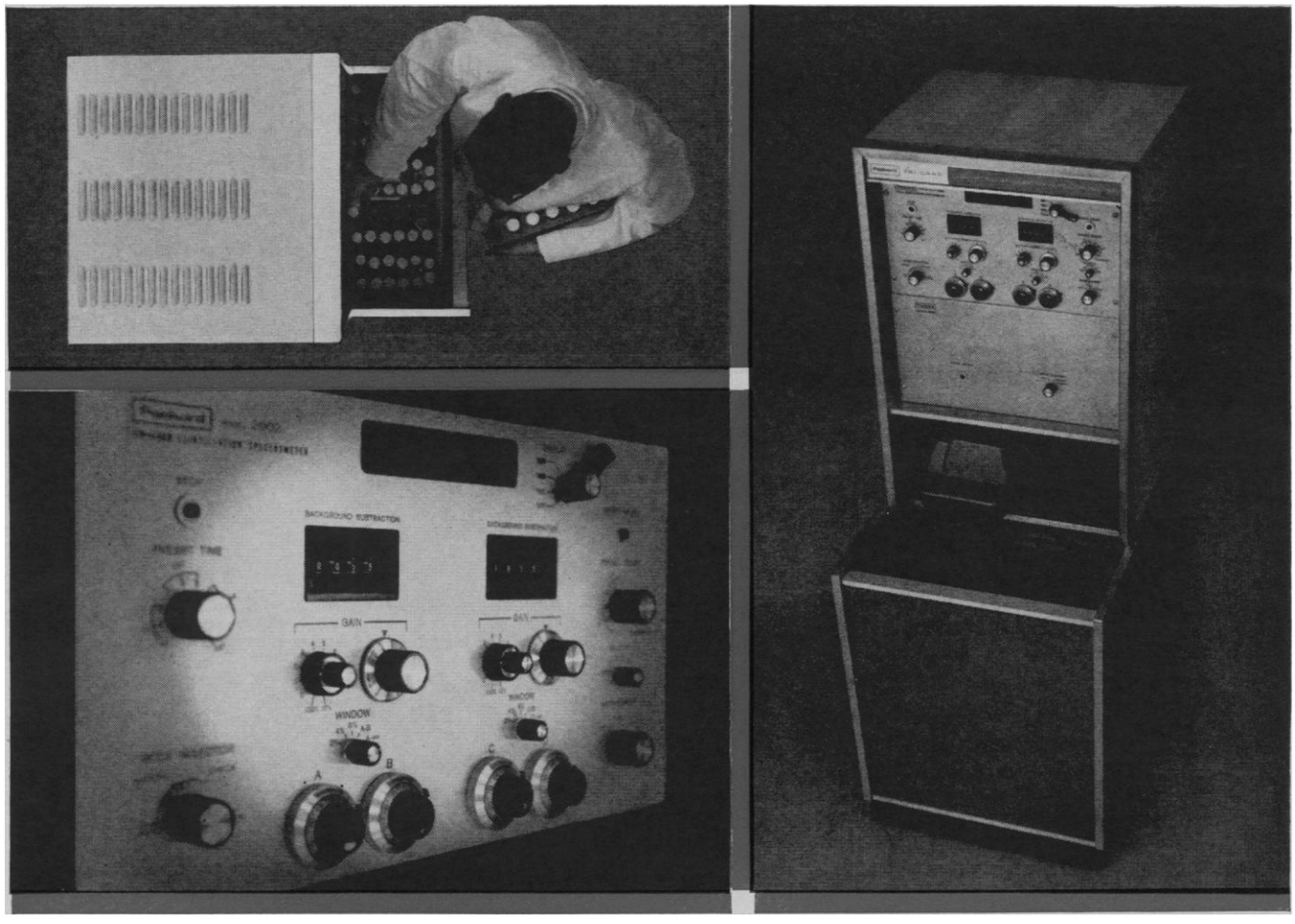
Two acts recently passed by Congress and two radical proposals for improving transportation, when considered together, illustrate some of the difficulties of introducing major technological changes into the civilian sphere. The congressional actions are the Technical Services Act (*Science*, 24 September, p. 1485), which will aid colleges and technical schools to serve as centers for economic planning and industrial innovation in their areas, and the High-Speed Ground Transportation Bill, which is intended to stimulate research and to aid in the development of faster transportation along the high-density Boston-Washington axis.

One of the transportation proposals was made by Barnes Wallis, chief of the department of aeronautical research and development of the British Aircraft Corporation, in his presidential address last month before the engineering section of the British Association for the Advancement of Science. Wallis reminded his audience that a deeply submerged submarine requires less power than does a surface vessel of equal displacement, and went on to encourage Great Britain to take advantage of her position athwart the major transportation routes of the world by developing a fleet of submarines that could travel free of weather disturbances and that could use the shorter Arctic Ocean route to Pacific Ocean ports as well as conventional routes elsewhere. Submarine freighters could be navigated by very small crews, and perhaps with no crew at all except while surfaced to leave and enter ports.

The other transportation proposal was made by L. K. Edwards of the Lockheed Missiles and Space Company, who argues persuasively in the August *Scientific American* that an evacuated tunnel carrying tube trains would be the best way to handle passenger traffic along the Boston-New York-Washington route.

