

SCIENCE

26 October 1973

Vol. 182, No. 4110

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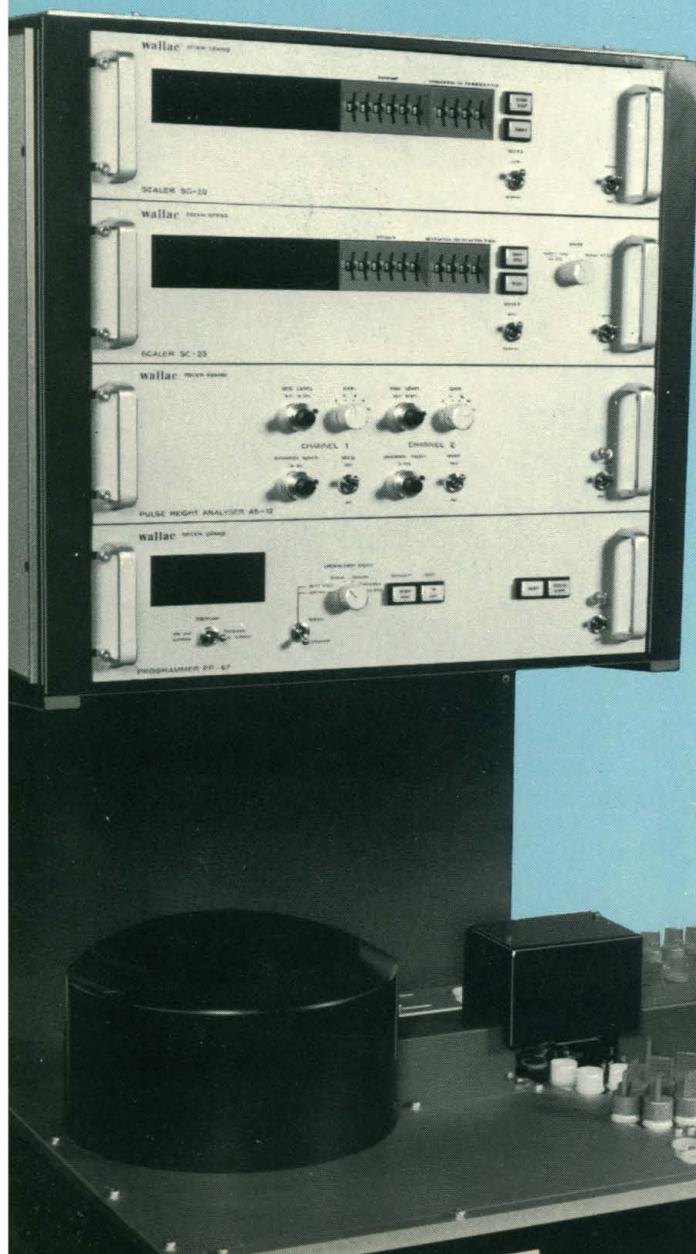
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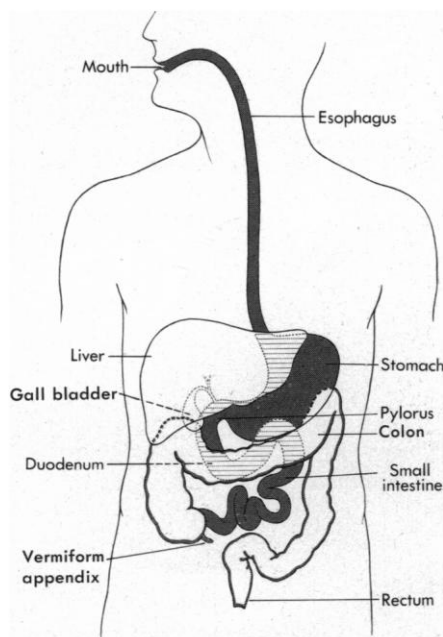
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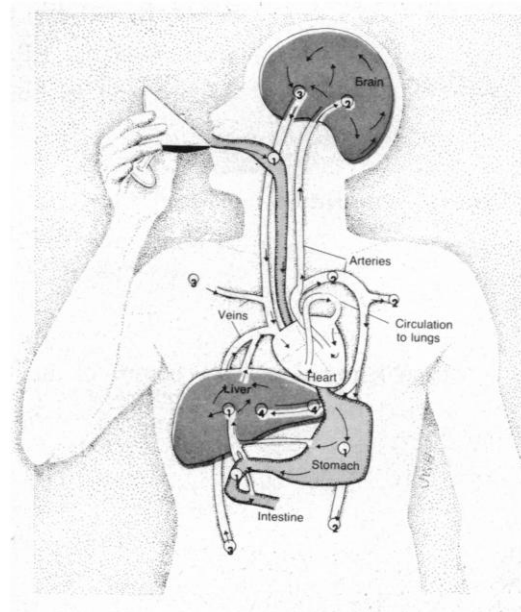
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St. Augustine Volcano, Alaska. See
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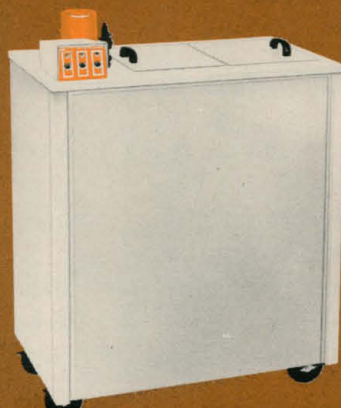
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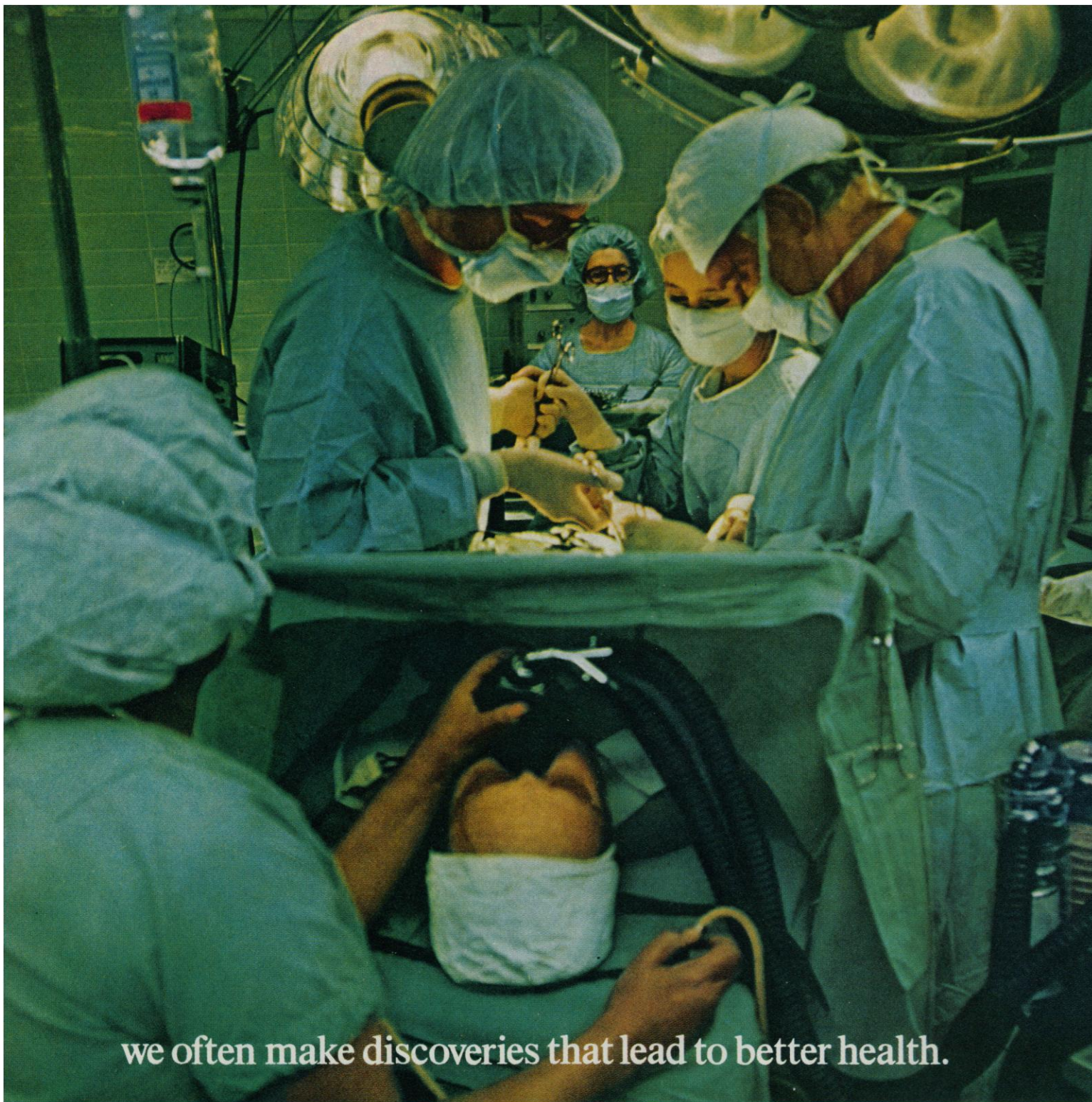
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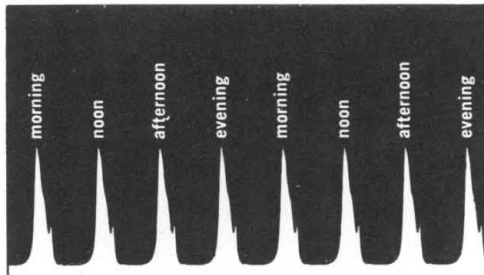
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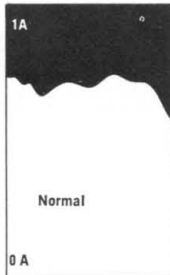
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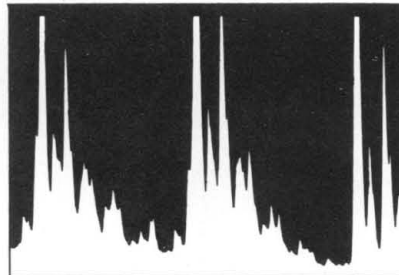
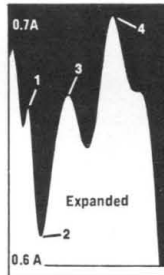
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(✓) **More Resolution.**

