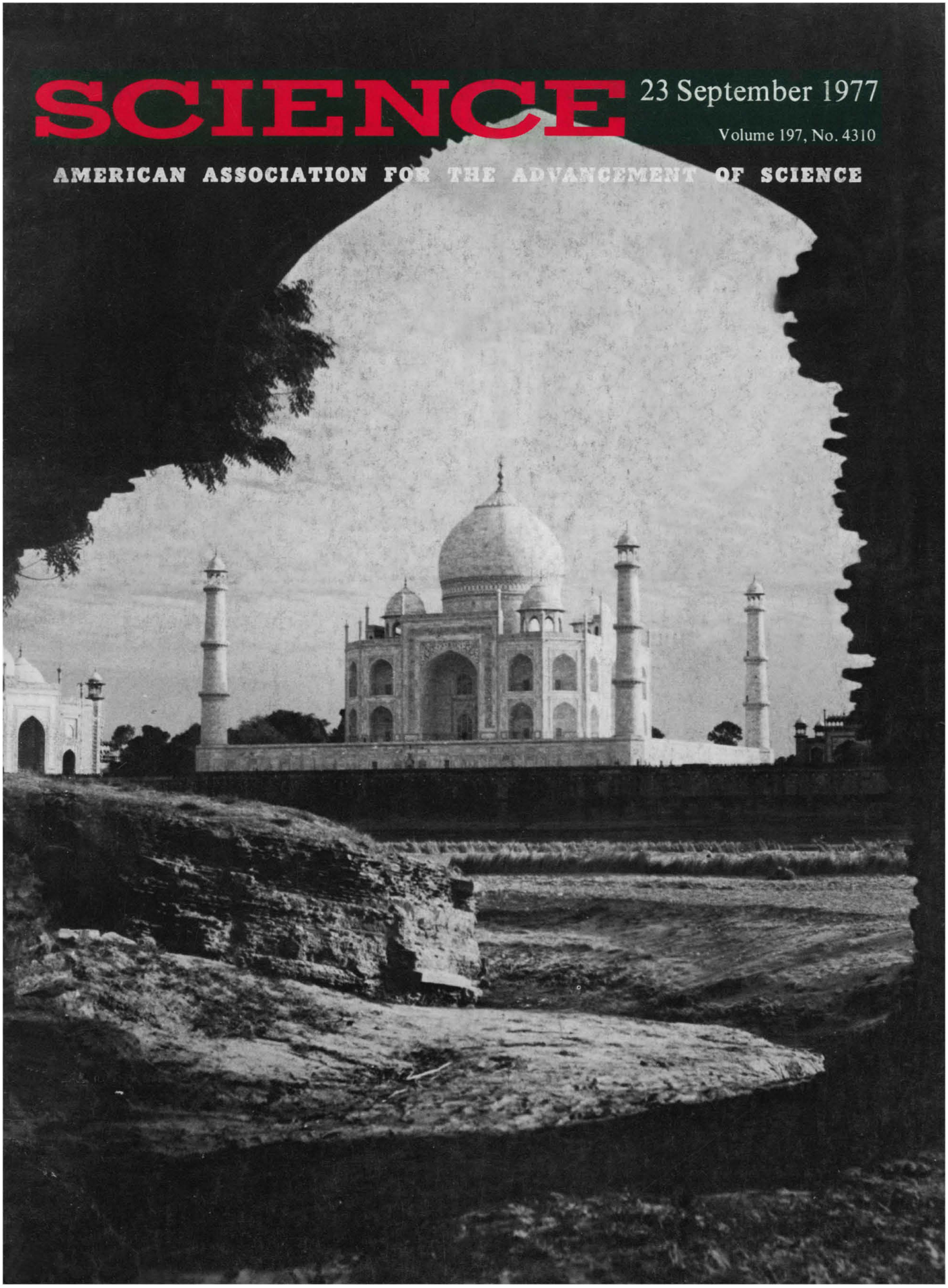
SCIENCE
23 September 1977
Volume 197, No. 4310
AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE



