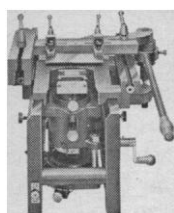
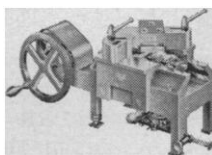


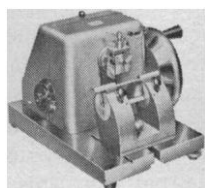
FLAWLESS SPECIMEN SECTIONS WITH JUNG MICROTOMES



Tetrandor Microtome for sectioning of very large specimens including whole human brains, entire lungs, laboratory animals, etc. Fully automatic feed to 30 microns in steps of one micron.



Heavy Duty K Microtome for the hardest specimens, including undecalcified bone, plastics, rubber, metals, etc. Fully automatic feed, 1-30 microns in steps of 1 micron . . . optional motor drive.



1120 Rotary Microtome for positively uniform serial sections of even very hard and non-homogeneous specimens. Fully automatic feed to 40 microns in steps of 1, 2 or 5 microns.



1200 Clinical Freezing Microtome for pathological laboratories, and histochemical, biochemical, isotopic and industrial research. Fully automatic feed, 2-40 microns in steps of 2 microns.

Jung has a Microtome for every sectioning need. With nearly a century of experience, Jung is the only manufacturer specializing exclusively in Microtomes and Microtome Knives. Inquiries on special sectioning problems are invited.

Hacker

For further particulars, write to:
JUNG DIVISION

WILLIAM J. HACKER & CO., INC.
Box 646, W. Caldwell, N. J., CA 6-8450, Code 201

scientific society takes similar action. Trade associations representing entire industries should at least tacitly support this movement. The Nutrition Council of the American Feed Manufacturer's Association voted in favor of the metric system in November 1962. Indeed, such a ground swell among scientists and engineers could conceivably influence Congress to implement conversion by law.

It was estimated in the 1961 hearings on the two metric system bills then before Congress that full conversion would take at least 33 years. The important thing then is to start. But H.R. 269 and H.R. 2049, both to appropriate funds to study the desirability and practicability of conversion, were summarily rejected.

Representative Miller of California, chairman of the House Committee on Science and Astronautics, is expected to introduce a similar bill in Congress this year, but the best way to gain a hearing is to substitute something more satisfying. One way which suggests itself is for educators to stress the metric system, largely excluding the English system and the use of fractions in grade and high school mathematics. The U.S. would soon have a generation, better oriented to science than any heretofore.

This is a national problem which scientists can help to solve by their united action in the adoption of the metric system which would hasten universal acceptance.

DOUGLAS V. FROST

*Abbott Laboratories,
North Chicago, Illinois*

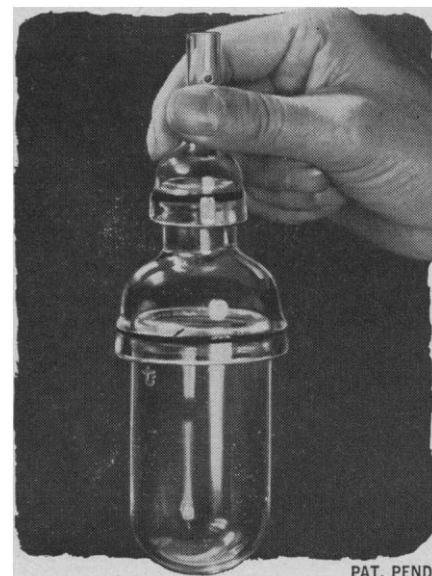
Devaluation of the Dollar

I enjoyed the lucid account of our modern monetary system in James W. Angell's recent article [*Science* 138, 1071 (7 Dec. 1962)] but I found the author's discussion of how the U.S. should deal with the stubborn payments problem far from persuasive.

Angell is of the opinion that our payments deficit, which in recent times has aggregated 3 or 4 billion dollars per year, can be eliminated by getting our European allies to assume an appropriate fraction of current U.S. expenditures for defense of Europe and aid to underdeveloped countries. Unfortunately, he presents no evidence to suggest that our allies will, in fact, assume this large burden. It is known that they have little sympathy with the



**either
get a third hand
or...**



PAT. PEND.

NEW FREEZE-DRY GLASSWARE BY THERMOVAC

INDUSTRIES CORP.

At Last! Freeze Dry Glassware with sections that snap together by applying slight pressure and stay together even when held at the top with one hand.