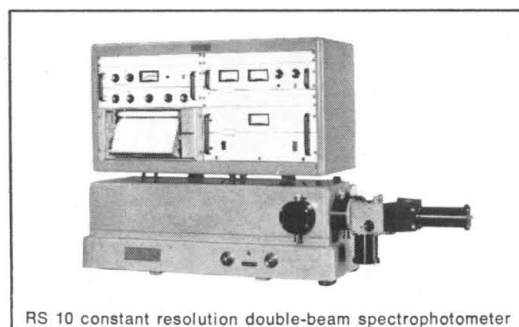
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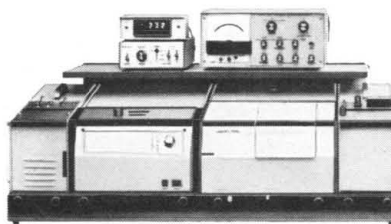
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The Urgent Need for Energy Conservation

During the last 6 months, the mass media have devoted considerable attention to the "Energy Crisis." But obvious trauma has not materialized, and from surface evidence one might conclude that we had been treated to another instance of crying wolf. The sad fact is that we are headed for substantial difficulties, even if the Arab countries refrain from boycotting us. We avoided gasoline shortages this summer, but at the cost of insufficient production of heating oil for the coming season. By such patchwork measures we may stave off the moment of truth for a short time, but the trends seem inexorable. Consumption of petroleum and its products continues to rise and currently is 10 percent above consumption last year. Domestic production of oil is decreasing slowly, while total imports are running more than 60 percent above what they were a year ago. Three years ago, imports cost \$3 billion. This year they will amount to about \$9 billion, but the sum does not fully reflect present realities. This spring, Libya received \$2.30 per barrel for its oil. It now gets \$4.90. Other countries have not yet advanced their prices so sharply, but they will increase them. If rising trends in importation and costs continue, the bill next year could exceed \$15 billion.

This year we have been able to pay for imported oil, aided substantially by agricultural exports, but there were unpleasant side effects at the supermarkets. Good crops elsewhere next year could cause world food prices to drop and leave the United States with an unsustainable deficit in balance of payments. Already Libya has talked of refusing to accept dollars in payment for oil. In itself this is not important, for we obtain only a small fraction of our supplies there. However, examples set by Libya have recently been proving highly contagious.