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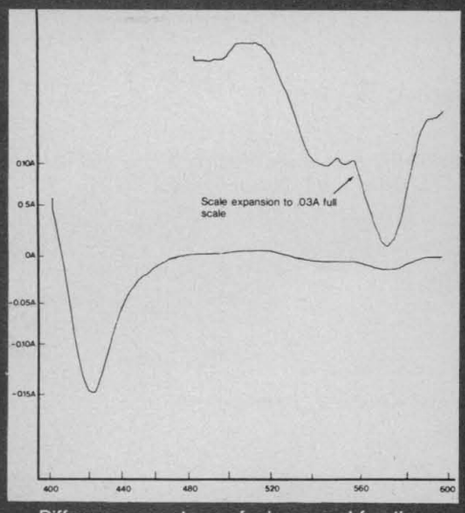

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Volume 197, No. 4310

SCIENCE

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AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

REPORTS

COVER

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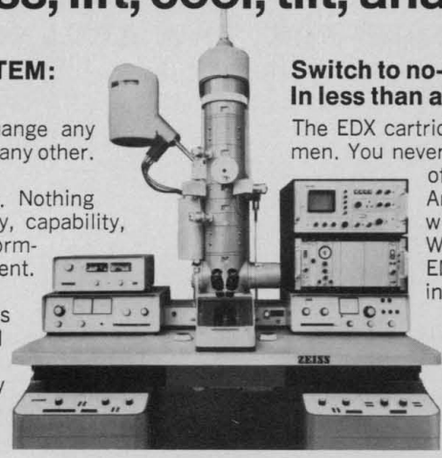

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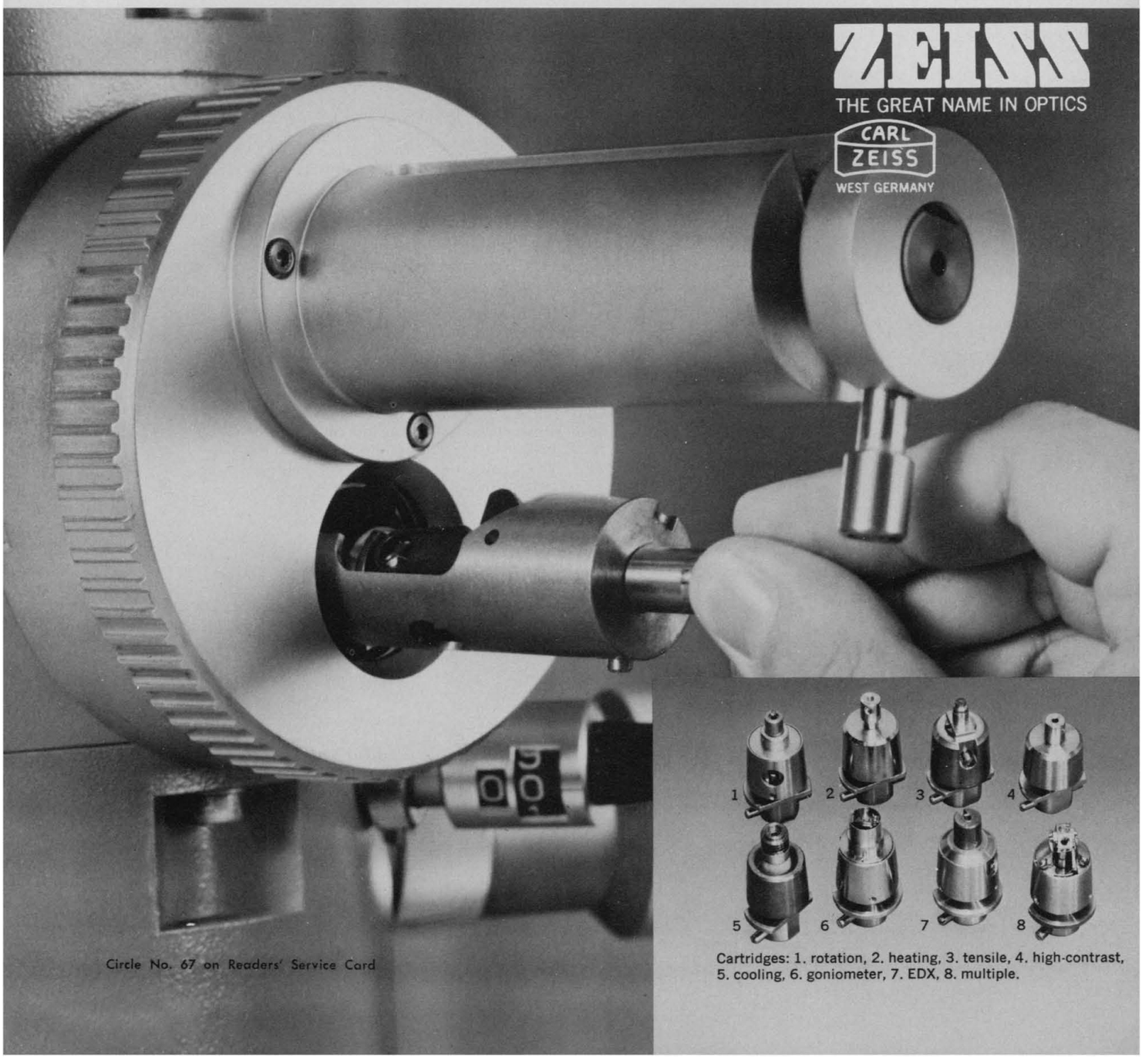