Whether these bold schemes would work as well as their proponents hope is a question that may never be answered. In new and undeveloped areas such as space exploration, only cost, ingenuity, and technological feasibility place limits on innovation. But innovation in civilian industry encounters a number of other barriers. Both of these proposals would be costly. If successful, they would threaten existing transportation systems. Legal amortization rates may require long usage of existing equipment. Regulatory agencies and policies are organized around established transportation methods rather than around the primary function of transporting goods and people by whatever means appear most satisfactory under given circumstances. Labor union rules and jurisdictional disputes may hamper change. Institutional rigidities and the vested interests of existing arrangements seem to become stronger as the costs of major changes increase. Any or all of these factors may make it impossible to find out whether the technological difficulties could be overcome in an economic and satisfactory fashion.

There are, however, some hopeful signs. The legislative history of the High-Speed Ground Transportation Bill gives promise that, although the initial efforts will be devoted to conventional trains, later work will examine the feasibility of developing trains which will run on air cushions or in pneumatic tubes. And the Department of Commerce has undertaken a study of the relations between industrial research, development, and innovation and the complex web of regulatory, antitrust, and tax policies that can sometimes make innovation difficult or uneconomic. Such studies are greatly to be encouraged. The lack of bold new ideas is not the only barrier to major technological development; it is time for a hard look at the others: government regulations, tax policies, labor union policies, and certain forms of industrial organization, any or all of which may prevent the adoption or even the fair trial of attractive but costly new ideas.—DAEL WOLFLE



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- **All Data Printed for Every Sample.** Digital printer records sample number, time and both scaler counts.
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Where manual operation is acceptable—as in teaching or modest research programs—select Model 2101 Tri-Carb Spectrometer. All 2000 Series instruments are available now for prompt delivery. For details on this new series or any other Tri-Carb Spectrometer in our complete line, call your Packard Sales Engineer or write to Packard Instrument Company, Inc., 2200 Warrenville Road, Downers Grove, Illinois 60515.

Packard

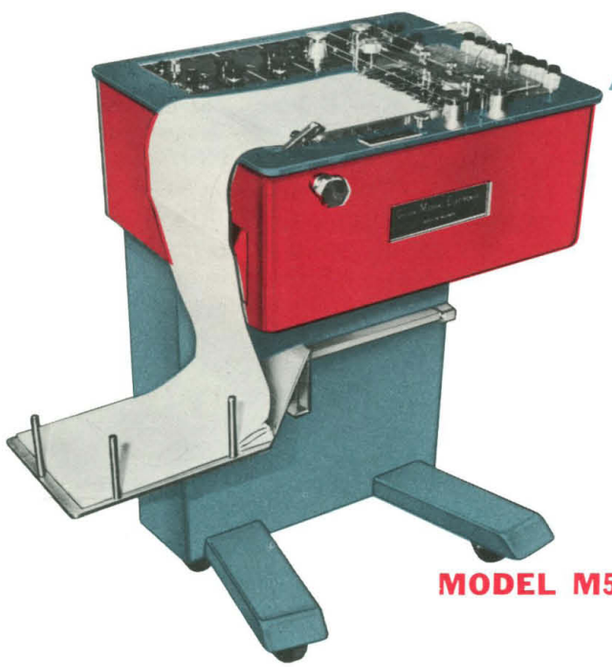
2000-3000-4000 SERIES
TRI-CARB SPECTROMETERS
Meet All Liquid Scintillation Counting Requirements

SOME PHYSIOLOGICAL CHANGES CAUSED BY EMOTION

PICKUP

TRANSDUCER

POLYGRAPH

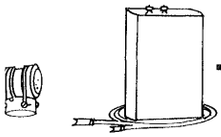


MODEL M5P

MODEL M8PM

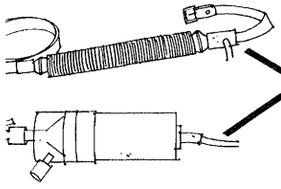
GILSON

PICKUP OR TRANSDUCER	ADAPTER	CHANNEL



and 6 VOLT BATTERY

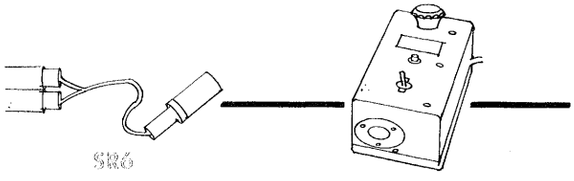
CT20 CARDIOTACHOMETER gives immediate indication of change. Deflection is proportional to the time between beats. A downward deflection = increase in pulse rate. The top of the jagged line is the point to be measured. Only approximately linear.



CHEST BELLOWS and P23 BB STATHAM

CH-CBPP. Inspiration gives a downward deflection.

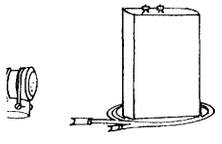
The event marker is standard equipment on all Gilson polygraphs and is included in the basic unit price. It may be operated from the power control panel or from a switch at the end of a cable. Either a hand or a foot switch can be provided.



SR6

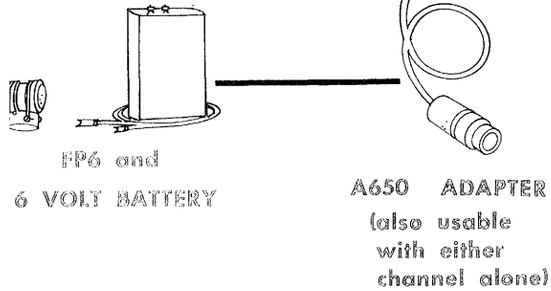
A30

SE21 SERVO, writing full width of chart. Shows changes in skin resistance of momentary to moderate duration. A long time constant capacitor coupling is used in the adapter to permit recording of response to autonomic changes, and to discriminate against long term changes in skin resistance unrelated to the immediate stimulus.



and 6 VOLT BATTERY

CT27 CARDIOTACHOMETER gives a deflection proportional to the rate—an average over the previous several seconds.



