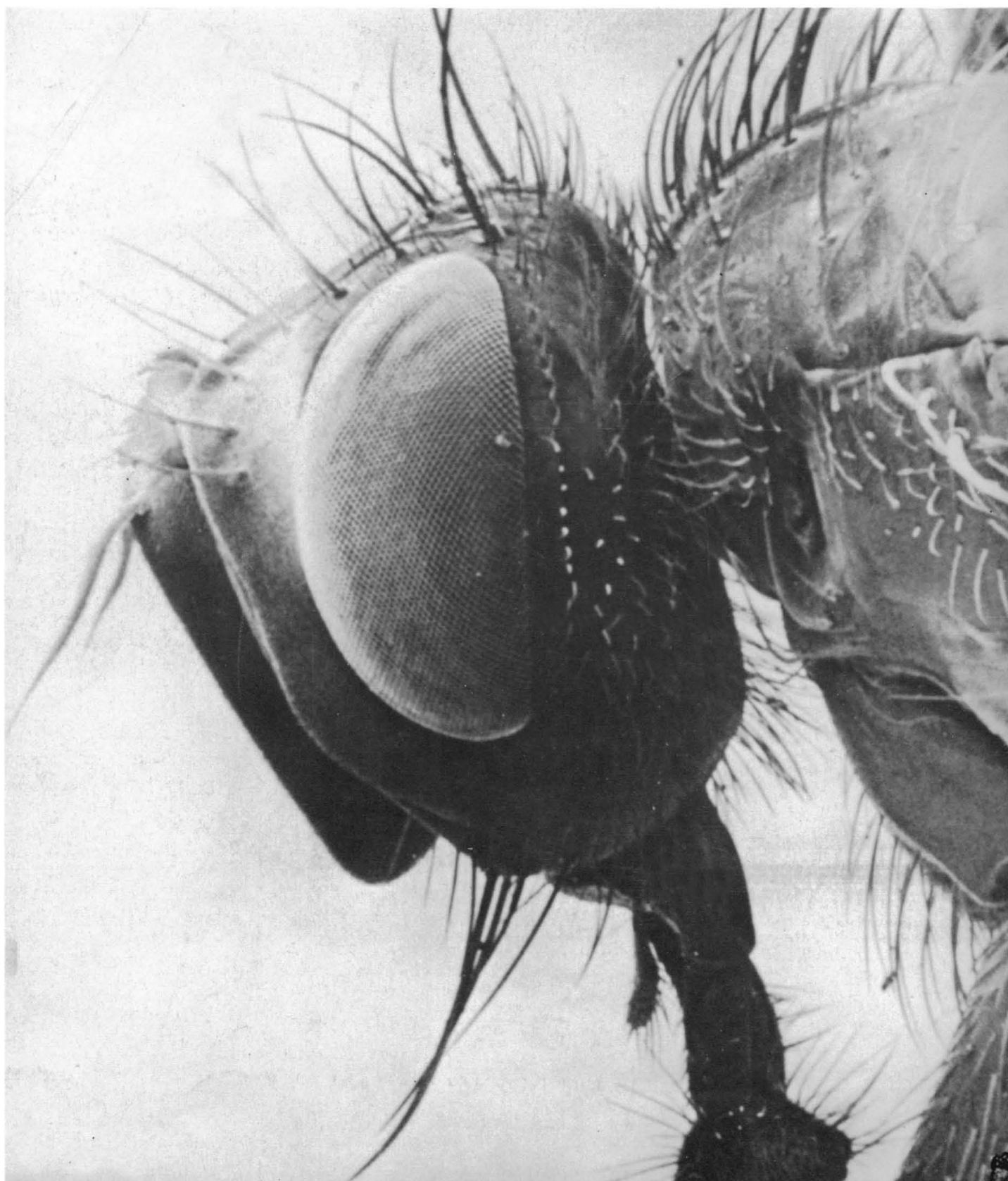


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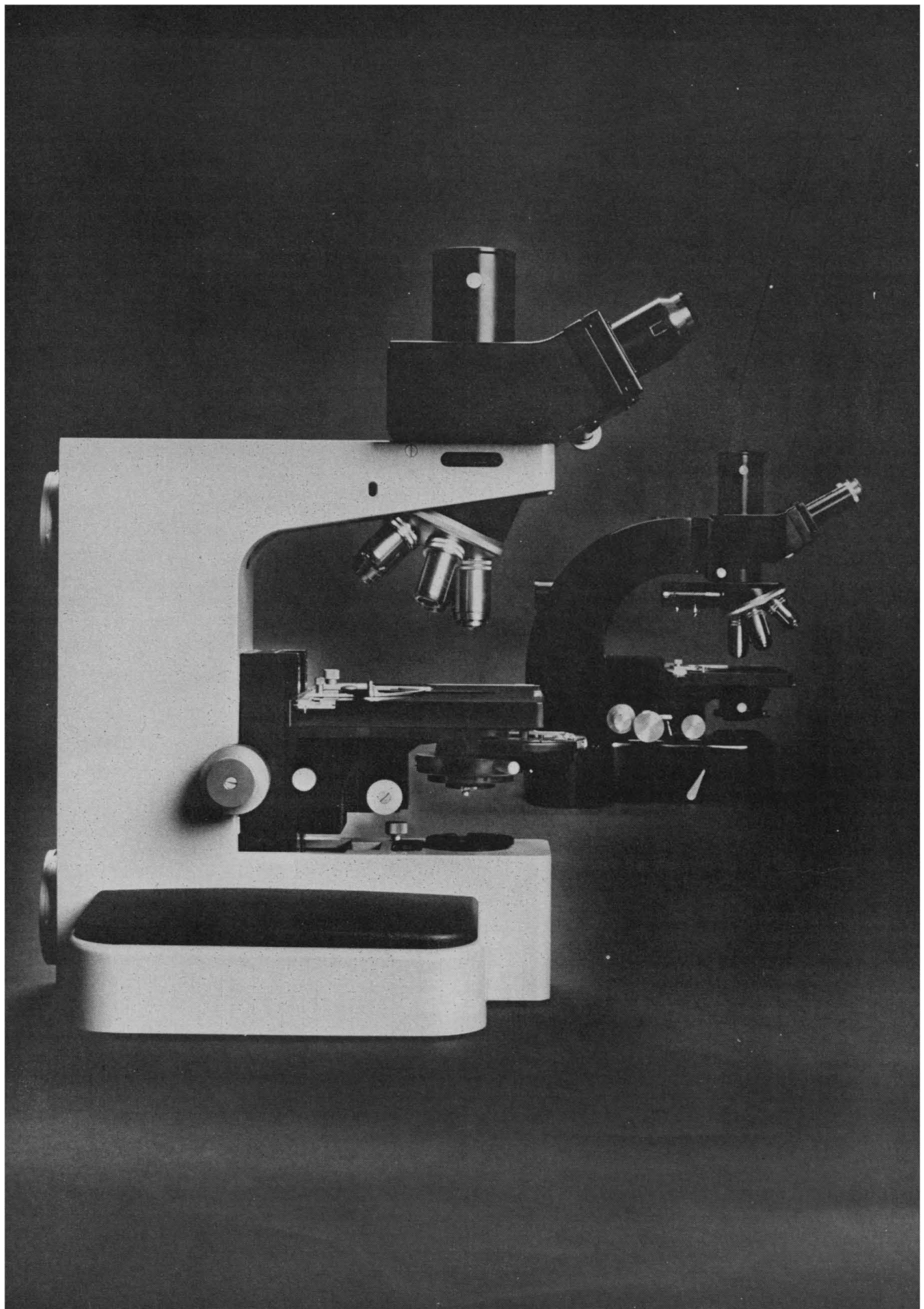
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Head of a fly, *Cyzenis browni* Curr.
(pinned, uncoated specimen, about ×
83). See page 386. [H. F. Howden,
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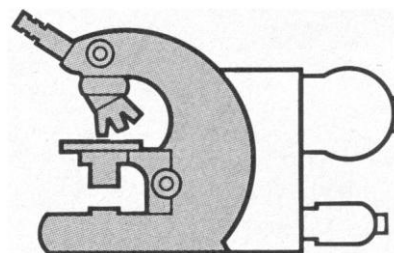