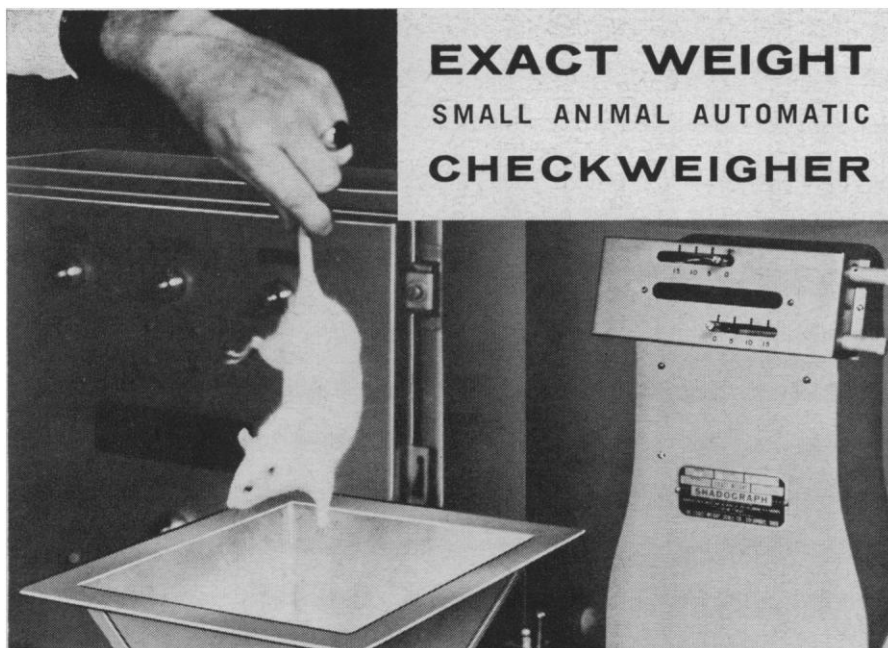
- No more vacuum grease!
- No more hard to clean flasks!
- Exclusive wide mouth flasks allows easy removal of contents.

■ Top sections are interchangeable for use with $\frac{1}{2}$ " and $\frac{3}{4}$ " O.D. port and are also provided with vacuum break holes.

Write for complete catalog and price list. Better yet, send for sample on memo and convince yourself.

t

Dept. S
THERMOVAC INDUSTRIES CORP.
654 Henry Street, Brooklyn 38, New York



New machine weighs and classifies 20 rats a minute...accuracy: ± 2 grams

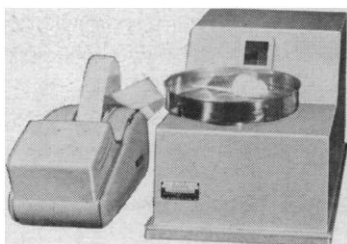


Laboratory animals, such as rats, are weighed, classified and segregated into three separate cages of predetermined weight groups with this new time-saving machine—the Exact Weight Small Animal Automatic Checkweigher.

Operation of the machine is simple. Controls can be pre-set to the number of animals desired in each weight group. Animals are placed manually into the scale hopper as shown above. The machine weighs and segregates at a rate up to 20 animals per minute with accuracy ± 2 grams. When the pre-set number is reached on any one weight group, the machine ceases to discharge until controls are reset.

To find out how Exact Weight can improve your weighing operations, write today for complete information.

SMALL ANIMAL BASIC WEIGHT CLASSIFIER



Here is a new tool for science that offers many interesting possibilities in research and other applications. This machine weighs and records laboratory rats, providing a visual reading as well as a printed record for each animal. The average weighing time is three seconds per animal. Write for complete details.

THE EXACT WEIGHT SCALE CO.
901 W. FIFTH AVE., COLUMBUS 8, OHIO
In Canada: P.O. Box 179, Station S, Toronto 18, Ont.

Sales and Service Coast to Coast



detailed structure of our present program of military and economic foreign aid, so it may be assumed that they would hardly agree to contribute such large sums without insisting on a drastic revision or abandonment of a great portion of that program.