FP6 and 6 VOLT BATTERY

A650 ADAPTER (also usable with either channel alone)

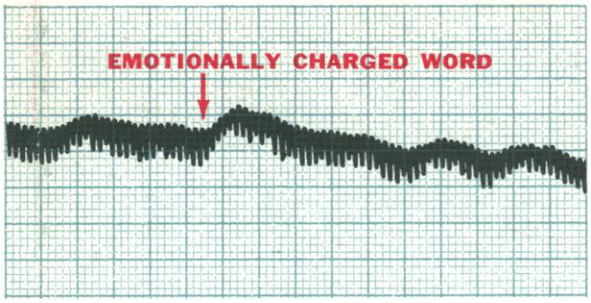
CH-CBPP shows changes in finger volume of momentary to moderate duration. A long time constant capacitor coupling is used in the adapter to permit recording of response to autonomic changes, and to discriminate against long term changes in finger volume unrelated to the immediate stimulus.

Standard equipment. Included in basic unit price.

ECG20. A short time constant eliminates recording of those changes in finger volume other than those produced by each pulse.

ONVENTIONAL CG ELECTRODES

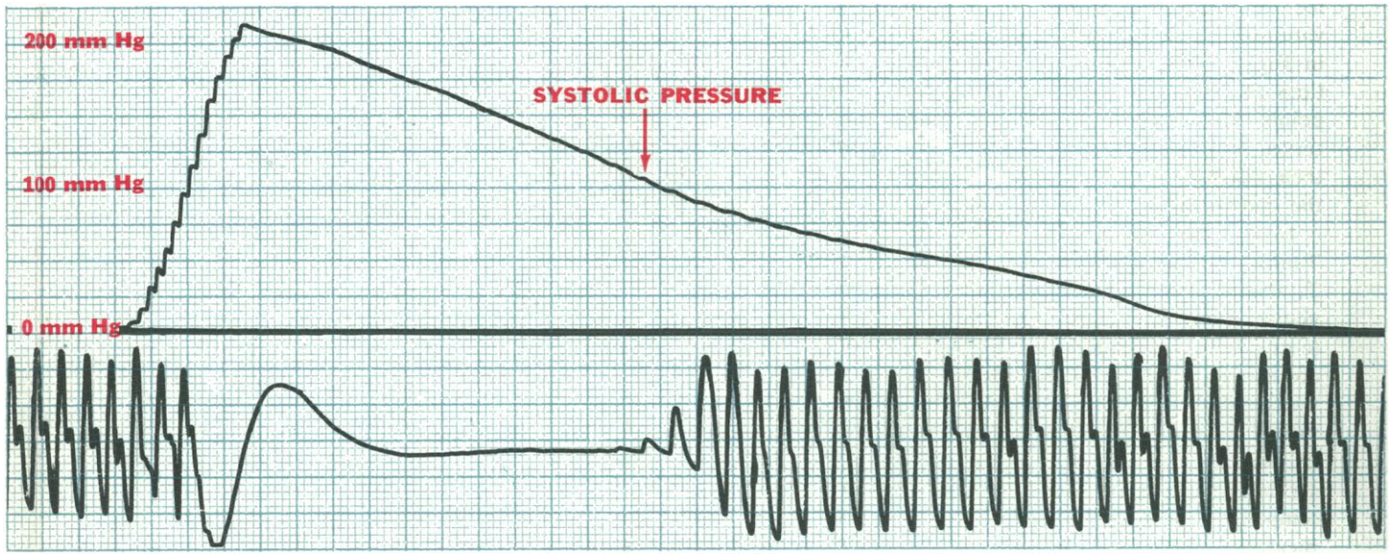
ECG20.



TO OBTAIN AN INDICATION OF RELATIVE CHANGES IN BLOOD PRESSURE

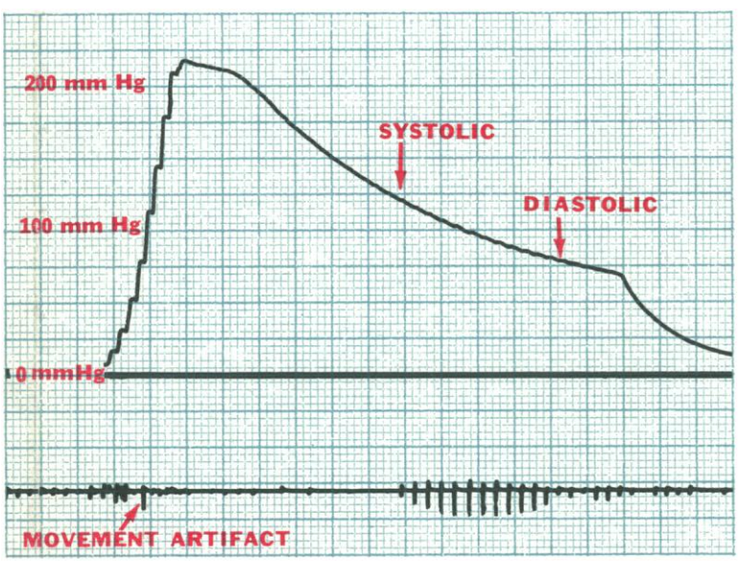
This technique is similar to that used on lie-detector polygraphs. Attach the cuff to the arm and connect the fitting to a Statham P23AA transducer; plug the transducer into a Model CH-CBPP chopper channel. Inflate the cuff to a point midway between systolic and diastolic pressure. (Keep the volume of air in the cuff and tubing as small as possible. The sensitivity of the method can be approximately doubled by filling the system with water rather than air.) With the Balance Control, set the pen to the middle of its excursion. The sensitivity must be near maximum.