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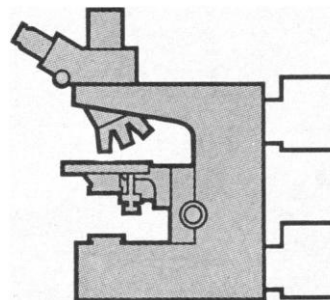
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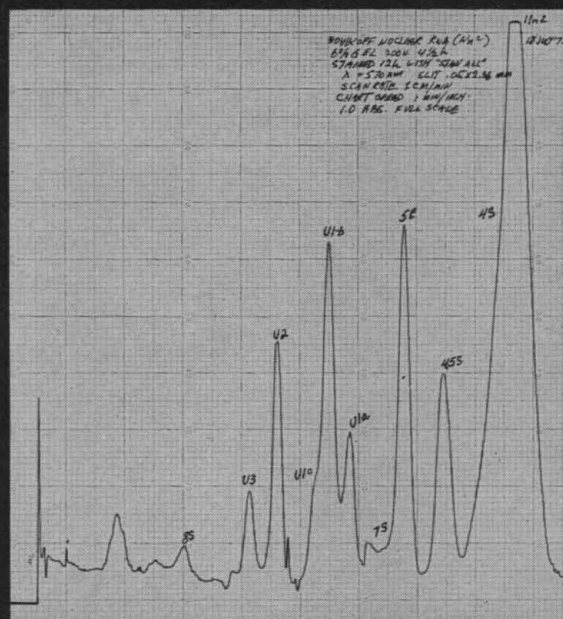
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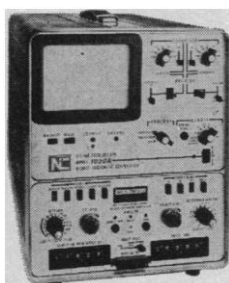
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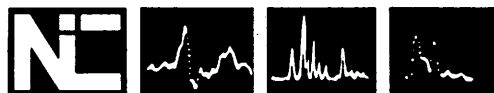
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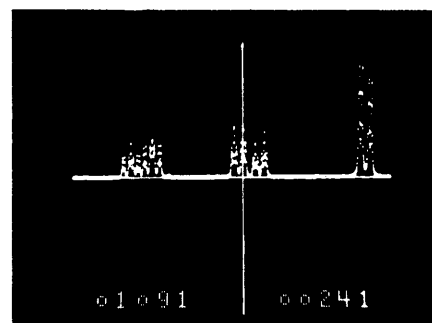