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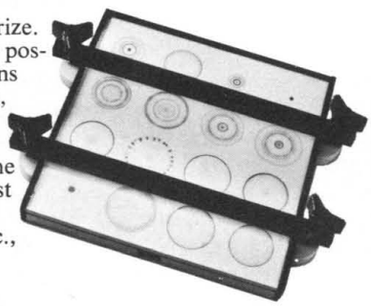

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1 Bradford, M. M., Anal. Biochem., **72**, 248 (1976).

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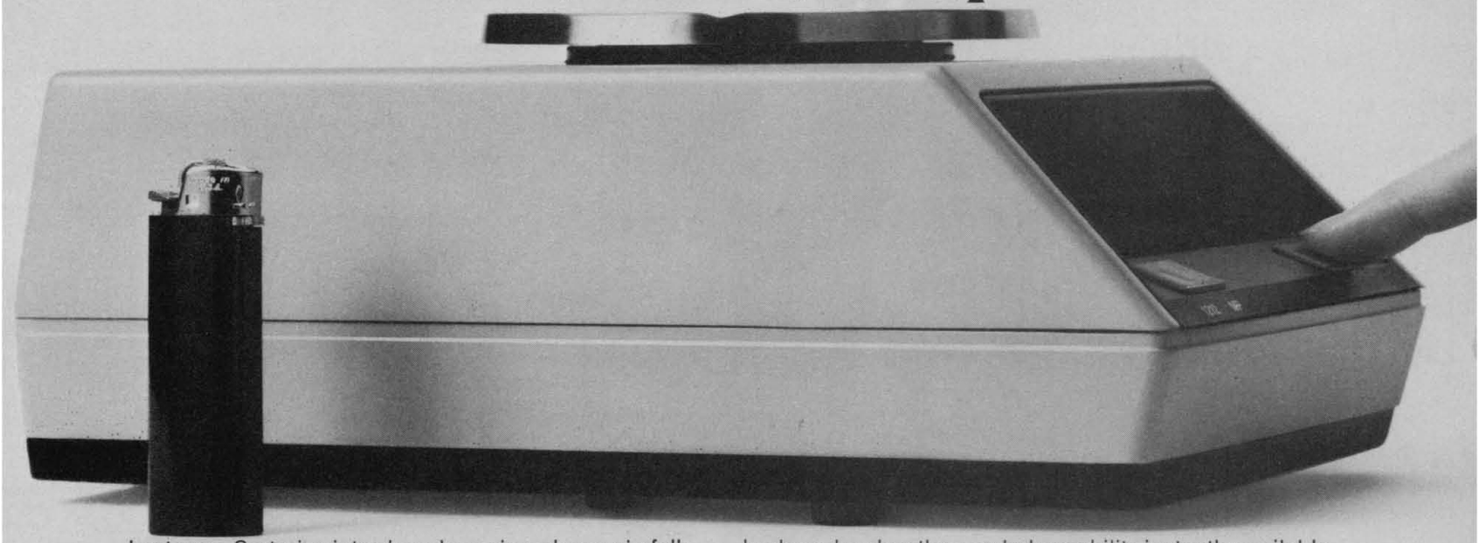