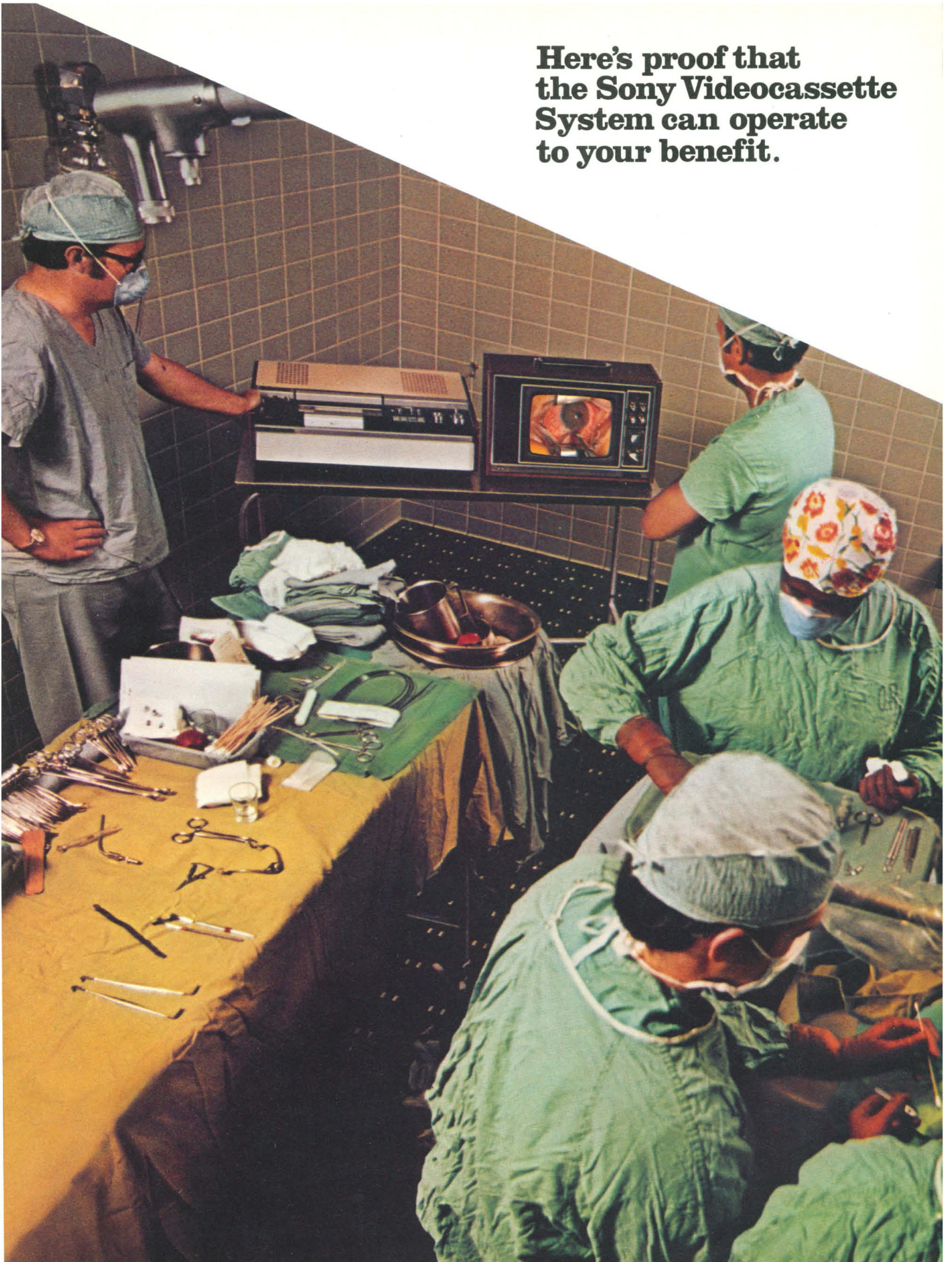
We would help ourselves and many others if we lessened our dependence on foreign petroleum. We could do this in three ways—by increasing domestic production of oil, by substituting coal for oil, and by conservation. By far the most effective action we could take now is conservation. The other steps could be implemented only slowly, and they would create environmental problems. A determined effort at conservation could have an instantaneous effect. An obvious target is the automobile, which is the largest consumer of liquid hydrocarbons. Recently, it has been pointed out that half the consumption of gasoline in autos occurs on trips of 3 miles and less. This winter some citizens are likely to suffer acutely from lack of fuel oil. But if everyone would set his thermostat 2°C lower, 16 percent less heating oil would be burned, and there would be enough for all.

The Nixon Administration is currently engaged in planning a 5-year research and development program for energy, with costs targeted at \$2 billion annually. Up to the present, the government has devoted most of its energy funds to items like the breeder reactor, which might make a small energy contribution 5 or 10 years hence. Moreover, there is a long road from nuclear energy to large amounts of hydrocarbons.

Our civilization is based on hydrocarbons, from which we derive 78 percent of energy consumed. Of this, most is burned in the form of liquid hydrocarbons. This convenient form of energy is essential to agriculture and transportation and will continue to be for at least 20 years. During that interval, we will not be able to function or even exist without petroleum.

It is to be hoped that, in formulating the new program, government planners will give adequate attention to the main chance—hydrocarbons—and to the quick fix—conservation.—PHILIP H. ABELSON