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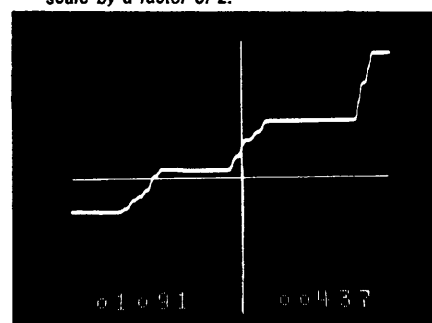
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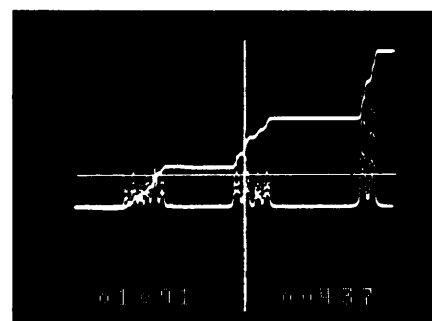
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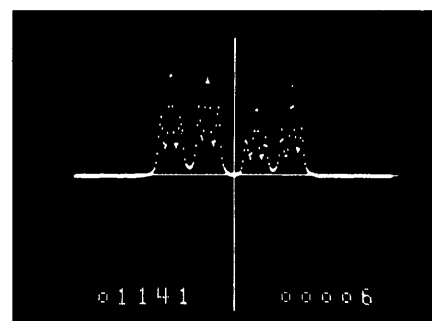
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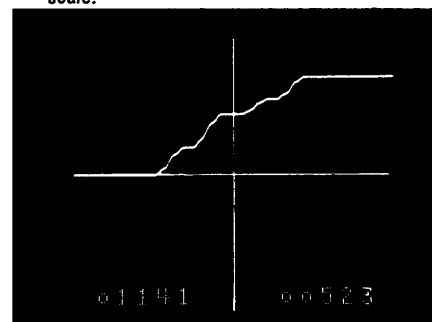
2. Integral of Figure 1 averaged spectrum.