The tracing will show a pulsation, but more importantly, the base line will vary as the pressure in the cuff varies as a result of increased or decreased volume of blood in the arm which follows an increase or decrease in blood pressure. This deflection reflects changes in both systolic and diastolic blood pressure. This method has the limitation that it is uncomfortable.



TO OBTAIN A MEASUREMENT OF SYSTOLIC BLOOD PRESSURE INTERMITTENTLY

The use of 2 channels is necessary, one for fingertip pulse and one for cuff pressure. Attach an FP6 photoelectric finger pickup to a finger, and plug into an ECG or EEG channel through an A630 adapter. Adjust the gain so that a pulse is suitably recorded. Attach the cuff to the arm and connect the fitting to a Statham P23AA transducer; plug the transducer into a Model CH-CBPP chopper channel and calibrate the channel. When the cuff is inflated above systolic pressure, the pulse from the finger pickup will disappear. Gradually deflate the cuff, and when the pulse re-appears, the systolic pressure may be read on the CH-CBPP channel.

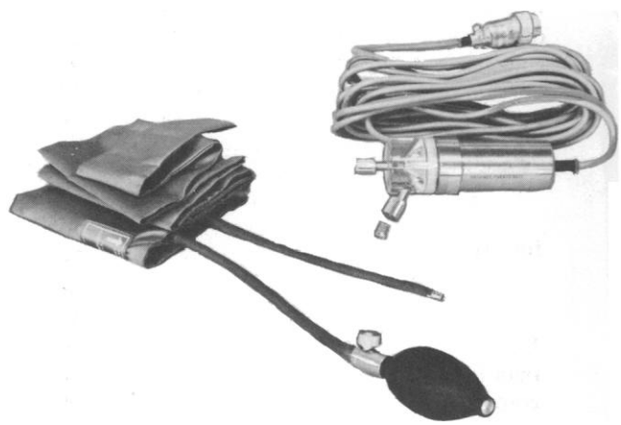


TO OBTAIN A MEASUREMENT OF SYSTOLIC AND DIASTOLIC BLOOD PRESSURE INTERMITTENTLY

The use of 2 channels is necessary. A microphone is placed over the brachial artery and plugged directly into a Model EMG21 channel. This serves to record the sounds ordinarily heard by a physician with a stethescope.

Attach the cuff to the arm and connect the fitting to a Statham P23AA transducer; plug the transducer into a Model CH-CBPP (or CH65) chopper channel and calibrate the channel. The cuff is inflated to above systolic pressure and allowed to fall below diastolic. The systolic pressure is indicated by the first deflection caused by the pulse sounds, and the diastolic pressure is indicated by the sudden drop in amplitude.

Ref.: Gilson, W. E., Automatic Blood Pressure Recorder, ELECTRONICS, May 1942.



Cat. No. 666. Arm cuff with valve, bulb, and Luer fittings to connect to pressure transducer. ..... $ 20.00

Statham P23AA pressure transducer 250.00

GILSON MEDICAL ELECTRONICS

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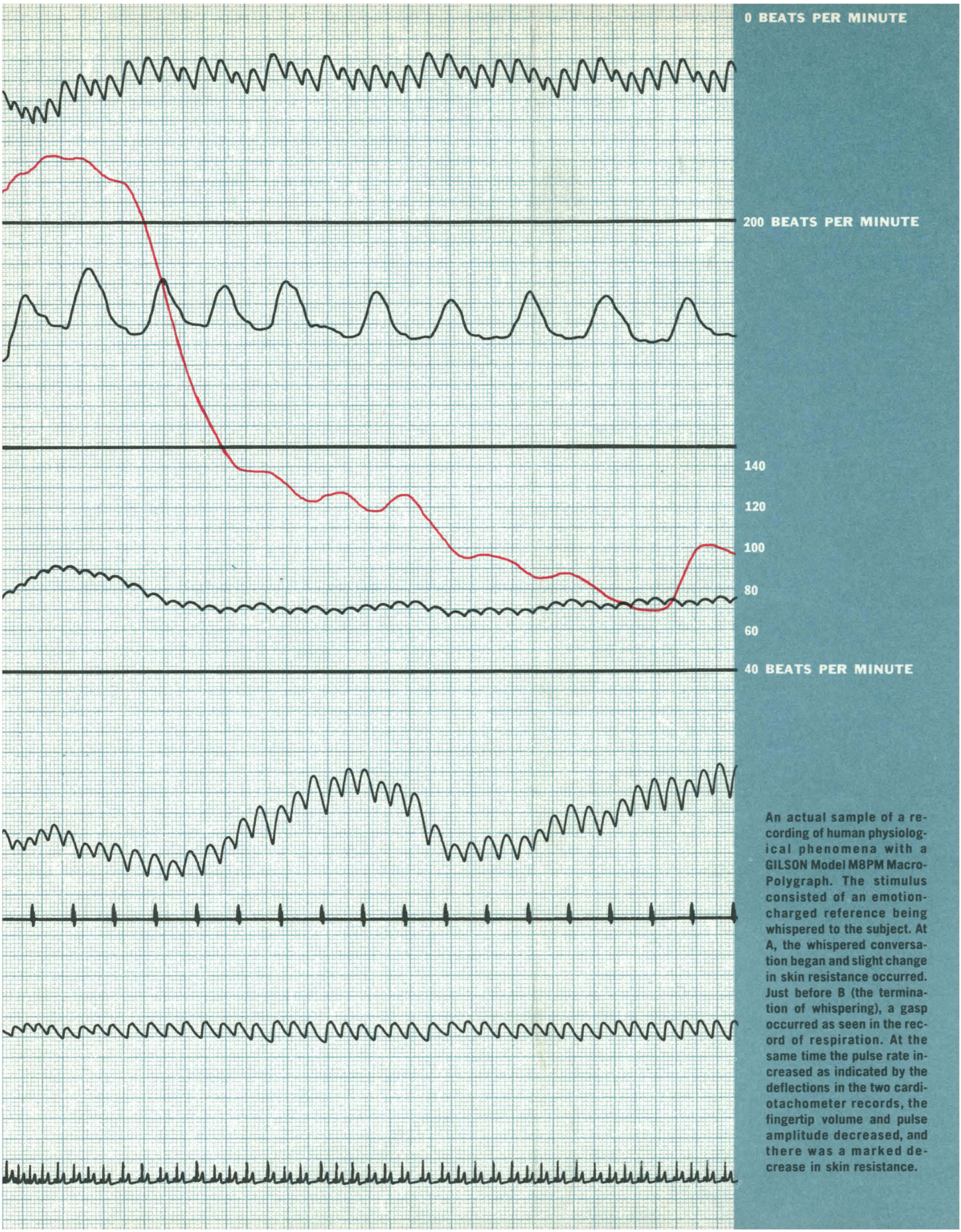