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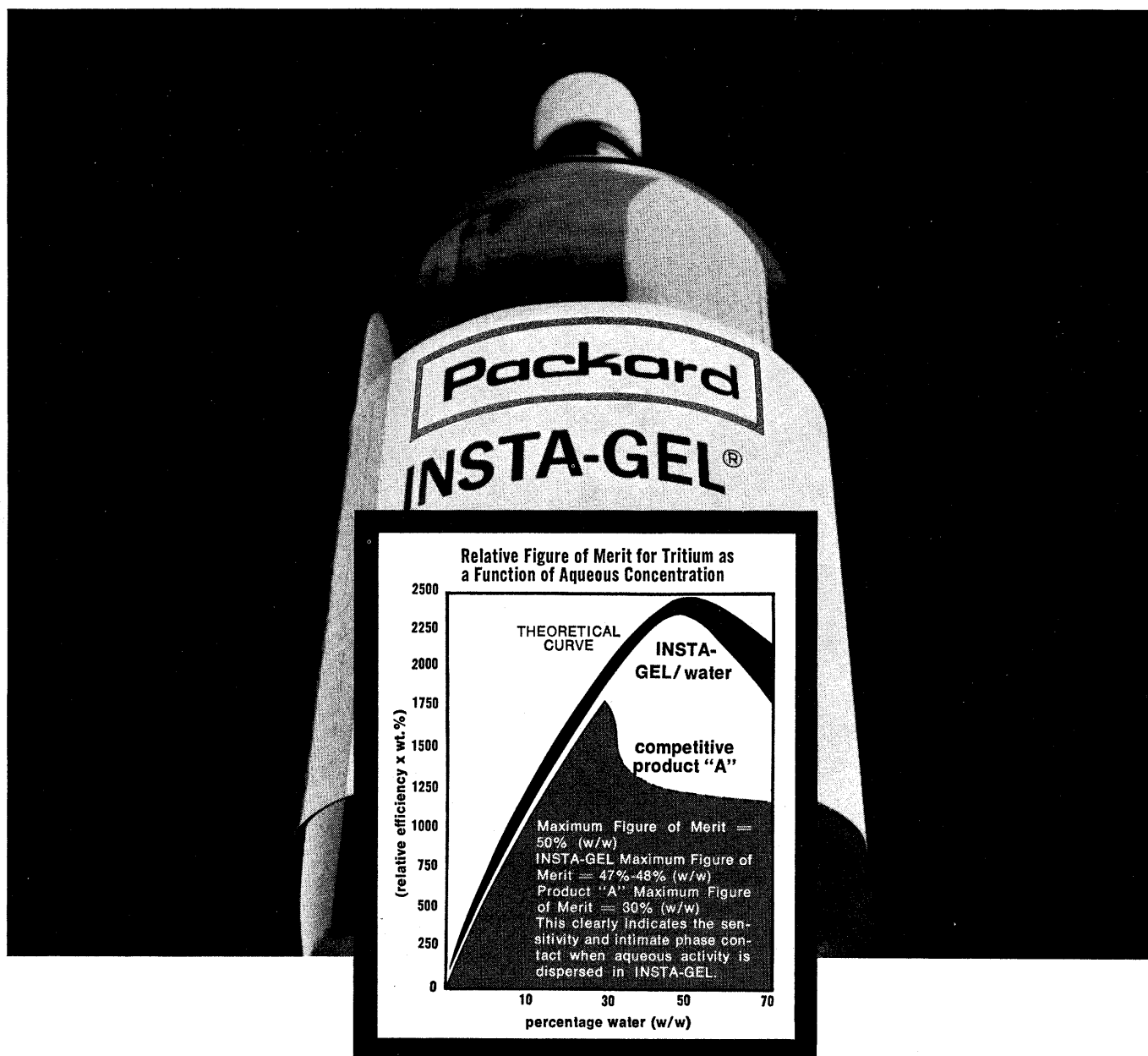