3. Figure 1 spectrum and Figure 2 integral displayed simultaneously.



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Politics and Engineers

Ladd and Lipset, in the article "Politics of academic natural scientists and engineers" (9 June, p. 1091) argue that two factors give engineers a conservative viewpoint: the practical orientation of engineering and the close link existing between engineering and the business corporation. However the first factor simply reflects the nature of engineering and does not cause conservatism. Although Ladd and Lipset point out that, within other cultures, engineers can become radicals, their argument leads the reader to associate conservatism with a practical orientation.

The model on which modern engineering schools were founded, the *École Polytechnique*, formed a hotbed of radical thought and mothered a technocratic philosophy. In the hands of those who possess radical ends, engineering becomes radical; in the hands of the conservative, it becomes conservative. American engineering, because it lives only for all practical purposes within the business corporation, has adopted the values of the corporate enterprise and has therefore a conservative orientation.

ROBERT M. McKEON
*Department of Society and Technology,
Babson College,
Babson Park, Massachusetts 02157*

McKeon is quite right that a given discipline may manifest sharply divergent political orientations in different societies. Lipset and I noted that in the contemporary United States the social sciences are the most left-of-center, critical, and change-demanding disciplines. In the Soviet Union, by contrast, political dissidence and critical activity appear more pronounced among faculty and students in the natural sciences. It is not scholars in

social science, but Andrei Sakharov, Andrei Tverdokhlebov, and Valery Chalidze, three prominent physicists, who founded the Committee for Human Rights, an organization which is devoted to strengthening legal norms and essential civil liberties. As the more politically relevant fields, the social sciences are particularly hampered by ideological control.

We do not agree, however, that the relative conservatism of academic engineers in the United States is totally unrelated to the intellectual nature of their subject matter. The link between intellectuality and proclivity for a critical politics, so often discussed, has been shown by our analyses of survey

data on faculty opinion to be exceptionally strong. When a field places greater emphasis upon originality, creativity, and the application of standards involving the ideal or theoretical, with reference to its subject matter, it appears to encourage a general conceptual approach which is carried over to other areas, including orientations toward the social system.

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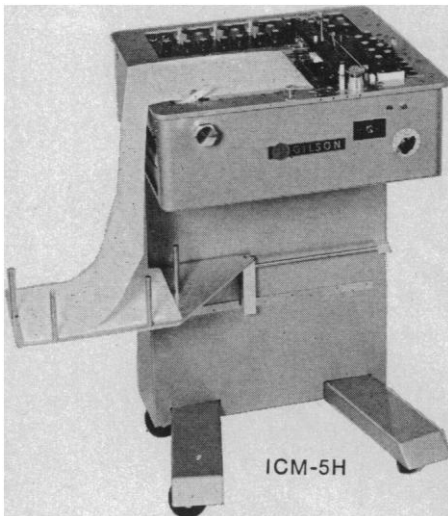
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Technological Initiatives and Political Realities

Harvey Brooks and others have commented on the mismatch of the time constants of technology and politics. A substantial innovation usually requires 8 to 10 years to reach fruition. Politics has a large emotional content whose thrust changes rapidly and unpredictably. In the course of a decade we experience scores of major or minor political tempests.