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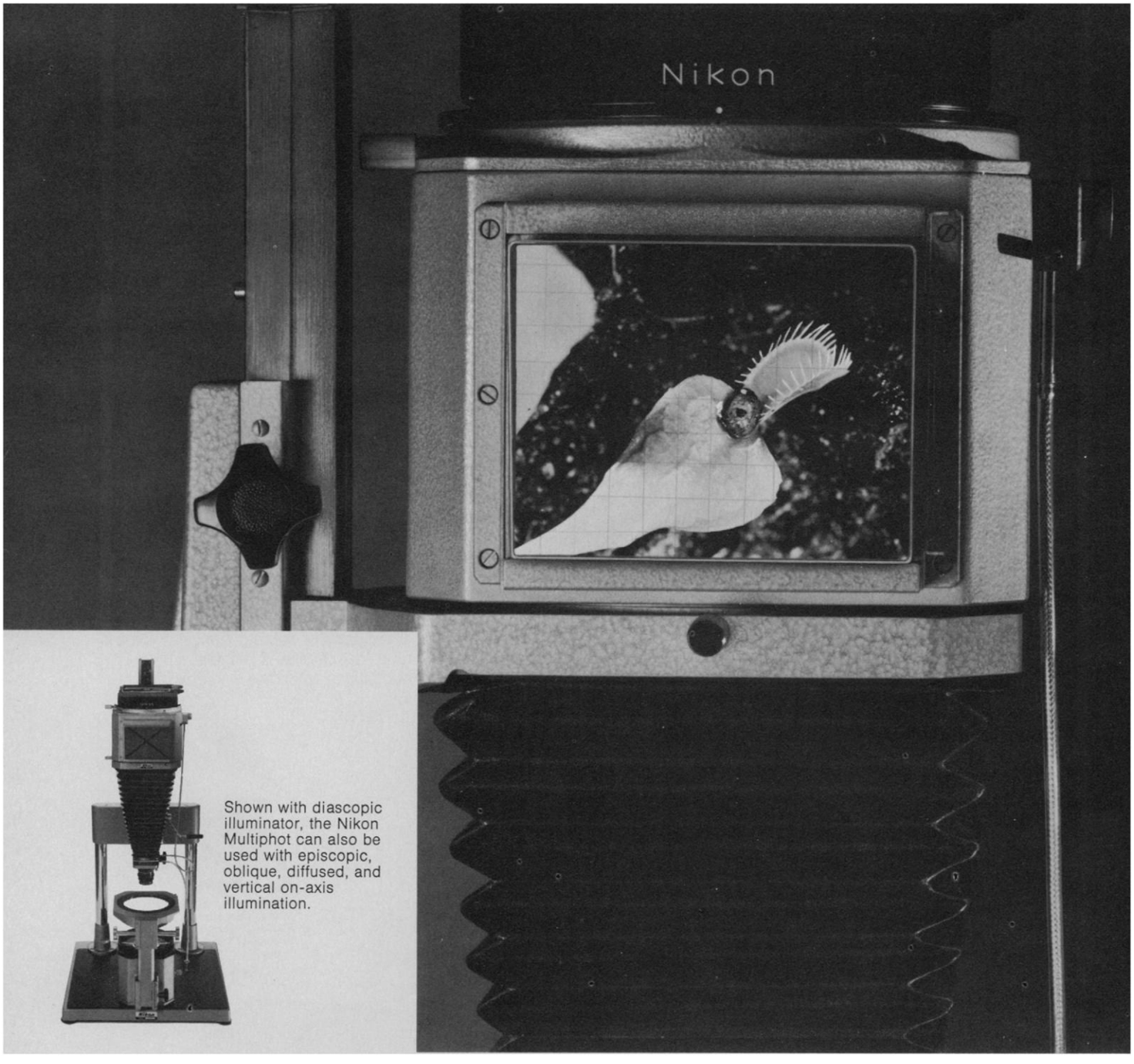