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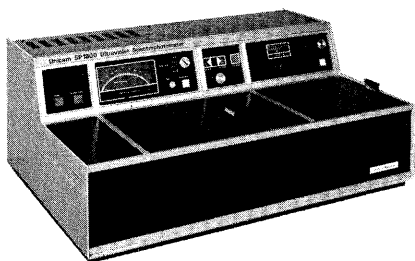
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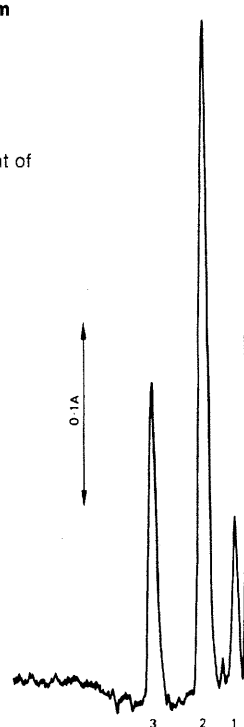
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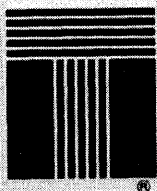
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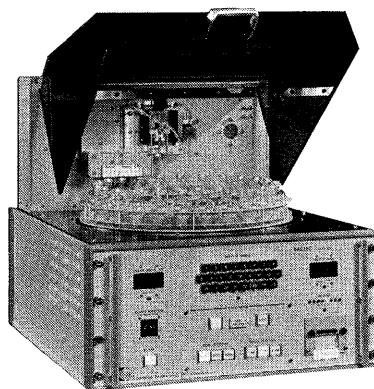
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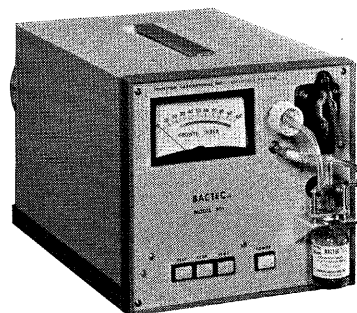
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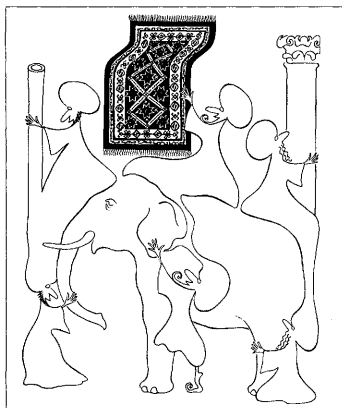
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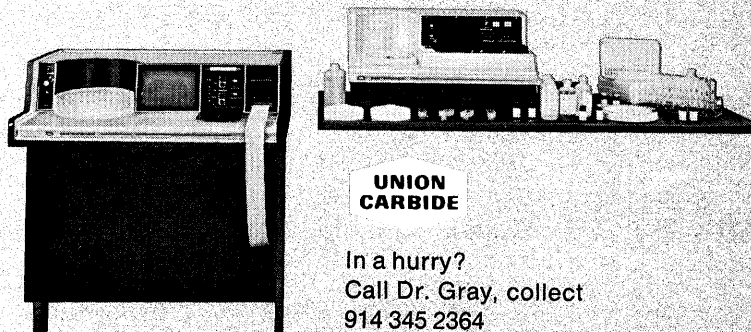
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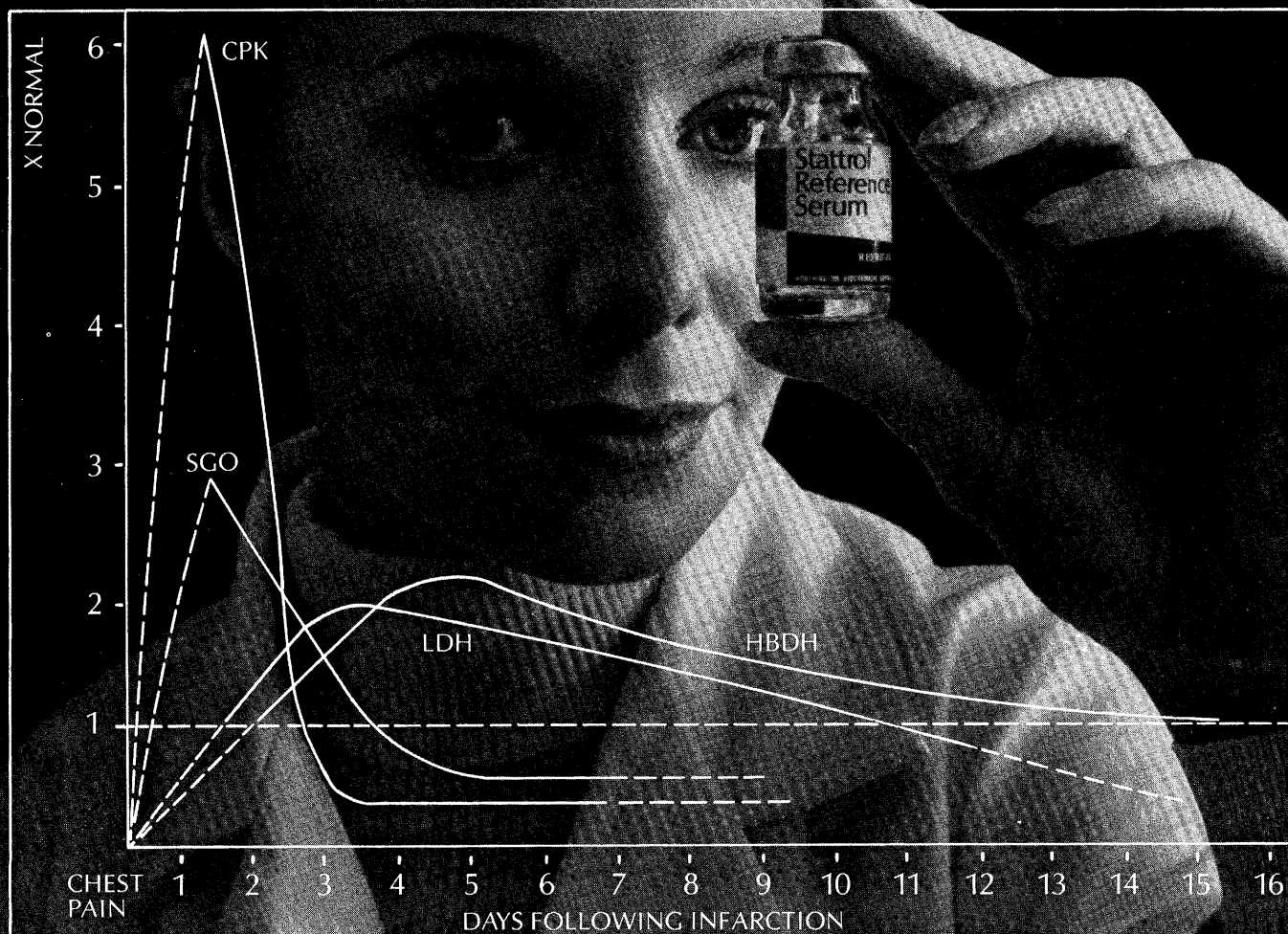
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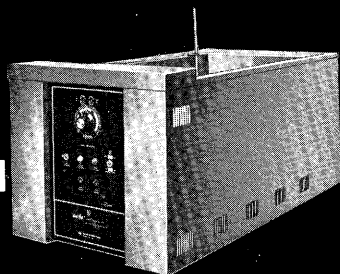
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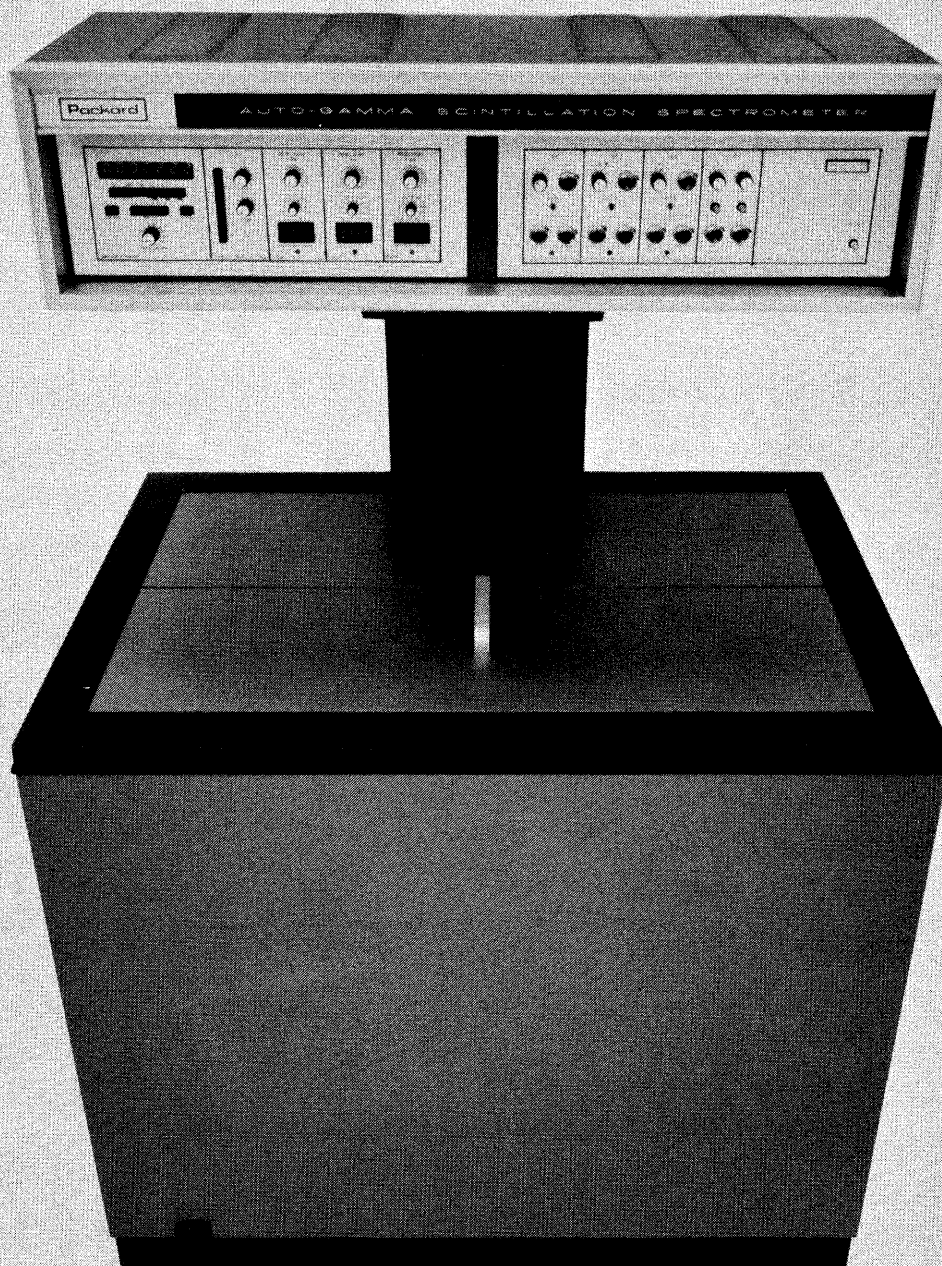