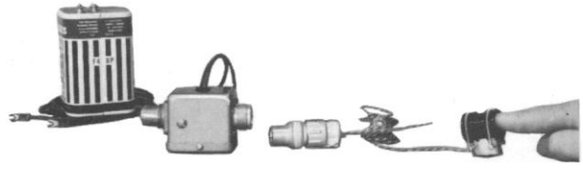
An actual sample of a recording of human physiological phenomena with a GILSON Model M8PM Macro-Polygraph. The stimulus consisted of an emotion-charged reference being whispered to the subject. At A, the whispered conversation began and slight change in skin resistance occurred. Just before B (the termination of whispering), a gasp occurred as seen in the record of respiration. At the same time the pulse rate increased as indicated by the deflections in the two cardiotachometer records, the fingertip volume and pulse amplitude decreased, and there was a marked decrease in skin resistance.

On GILSON polygraphs, most transducers plug directly into the modules. Occasionally a small and inexpensive adapter is required. Statham transducers, for example, plug in directly without the need for preamplifiers.

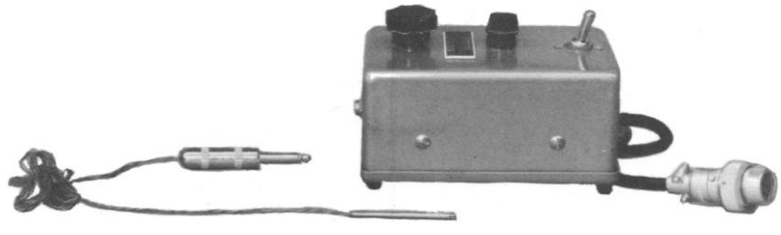
Cat. No. 99. Chest bellows with tubing and Luer fittings ..... $ 16.50
Statham P23BB transducer 250.00

SR6 PLASTIC CUP FINGERTIP SKIN RESISTANCE ELECTRODES. Messy, but artifact-free. Much less sensitive to movement than other types..... $ 5.00
SR7 SKIN RESISTANCE ELECTRODES..... 5.00
A45 adapter, to connect skin resistance electrodes to SE21 channel..... $40.00
A35 adapter, to connect skin resistance electrodes to CH-CBPP channel..... $40.00

A650 adapter, to connect one FP6 pickup to both a CH-CBPP and an ECG channel. (May also be used with one channel only.) $35.00
FP6 PHOTOELECTRIC FINGER PICKUP. Light, comfortable, spring-held. A lamp rated at 60,000 hours and a photocell are used in this versatile and reliable finger pickup which is much less sensitive to movement than other types..... $85.00
(A 6-volt battery is needed to light the lamp and supply voltage to the photocell.)



FP6 PHOTOELECTRIC FINGER PICKUP. DESCRIBED above.
A630 adapter, to connect FP6 to ECG or EEG channels. $25.00



Cat. No. 98. Thermistor probe. May be placed in the air stream as an alternate method of obtaining respiration rate..... $15.00
(Temperature-sensing pickups for other purposes are available. Prices on application.)
A13 bridge for use with above, or with any thermistors of approximately 2000 ohms, to connect to servo channel $60.00

Send for descriptive brochure on Model M5P and Model M8PM Polygraphs.

GILSON MEDICAL ELECTRONICS also manufactures the following equipment, and invites your inquiry concerning them:
FRACTION COLLECTOR, volumetric, time, or drop counting; refrigerated. RESPIROMETER, the GILSON differential. GME-LARDY WARBURG apparatus. ULTRAVIOLET ABSORPTION METER. HIGH VOLTAGE ELECTROPHORESIS apparatus. OXYGRAPH, to record rapid changes of O_2 in solution. TRANSFERATOR.