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LETTERS

Oil Refinery near the Taj Mahal

The Indian government is building a large oil refinery in Mathura, 20 miles away from the Taj Mahal. The government says the refinery will have equipment to trap any corrosive chemical emissions. Government laboratories have pledged that this equipment will be effective. However, any mechanical device occasionally breaks down or malfunctions. If this should happen in the case of the refinery, then harmful emissions would spill into the sky, creating a serious danger to the Taj. Sulfur dioxide, when leaked into the atmosphere, mixes with water vapor and forms a sulfuric acid shower that can react with marble (calcium carbonate). Thus, the polished white surface of the Taj could first become discolored, then pitted.

Indian industrial licensing laws unfortunately do not include pollution control standards, with the result that, some years ago, effluents from a public sector refinery literally set the Ganges River on fire. The treasures of the Taj cannot be shifted, but the site of the refinery can be. The government has made a promise to Parliament that the plant will not be operated unless protection to the monument is ensured. The protection they were apparently referring to was to use only crude oil with a low sulfur content in the refinery.

This is not agreeable, either to the Archeological Survey of India or to those who are concerned with the preservation of the rich cultural and architectural heritage of the country. It is therefore necessary to form an International Action Committee to try to prevail upon the government of India to do something about the refinery. The committee will function at the address furnished below and welcomes communications from scientists and intellectuals throughout the world.

LAXMIPURAM P. SRIVATSA

168 South Cross Road, Basavanagudi, Bangalore, 560004 India

Chrysotile Asbestos: Health Effects

In answer to my letter criticizing their report (17 June, p. 1319) on environmental asbestos pollution in Maryland, Rohl, Langer, and Selikoff (Letters, 19 Aug., p. 716) have produced a long involved effort at persuasion with a vast amount of information. My letter certainly called up a professional job. Unfortunately the information supplied would probably not

help anyone answer with a reasonable degree of certainty the question at issue: Does the use of serpentine rock from the Hunting Hill quarry near Rockville, Maryland, for the paving of roads, trails, and so forth create a health hazard? Their argument is based on the occurrence of chrysotile in the quarried material and in airborne dust raised by traffic. The link to lung cancer and other diseases, according to them, is that abnormally high incidences of cancer and other lung diseases have been found among workers in asbestos manufacturing industries that use a variety of asbestos minerals—including amosite, crocidolite, and chrysotile.

It is curious that their letter compares the crushed rock at Rockville with the crushed rock of the chrysotile mines of Quebec, Canada. This comparison is indeed relevant, but not in the way they imply. The Quebec mines are among the largest chrysotile-producing mines in the world and have been worked since 1886. Voluminous data have been collected there on mortality causes for 28,000 workers based on records going back more than 50 years. Dust levels related to the various operations have been determined and correlated with mortality causes and rates. More than 50 publications dealing with the subject have been released since 1969. A summary of a few of the findings (*1*) related to the Maryland situation follows: Cancer-related mortalities in the chrysotile mining and milling industry are much lower than, and cannot be compared with, those in the asbestos manufacturing industries. Thus possible hazards related to dust from quarried rock cannot be judged by experience in those industries. On the other hand, the Quebec data show that exposure to very high dust levels for many years (for example 4 million particles or more per cubic foot at the workplace for 50 years) does result in unacceptable health hazards. Nevertheless the general health of employees in the Quebec chrysotile mining and milling industries is comparable to that of the population of Quebec Province as a whole.