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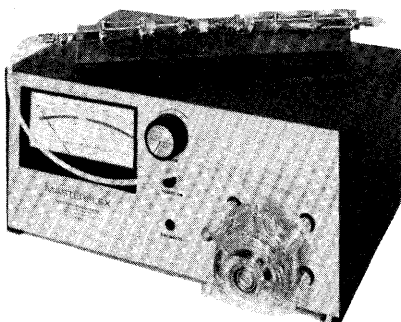
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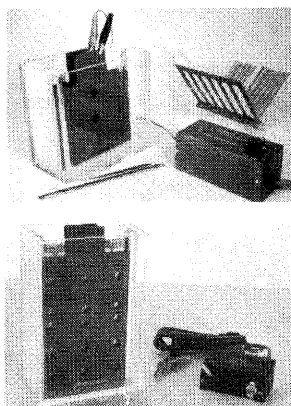
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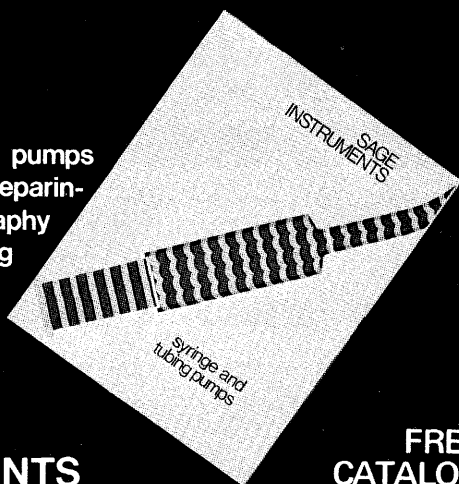
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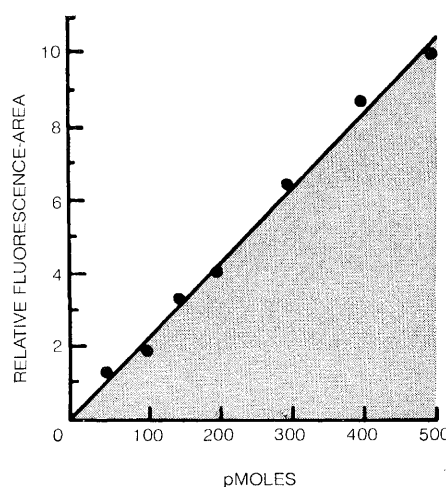
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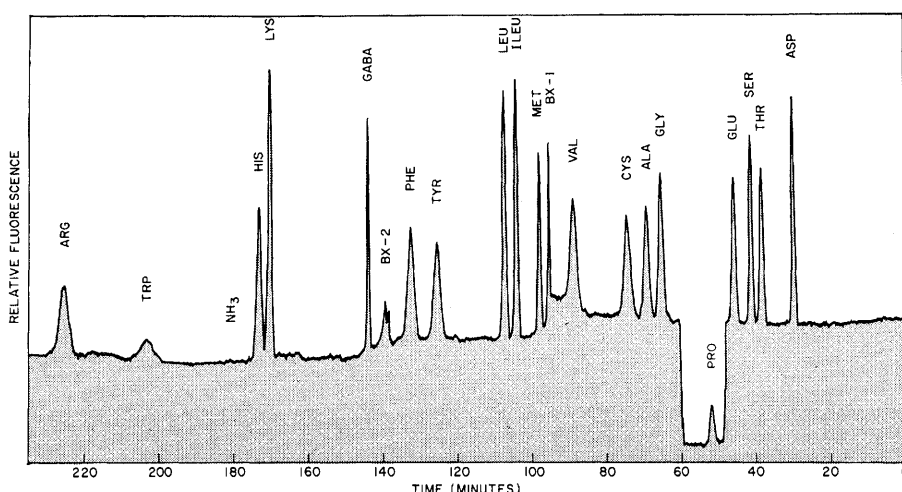
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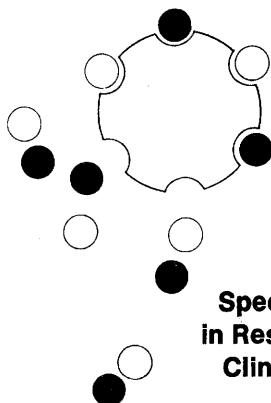
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SCIENCE, VOL. 182



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*Publication in manuscript, "Culturing of Anaerobic and Aerobic Micro-organisms Using a Mobile Unit (Anaerobile) in a Nosocomial Environment", by Dr. Jerome Abramson, Baltimore Cancer Research Center, Baltimore, Md.

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Differentiate Heterophile Antibodies

Mono-Diff Test is a slide test to differentiate between heterophile antibodies such as infectious mononucleosis, Forssman antibodies, and serum sickness. The kit is useful in screening or titration and provides a positive control. Although it utilizes macroagglutination, it is stable for 1 year under refrigeration. The test involves absorption of patient serum by kidney antigen and beef erythrocyte antigen prior to reaction with stable horse erythrocytes. Wampole Laboratories. Circle No. 104 on Readers' Service Card.

Sample Oxidizer

The 306 Tri-Carb sample oxidizer requires the operator to place the sample in the combustion basket, press a button, and, at the end of the cycle, cap, remove, and label the vials. Recovery is 98 percent or better, spillover is negligible, and the memory effect is less than 0.05 percent. Tritium and carbon-14 samples are easily treated in sizes up to 1.3 grams and for tritiated samples up to 3 grams. Rates approach 60 samples per hour. Packard Instrument Corporation. Circle No. 105 on Readers' Service Card.

Electrophoresis Power Supply

The EC452 regulated power supply adapts to any electrophoresis cell. The unit is either current or voltage regulated. The filtered, regulated output is 300 volts and 100 milliamperes maximum. Selection of current or voltage regulation is by toggle switch. E-C Apparatus Corporation. Circle No. 106 on Readers' Service Card.

Miniature Digital Multimeter

The model 970A (Fig. 1) weighs 7 ounces and operates on rechargeable batteries. It measures voltage and resistance in a-c or d-c circuits. The unit



Fig. 1. Model 970A digital multimeter weighs 7 ounces and measures resistance and voltage in a-c or d-c circuits.

features a digital display that may be inverted with a simple thumb switch so as to be read in any position. The instrument takes a reading at the point measured. Range setting and decimal placement are automatic. Function and reading are also controlled with thumb switches. Hewlett-Packard, Loveland Division. Circle No. 102 on Readers' Service Card.