GILSON MEDICAL ELECTRONICS, 3000 W. Beltline, Middleton, Wisconsin U.S.A. Telephone: 608/836-1551.

GILSON MEDICAL ELECTRONICS (FRANCE), 69, rue Gambetta, Villiers-le-Bel (S&O), France, manufactures LINEAR FRACTIONATOR, ELECTROPHORATOR, TRANSFERATOR, and the GILSON RESPIROMETER for the European area.

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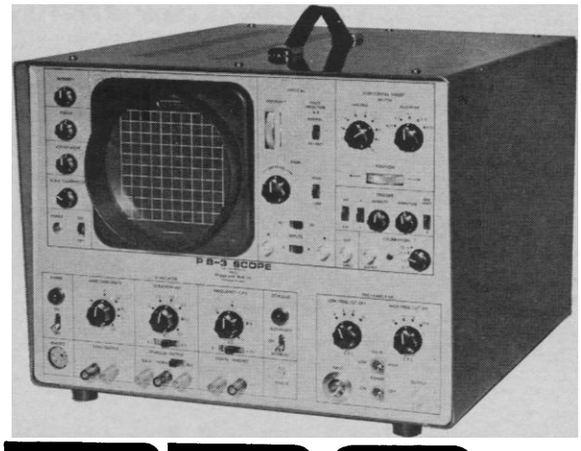

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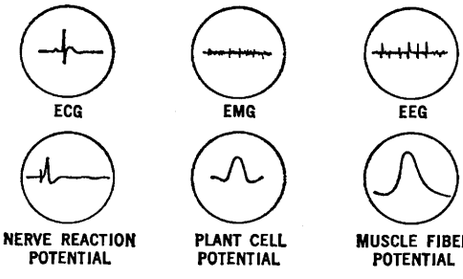

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VERTICAL AMPLIFIER

BAND WIDTH	SENSITIVITY	RISE TIME	IMPEDANCE ACCURACY	
D.C. to 50 KC	Oscilloscope 50 MV to 50V/CM Bio-amplifier in 10μV/CM to 100 MV/CM	Less than 7 μsec.	Oscilloscope 1 Meg— Single End Bio-amplifier 20 Megs— Balanced 10 Megs— Single End	±5%

TIME BASE		CRT		STIMULATOR	PHYSICAL
SPEED	TRIG-GERING	DIA.	PHOSPHER	Amplitude .04 to 100 volt frequency 1 to 1000 cps Duration .04 to 32 ms	DIM. & WT.
10 μsec. CM to 1 sec/cm	Internal or External Slope, + or −	5"	P7 (Filters available)		16"x18"x12" 45 lbs.

Catalog Number 7092—680 Price $725.00
For 115 Vac 50-60 cycles 90 watts

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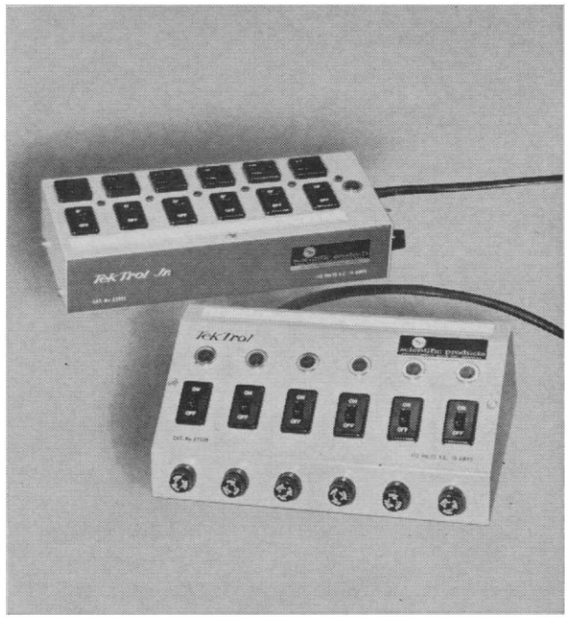

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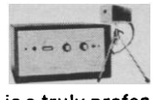

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THE HUMAN INTEGUMENT NORMAL AND ABNORMAL

Editor: Stephen Rothman 1959
AAAS Symposium Volume No. 54

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Chapters

1) The Integument as an Organ of Protection
2) Circulation and Vascular Reaction
3) Sebaceous Gland Secretion
4) Pathogenetic Factors in Pre-malignant Conditions and Malignancies of the Skin

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AAAS

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ments. A. C. Lucas (E.G. & G.) and N. R. French described a radiation ecology study in which miniature TL powder dosimeters, about 1 mm in diameter and 6 mm long, were attached to desert rats near a large, elevated γ-ray source and subsequently recovered. For these small dosimeters, the reported precision of dose measurement of $\pm$ 3 percent is remarkably good.

M. J. Aitken and M. S. Tite (Oxford) reported the dating of old pottery (the firing process would have removed any previously stored energy due to natural radioactivity), and T. Higashimura (Kyoto Univ.) presented dose measurements about a nuclear detonation site obtained from the luminescence of roof tiles taken from bombed cities in Japan.

The conference was held under the joint sponsorship of the Atomic Energy Commission, the Office of Naval Research, and Stanford University. A limited number of abstract booklets have been reprinted and are available on a first-request basis from C. J. Karzmark. The conference proceedings are to be published early in 1966 by the Atomic Energy Commission Division of Technical Information, and will be available from the Clearing House for Federal Scientific and Technical Information Springfield, Virginia 22151.