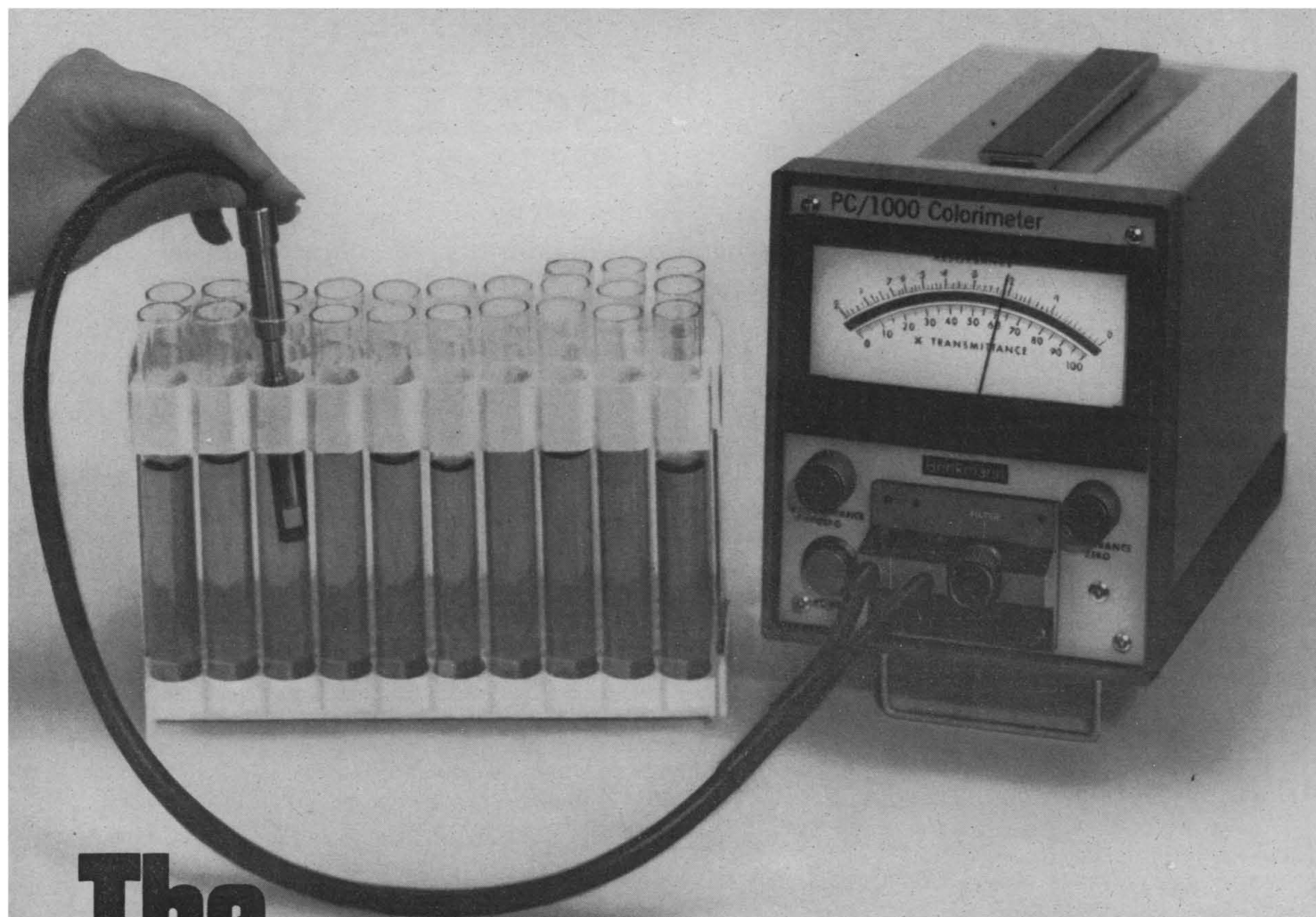
Because of the performance record of science and technology, politicians are inclined to call on them when political problems emerge. Often, though, before substantive efforts can be made, the political climate has changed and a program that was a political asset has become a liability.

The vagaries of the interaction of politics with technology are illustrated by a series of events that began in 1971 and are still in process. In 1971, several factors combined to create a climate in which it seemed politically desirable for the government to foster new technological initiatives. A deteriorating balance of payment carried with it the implication that our technological supremacy had slipped. Widespread and publicized reports told of unemployment among scientists and engineers. There was a general feeling that some of the technological expertise that put men on the moon should be devoted to solving urgent domestic problems. The economy was in a slump, and means for stimulating it were being sought.

Task forces were formed, and suddenly Washington Watchers were aware of the name of Magruder (*Science*, 22 October 1971). There was great moving in and out of Washington of distinguished scientists and engineers and talk of programs costing billions of dollars. In November and December 1971, excitement reached a peak and we were told that big things would be announced early in the following year.