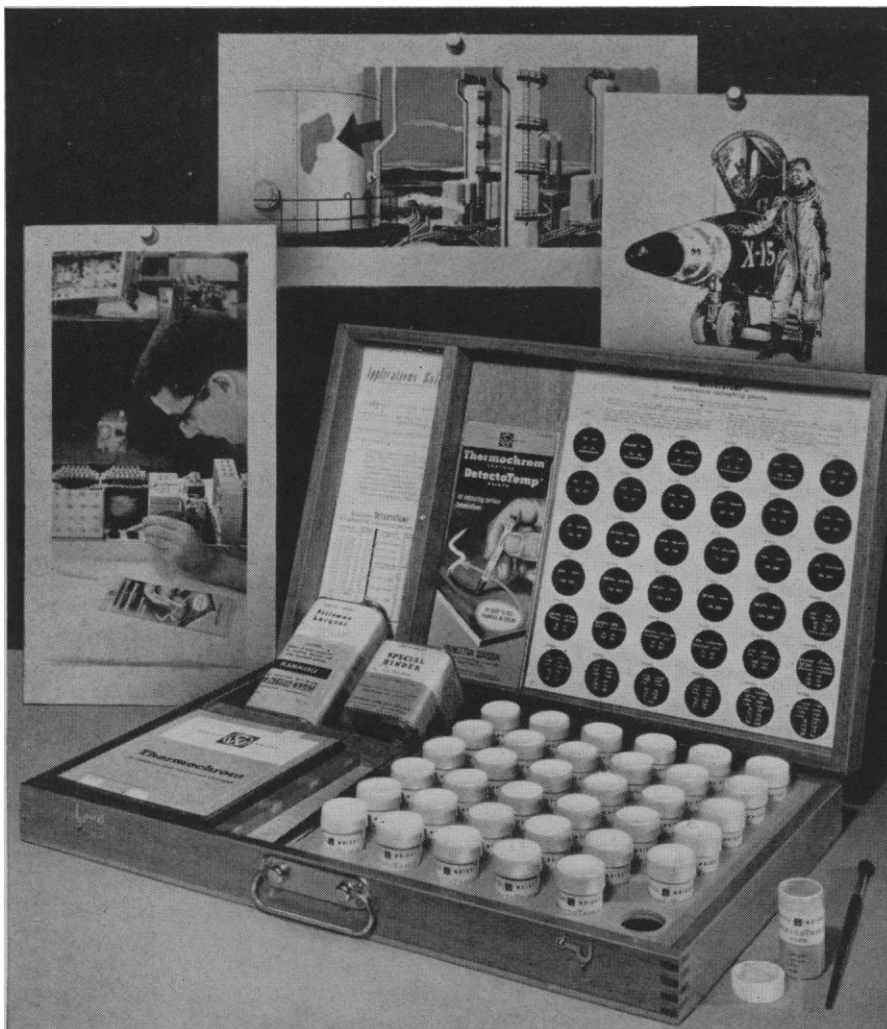
I believe that a substantial devaluation of the dollar would permit the U.S. to balance its payments without abandoning its foreign commitments. Angell, in discussing this possibility, takes a rather negative view of the probable consequences of devaluation. In my judgment, he gives too little weight to the following points which appear to me to be in favor of devaluation:

1) U.S. price levels are generally too low by the internal test of profitability of business and industry, while they are at the same time too high in comparison with competitive world market prices. Devaluation of the dollar is the most direct means to bring the two kinds of price levels into a more healthy relationship.

2) A devaluation of the dollar large enough so that, loosely speaking, the purchasing power of dollars spent in the U.S. would somewhat exceed the purchasing power of dollars converted into some other hard currency and spent abroad, would define an important incentive for spending existing foreign-held dollar credits in the U.S., and would also weaken the existing trend to invest abroad preferentially.

3) Dollar devaluation would have a favorable effect on the trade balances of countries producing raw materials, since these countries would need to earn fewer dollars to pay for the required American manufactured goods. Thus devaluation could take the place of some of our present aid to such countries. At the same time, it would bring American and foreign commodity prices into a better relationship and permit a great simplification in the jerrybuild of tariffs, controls, and subsidies which is currently required as a buffer between the U.S. and world markets.

4) Provided the U.S. adopts a suitable mechanism of devaluation, there is small danger of other nations counteracting the effects of dollar devaluation by devaluating in turn their own currencies. The U.S. could, for example, suspend convertibility of dollars into gold, convert instead into other hard currencies at a new rate of exchange, and maintain this limited form of convertibility until a new equilibrium of



Successful applications have been reported in fields such as metalworking, electronics, wind tunnel testing, missile and rocket design, engine design, maintenance and process control

New Temperature Measuring Kit

Color-changing paints and crayons indicate temperatures and thermal distribution from 104°F to 2462°F

With this new Curtiss-Wright Kit you have an easy, quick and reliable means of measuring and monitoring temperatures, locating hot or cold spots, and displaying isothermal patterns. It contains the complete set of 36 DetectoTemp paints and 18 Thermochrom crayons, clearly marked in both °F and °C. Simple to apply, these indicating materials show the temperature by changing to a distinct, totally different color.