C. J. KARZMARK
Stanford University School of Medicine, Palo Alto, California 94304

F. H. ATTIX
U.S. Naval Research Laboratory, Washington, D.C.

CATHARINE L. WINGATE
U.S. Naval Radiological Defense Laboratory, San Francisco, California

Forthcoming Events

October

26. American Soc. of **Safety Engineers**, annual, Chicago, Ill. (A. C. Blackman, ASSE, 5 N. Wabash, Chicago, Ill.)

26–28. **Fluid Amplification**, symp., Washington, D.C. (J. M. Kirschner, Fluid Systems Branch, Harry Diamond Laboratories, Washington 20438)

26–28. **Shock and Vibration**, 25th symp., New Orleans, La. (Shock and Vibration Information Center, Code 4021, U.S. Naval Research Laboratory, Washington, D.C. 20390)

26–28. **Spacecraft Sterilization Technology**, natl. conf., NASA, California Inst. of Technology, Pasadena. (L. B. Hall, Code SB, NASA, Washington, D.C. 20546)

26–29. National Soc. for **Clean Air**, 32nd annual conf., Eastbourne, England.

(R. Sharp, The Society, Field House, Breams Bldg., London, E.C.4)

26–30. **Immunohistochemistry**, symp., Nijmegen, Netherlands. (H. von Mayersbach, Faculteit der Geneeskunde, Laboratorium voor Cytologie en Histologie, Universiteit Van Nijmegen, Nijmegen)

27–29. **Aerospace and Navigational Electronics**, 12th East Coast conf., Baltimore, Md. (B. W. Moss, Mail #383, Martin Co., Box 988, Baltimore 21203)

27–29. American **Ceramic** Soc., Electronics Div., fall meeting, Los Angeles, Calif. (R. S. Shelden, 4055 N. High St., Columbus 4, Ohio)

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. **Water Pollution**, intermountain workshop, Denver, Colo. (Manufacturing Chemists Assoc., 1825 Connecticut Ave., NW, Washington, D.C.)

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)

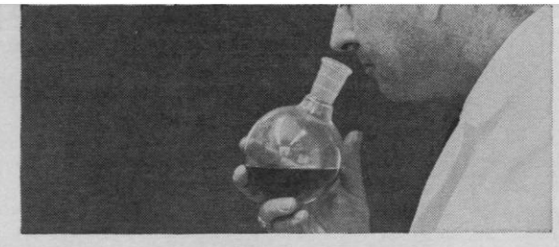
31–5. Society of **Motion Picture and Television Engineers**, 98th technical conf., Montreal, P.Q., Canada. (SMPTE, 9 E. 41 St.. New York 10017)

31–5. American Soc. for **Testing and Materials**, 5th Pacific area natl., Seattle, Wash. (H. H. Hamilton, ASTM, 1916 Race St., Philadelphia, Pa. 19103)

November

1–3. Development of the **Lung**, Ciba Foundation symp., London, England. (Ciba, 41 Portland Pl., London, W.1)

1–3. American **Physical** Soc., southeast-

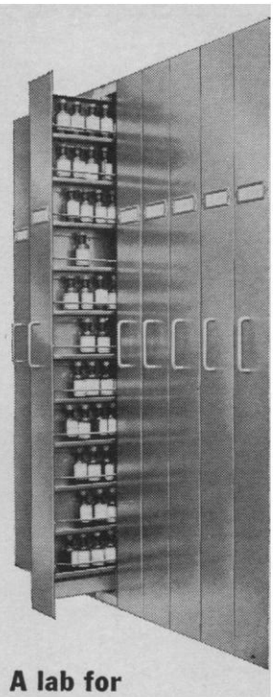


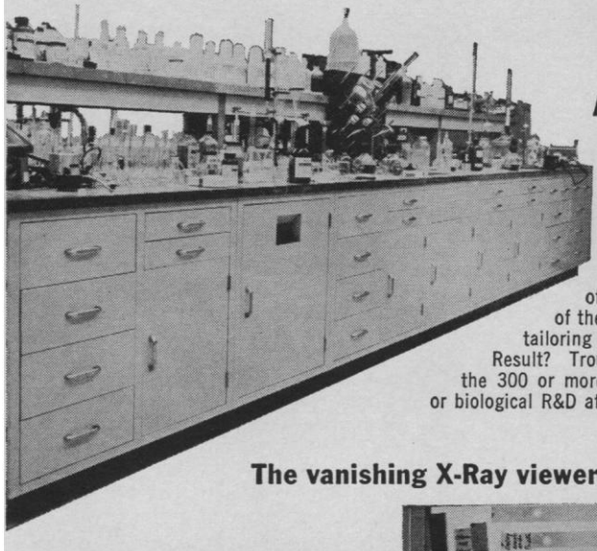
The delicate nose

To a perfume chemist, his nose is a sensitive analytical instrument. One whiff tells him what type scent and its purity. Ideally, this nose does its job best in an uncontaminated environment, free from foreign odors.

That's what perfume chemists have at Colgate-Palmolive Company's R&D Center in New Brunswick, N. J.

It was planned that way . . . long before the building went up. Each lab was pre-designed for specific scientists. Perfume chemists had their noses pampered. Blickman fabricated cabinets to hold hundreds of small scent containers. Sliding shelves provide storage by scent type or use. Air control units carry odors from cabinets . . . away from the man in that lab and away from delicate noses in other labs.