Somehow the promised events did not quite come off. The fiscal year 1973 budget request and a subsequent special Presidential Message on Science and Technology contained references to technological initiatives, but the presidential requests did not match the rumors. It is not easy to delineate the programs that resulted from the 1971 excitement. One new budgetary request that was enacted was a \$44 million Experimental Technology Incentives Program. Under this program, the National Science Foundation (NSF) and the National Bureau of Standards (NBS) were authorized to develop experimental contract programs to study means by which the federal government could best stimulate research and development. In the words of Lewis Branscomb, this was to be an "opportunity to evolve and demonstrate an economically effective and politically acceptable relationship between federally sponsored R & D and commercial business." It is possible that this program was not the best way to spend federal funds in behalf of R & D. However, the matter will probably not be brought to a full test, for 1973 has brought new political realities. The economy is more robust. Talk of unemployment of scientists and engineers has abated. The President has won reelection. The big push in Washington now is to hold federal expenditures to \$250 billion this fiscal year. Congress appropriated about \$260 billion, of which about \$175 billion is nondiscretionary—for example, interest on the debt. Thus if \$10 billion is to be cut, it must come from the \$85 billion in which are included the expenditures of NSF, NBS, and other science-oriented agencies. In consequence, funds earmarked for the Experimental Technology Incentives Program have been withheld by the Office of Management and Budget (an arm of the President). The whole affair reminds me of a rhyme I heard as a boy. The King of France and twice ten thousand men marched up the hill and then marched back again.

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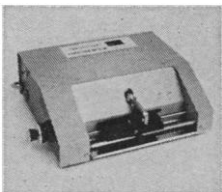
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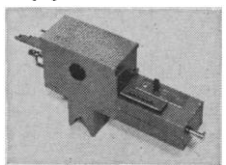
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BOOKS RECEIVED

(Continued from page 373)

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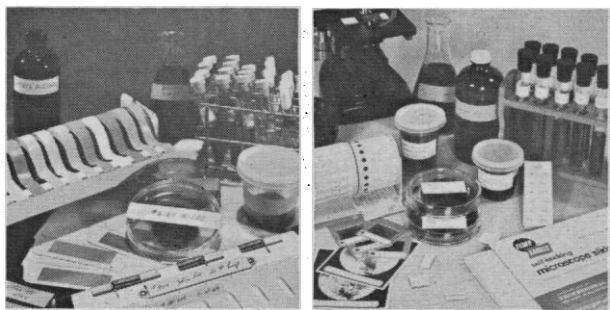
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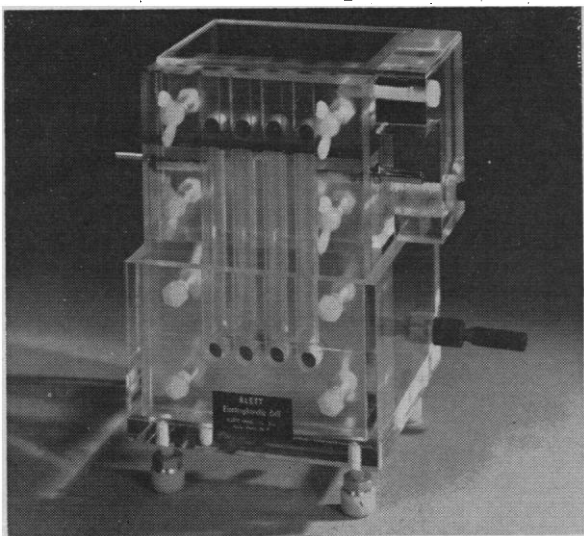


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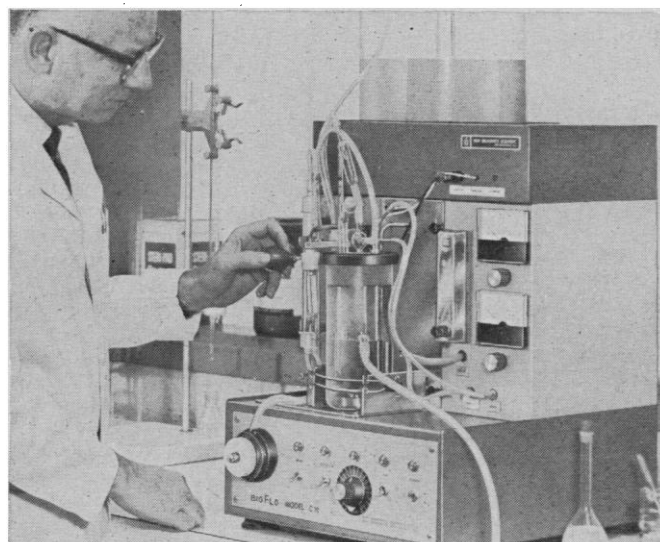
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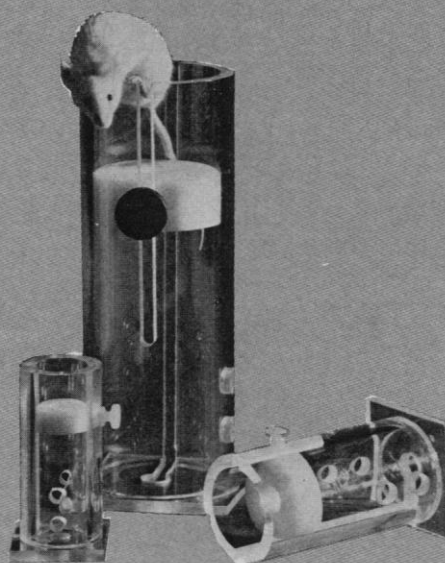