35-Millimeter Camera-Microscope

Photomicroscope III contains an automated 35-millimeter camera in its stand. Controls for illumination and camera operation are built into the base. The unit features pushbutton operation of exposure and flash illumination. A sensor measures image brightness in the film plane and determines flash duration from 0.002 second down to 0.00002 second. The position frequently occupied by a separate camera is free for a projection head, television image analysis unit, or photometric head. Accessories are available for transmitted or reflected light, bright-field, darkfield, fluorescence excitation, polarizing and other optical applications in biomedical, industrial, and metallographic research. Carl Zeiss, Incorporated. Circle No. 101 on Readers' Service Card.

Literature

Lens Bank Catalog details over 30,000 kinds of lenses in nearly 5,000 focal lengths and mounts. Price is \$1 per copy. Ilex/Burke & James. Circle No. 144 on Readers' Service Card.

Densicom is an eight-page brochure that describes scanning densitometers for electrophoresis and thin-layer chromatography quantitation. Clifford Instruments, Incorporated. Circle No. 145 on Readers' Service Card.

Air Pollution Instrumentation features analyzers for detecting and monitoring airborne industrial pollutants. Mine Safety Appliances Company. Circle No. 146 on Readers' Service Card.

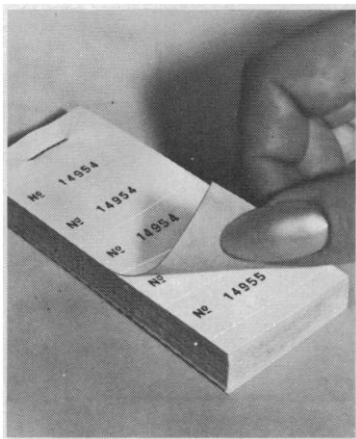
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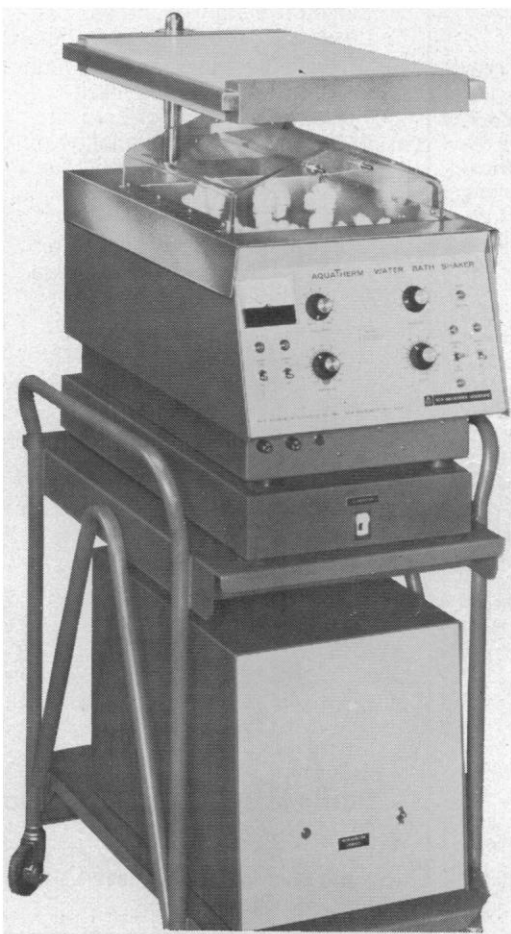
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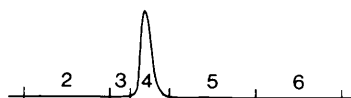
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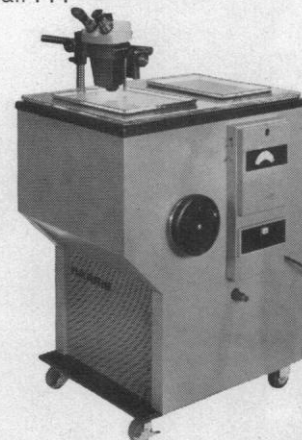
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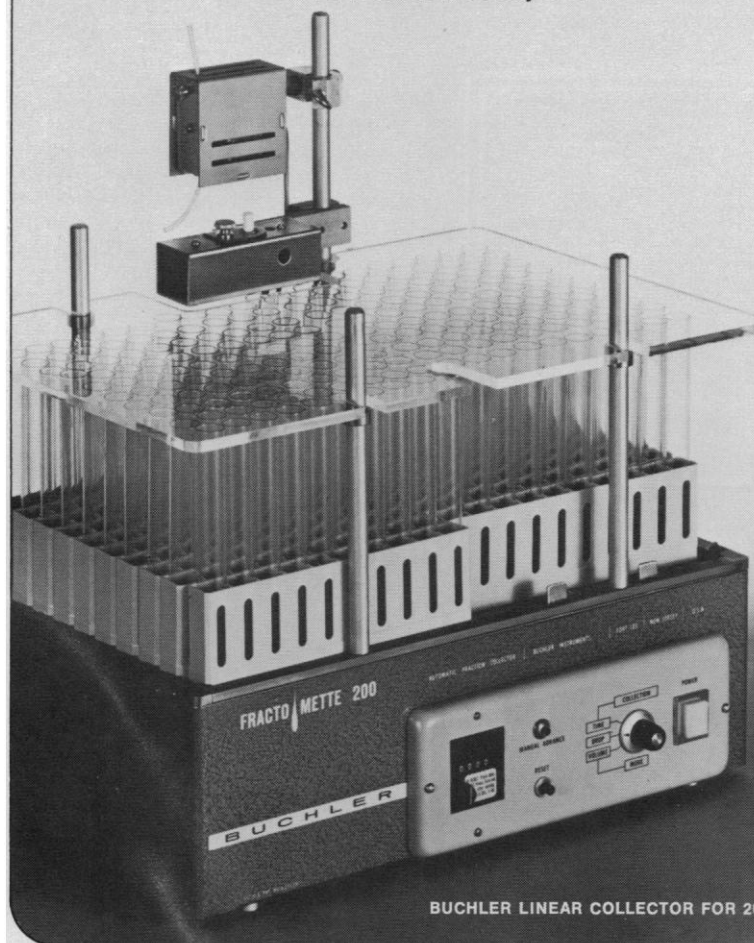
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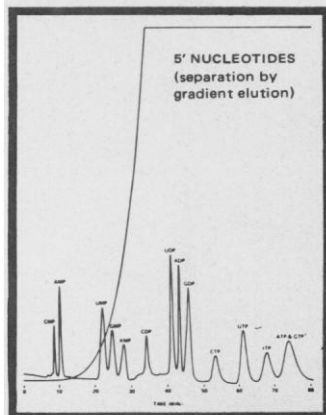
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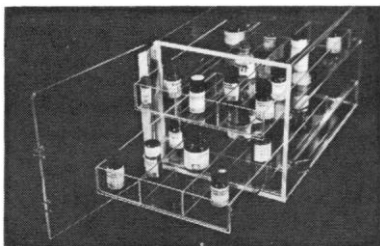
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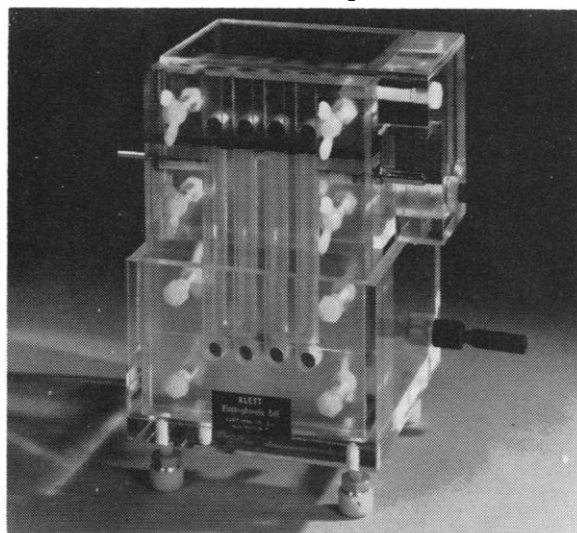
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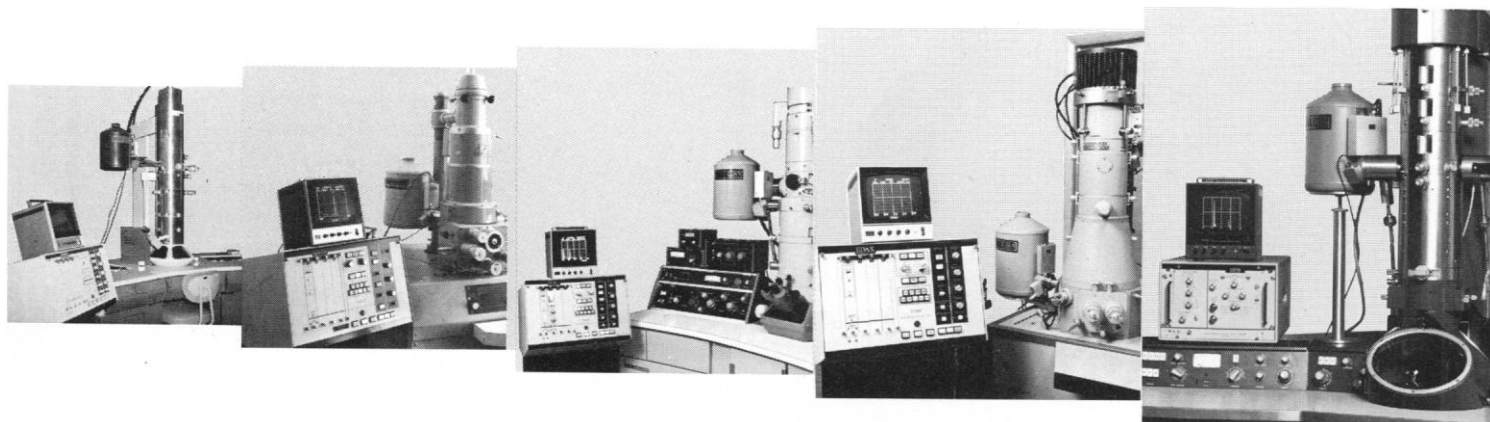
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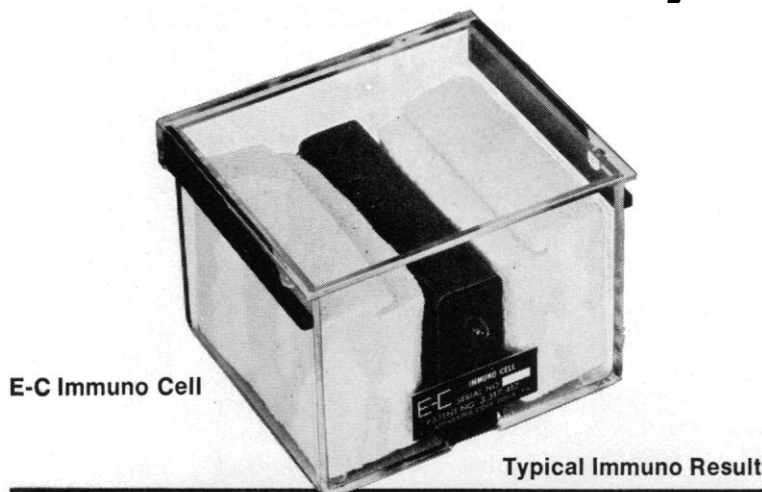
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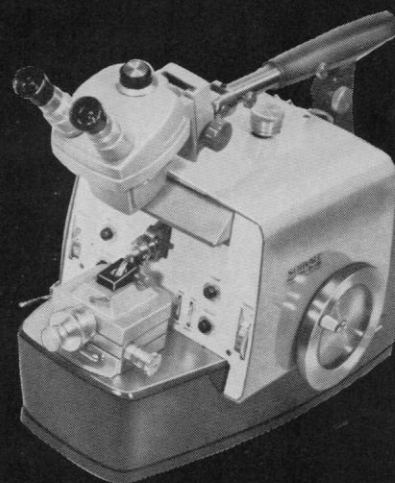
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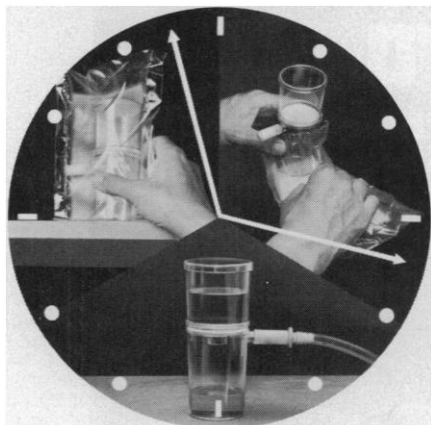
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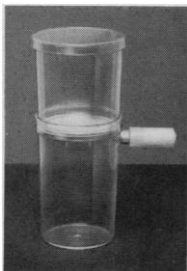
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