Each jar of DetectoTemp contains enough material to cover 3 to 4 square feet. Order today. Phone Swarthmore 1-0100 or write.

Price: \$96.00 plus shipping

When ordering paints and crayons separately, please specify temperatures. Colorful folder available.

DetectoTemp Paints

36 types cover temperatures from 104°F to 2462°F
4-oz. metal can (Covers 20-25 sq. ft.).....\$12.00
1-lb. metal can (Covers 80-100 sq. ft.).....\$45.00

Thermochrom Crayons

18 types cover temperatures from 150°F to 1240°F
Individual crayons.....\$2.00 each
Complete set of 18 crayons.....\$36.00

Electronics Division

Curtiss  Wright
Corporation

East Paterson, New Jersey

Canadian Sales Agents: Carsen Instruments Ltd., 162 Bentworth Avenue, Toronto 19, Ontario

1146

the international monetary system was negotiated. In these circumstances foreign nations would have to accept the U.S. exchange rate since the great sum of dollar credits already held abroad could only be redeemed at that rate.

5) There is no obvious reason to be concerned about speculative pressure on a vast currency like the dollar in the absence of some compelling reason—like a large, continuing trade deficit—to doubt that the dollar will remain sound. It should further be recognized that mechanisms to relieve short-term pressure are actually an unfavorable factor in solving the long-term payments problem. Such mechanisms make it possible for our government to delay essential domestic reforms while things get worse.

E. N. ADAMS

*Thomas J. Watson Research Center,
P.O. Box 218,
Yorktown Heights, New York*

A not insubstantial volume of opinion among professional economists supports the general position that E. N. Adams advances in criticizing my article. I disagree for the following reasons:

1) To the extent that our internal product prices and costs rise in consequence of devaluation, or that our export prices, in dollars, are raised to capture the devaluation "profit," the gains that Adams foresees would be wiped out. His first paragraph, in considering U.S. profits, seems to require just such internal price increases. We have no formal price-control machinery in this country now, and I believe that internal price rises would soon offset all or most of the admitted initial benefit from devaluation. Much, though not all, previous experience supports this belief.

2) Our overall balance-of-payments deficit arises not from our merchandise trade but from our large net capital exports, especially of governmental capital. Adams does not and could not show that devaluation would relieve the latter pressure.

3) If we devalue once, we might easily devalue again. This prospect could well induce a flight from the dollar—even at the new lower exchange rate, after devaluation—that would actually intensify our present acute difficulties.

4) I do not share Adams' optimistic opinion that most of the other nations would quietly accept a substantial de-

valuation of the dollar, instead of devaluing themselves in partial or even complete reprisal. If they take the latter action, we will at best be left about where we started—and with international confidence in our currency badly shaken. If confidence is shaken, continued movements out of the dollar will again ensue—initiated both by foreigners and by Americans—and again our balance-of-payments pressures will be intensified, not reduced.