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Methodology of Immunochemical and Immunological Research. J. B. G. Kwapin-

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Patterns of Emotions. A New Analysis of Anxiety and Depression. Carroll E. Izard. Academic Press, New York, 1972. xii, 302 pp., illus. \$12.50.



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The Payroll Tax for Social Security. John A. Brittain. Brookings Institution. Washington, D.C., 1972. xvi, 286 pp., illus. Paper, \$3.50. Studies of Government Finance.

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NEWS AND COMMENT

(Continued from page 365)

"New York City is not sophisticated enough to treat alcoholism as a disease," says Warren flatly. Second, TA believes that employee payment will act as a deterrent. "I want this last drink to be a crisis," says Warren. "They say an alcoholic has to reach his bottom. I want to raise his bottom."

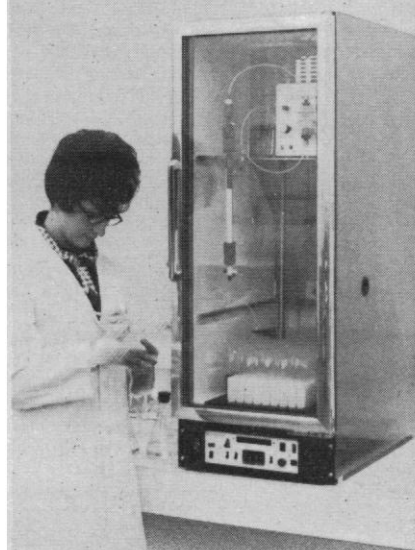
Warren is flexible in his handling of those who come into his office. It doesn't take long for him to spot those who use the program simply as a way to stay out of trouble. These people rarely get a second chance. But "I will go along with the guy who's really trying from now until eternity," says Warren, who has sent the same person through the hospitalization routine as many as six times. The TA, which says it has a success rate of about 65 percent, considers family involvement an important part of its program. If a man doesn't show up for work (95 percent of the employees are men), a counselor will visit his home to find out why. Warren says his staff went on 500 home visits last year. The program is straightforwardly publicized through such things as posters bearing the photograph of a counselor with the caption, "One of these men may save your life."

While the aforementioned programs are set up primarily for the purpose of identifying the alcoholic employee, they do not turn away from the other problems that invariably come into the net. Prime among these are marital and family troubles, financial problems, job dissatisfaction, emotional problems, other illnesses (multiple sclerosis, to take a depressing example, can exhibit the same symptoms as a bad hangover), drug problems, and even gambling. Alcohol counselors are generally prepared to give advice or direction for these troubles.

There are a few companies that have broad-gauged programs for the "troubled employee"—the kind of program Don Godwin of NIAAA's Occupational Programs Branch would like to see all alcoholism programs evolve into. One of the advantages of a troubled employee program is that it gets more self-referrals from alcoholics, who, no matter what the program is called, constitute half of any company's problem workers.

Two of the most outstanding examples of what Godwin calls the "broad brush" approach are programs at Hughes Aircraft in California and the

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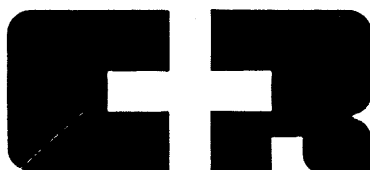
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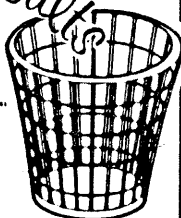
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