A lab for the man in it

Colgate lab supervisors, the architectural firm of Eggers & Higgins and Blickman engineers worked out the needs of each group. Custom fabrication and installation of lab equipment was just part of the job. The important thing was tailoring the lab to the man in it.

Result? Trouble-free labs that really fit the 300 or more people devoted to chemical or biological R&D at Colgate.

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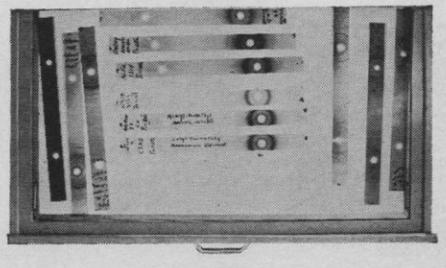

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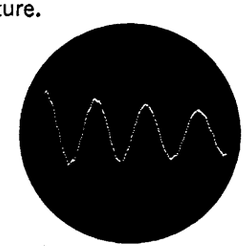

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ern section, Charlottesville, Va. (H. Carr, Auburn Univ., Auburn, Ala.)

1–3. **Industrial Static Power Conversion**, conf., Philadelphia, Pa. (L. W. Morton, General Electric Co., Bldg. #2, Schenectady 5, N.Y.)

1–3. Information Processing in **Sight Sensory Systems**, California Inst. of Technology, Pasadena. (E. D. Johnson, 208 Booth Computing Center, California Inst. of Technology, Pasadena 91109)

1–3. **Systems**, intern. meeting, Chicago, Ill. (R. L. Irwin, Systems and Procedures Assoc., 7890 Brookside Dr., Cleveland, Ohio 44138)

1–4. American Soc. of **Agronomy**, Columbus, Ohio. (M. Stelly, ASA, 677 S. Segoe Rd., Madison, Wis. 53711)

1–4. **Radioactive Pharmaceuticals**, symp., Gatlinburg, Tenn. (Chairman's Office, Medical Div., Oak Ridge Inst. of Nuclear Studies, Oak Ridge, Tenn. 37831)

1–5. American **Dietetic** Assoc., 48th annual, Cleveland, Ohio. (ADA, 620 North Michigan Ave., Chicago, Ill. 60611)

The following meetings will be held under the **U.S.–Japan Cooperative Science Program** for November. Information is available from N. P. Neureiter, Office of International Activities, National Science Foundation, Washington, D.C.

1–5. **Congenital Malformations and Cancer**, planning meeting, Tokyo, Japan.

4–5. **Range of Deviation among Cancer Cells**, conf., Kyoto, Japan.

15–18. **Bulk Sampling**, seminar, Tokyo, Japan.

1–7. **Military Medicine and Pharmacy**, 18th intern. congr., Bangkok, Thailand. (J. Voncken, Intern. Committee of Military Medicine and Pharmacy, 79, rue Saint-Laurent, Liege, Belgium)

2–4. New England **Research and Engineering** Meeting (NEREM), Boston, Mass. (IEEE Boston Office, 313 Washington, Newton, Mass.)

2–4. **Space Electronics**, intern. symp., Inst. of Electrical and Electronics Engineers, Miami Beach, Fla. (A. J. Wood, Office of Information, Public Information Div., Patrick Air Force Base, Fla.)

2–5. Use of the **Baboon as an Experimental Animal**, 2nd intern. symp., San Antonio, Tex. (L. R. Smith, Southwest Foundation for Research and Education, P.O. Box 2296, San Antonio 78206)

2–6. American Soc. of **Oral Surgeons**, annual, Denver, Colo. (G. A. Malecki, ASOS, 919 North Michigan Ave., Chicago, Ill.)

3–4. **Automation**, conf., Oslo, Norway. (Studieselsmapet Forkninsveien, Oslo 3)

3–4. American College of **Clinical Pharmacology and Chemotherapy**, Chicago, Ill. (D. E. Hutcheon, The College, 7 E. 82 St., New York 10028)

3–5. **Data Processing**, intern. fall conf., Dallas, Tex. (Conference Registrar, P.O. Box 2665, Dallas 75221)

3–5. **Diffraction**, 23rd Pittsburgh conf., Pittsburgh, Pa. (B. R. Banerjee, Crucible Steel Co., 234 Atwood, Pittsburgh 15213)

3–5. Society of **Engineering Science**, 3rd technical, Univ. of California, Davis. (A. C. Eringen, School of Aeronautics, Astronautics and Engineering Sciences, Purdue Univ., Lafayette, Ind. 47907)

3–5. American Soc. of **Tropical Medicine and Hygiene**, New Orleans, La. (G. M. Jeffrey, P.O. Box 295, Kensington, Md.)

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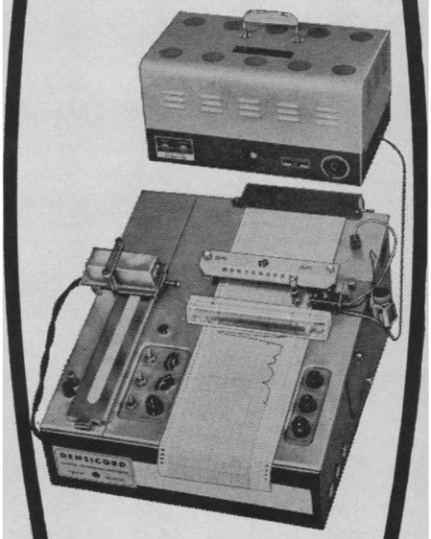

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