JAMES W. ANGELL

Department of Economics,
Columbia University, New York 27

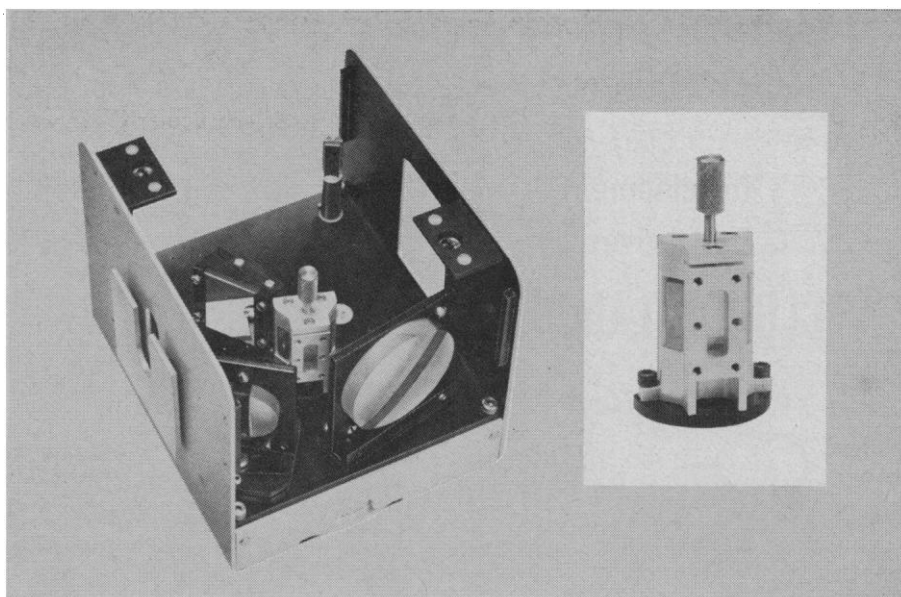
Trap Water as well as Tap Solar Energy

The report "Weather control: use of asphalt coatings to tap solar energy" [*Science* 139, 226 (18 Jan. 1963)] was of great interest. Assuming that the theory advanced has real potential, I should like to suggest that the black coating applied to earth surfaces be upgraded so that it provides a reasonably tough watertight covering. This being done, the black surface—in addition to tapping solar energy—could then be used to trap water.

If all the water that falls on an area were intercepted and conveyed to a storage structure, large quantities of high-quality water could be collected, even in arid regions. For example, in an area where the annual rainfall is 8 inches there are 217,800 gallons per acre; for 12 inches there are 326,700 gallons and for 18 inches, 490,050 gallons.

It has been demonstrated that by covering the ground with watertight materials (asphalt-coated fabrics, butyl rubber sheeting, and so forth) essentially all the precipitation in an area can be intercepted and collected (1). If the water collected is to be useful, it must be stored. Through the use of membrane-lined reservoirs and bags this can be accomplished at a lower cost than by the conventional methods of the past.

Should a study be undertaken to test the projected theory for tapping solar energy, water development should be considered as well. Research underway at the U.S. Water Conservation Laboratory, Tempe, Arizona, has shown that cationic asphalt emulsions are potentially useful for stabilizing and waterproofing soil for water development or harvest (2, 3). The ground cover



New Micro-ATR Accessory With Multiple Reflection

At the same single reflection price! Obtains improved, more sensitive ATR spectra of even the most "impossible" solid samples.

CIC pioneered the commercial application of ATR, and has now developed what may be the ultimate for some time to come in a new Micro-ATR Accessory.

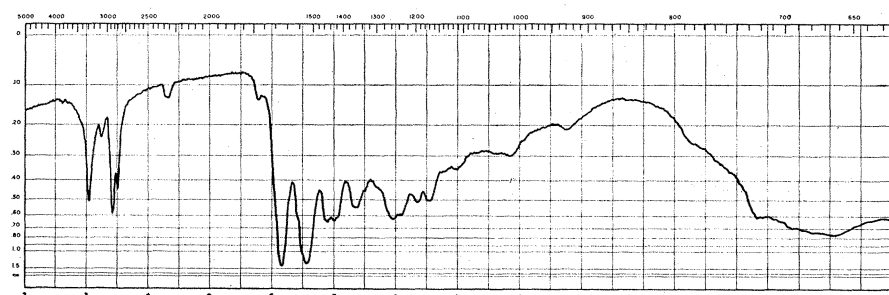
By combining the technique of multiple reflection with the Micro-sampling ATR accessory, the spectroscopist has available to him the *most powerful tool yet developed for ATR analysis*. He can obtain very intense absorption spectra from very small samples. The new Multiple Reflection Micro-ATR (MATR-2) will permit up to three reflections along the sample surface; by any standard, sufficient to obtain excellent spectra of the vast majority of more difficult

samples, such as hardened irregular epoxies, phenolics, rigid foams, powders, fabrics and many others. Truly amazing detail from samples as small as 1.5x6mm.

The MATR-2 is designed to be used with any Beckman or Perkin-Elmer Infrared Spectrophotometer for both solid and liquid multiple reflection analysis. Mechanically and optically precise, the accessory has variable angle adjustments from 30 to 65° and transmits flatly over the full range. All ATR crystals are interchangeable in the one holder.

And — more news — the MATR-2 is priced the same as the original Micro-ATR accessory. Write for complete details. And ask to be put on the CIC Newsletter mailing list to keep posted on interesting new developments.

COMPARE — and see what Multiple Reflection does for the ATR spectrum. This spectrum of a hard, crinkle-finished nylon film was taken without the use of scale expansion.



CONNECTICUT INSTRUMENT COMPANY
Division of BARNES ENGINEERING COMPANY
WILTON, CONNECTICUT • TELEPHONE (AREA CODE 203) 762-5545