As the serpentinite quarries near Rockville contain much lower concentrations of chrysotile than the mines in Quebec, it would appear that a health hazard related to the use of serpentinite for fill and pavement is unlikely. No reference to the Quebec studies is among the three dozen cited by Rohl, Langer, and Selikoff in their lengthy reply, nor do they discuss the Quebec results in their original report. I wonder why.

JOHN T. HACK

4722 Rodman Street, NW, Washington, D.C. 20016

References

1. J. C. McDonald, M. R. Becklake, G. W. Gibbs, A. D. McDonald, C. E. Rossiter, *Arch. Environ. Health* **28**, 61 (1974); J. C. McDonald and M. R. Becklake, *Hefte Unfallheilkd.* **126**, 521 (1976).

!Kung Ecology

In an otherwise knowledgeable review (13 May, p. 761) of our book *Kalahari Hunter-Gatherers: Studies of the !Kung San and Their Neighbors* (*1*), B. J. Williams makes a serious error of fact. In the book we argued that !Kung San (Bushmen), in spite of their desert environment and simple technology, have a more than adequate food supply. In taking issue with that view, Williams cites a piece of evidence that he says has not been published and that he calls "the real clincher." He writes, "Lee noted in his Ph.D. dissertation of 1965 that two-thirds of the San population in the Dobe region had been removed from there in a resettlement program only 2 to 3 years prior to his fieldwork. That there were superabundant gathered foods after two-thirds of the population had been removed is not surprising, nor is the superabundance relevant to general hypotheses concerning hunter-gather adaptations."

No such statement appears in Lee's dissertation, nor did such an exodus occur. What Lee did say was that in 1960 the South African government had settled the !Kung of Nyae Nyae but that the Dobe area !Kung from the Bechuanaland side of the border did not join the settlement scheme in any numbers. Lee went on to state that fewer than 50 Dobe !Kung went to the settlement while over 350 continued to hunt and gather in the Dobe area (*2*, p. 67). In other words, the maximum out-migration indicated was 12.5 percent, not 66.7 percent as Williams says. The settlement of the !Kung of Nyae Nyae, a different population, did not add a single square mile of foraging area to the space available to the Dobe !Kung.

The data available, far from showing a rapidly declining population for the Dobe area, indicate a stable or rising one during the period in question. Lorna Marshall estimated 432 !Kung in the Dobe area in 1952 (*3*). In 1964 (*2*, p.45) Lee counted 433, a figure later revised to 466 after a more thorough census taken in 1967 (*4*). None of us found any evidence to support a two-thirds drop in population prior to the study period (*5*). In our research project the findings of each investigator were checked against the work of several others; a discrepancy of such magnitude could not have gone unnoticed. Williams's assertion leaves the impression that members of the research group somehow suppressed information about massive out-migration in their published work.

This is not the place to go into the complex issues of !Kung ecology and history. Let us just say that, whatever the source of the !Kungs' ample food supply, Williams is certainly in error in attributing it to depopulation.

RICHARD B. LEE
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American Ice Cream

Nicholas Wade states in his article on the current ice cream controversy (News and Comment, 27 Aug., p. 844) that American ice cream is "made from dairy products of one sort or another." Actually, most American ice cream contains approximately 18 percent sweeteners and flavorings and about 0.5 percent stabilizers and emulsifiers. A commonly used stabilizer is carrageenin (extracted from seaweed), and cereal proteins (gluten) are used as emulsifiers. Federal law does not require container listing of ingredients in ice cream, and ice cream manufacturers seem reluctant to divulge this information. As a result, people who cannot tolerate gluten are unable to eat ice cream.

The Food and Drug Administration would do consumers a service if it insisted upon container listing of the exact ingredients in ice cream.

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23 September 1977, Volume 197, Number 4310 **SCIENCE**

Commission on Federal Paperwork

During the past decade there has been a great increase in detailed federal intrusions into many areas of society, including local and state government, education, and small and large business. Correspondingly, there has been an expanded federal demand for paperwork. The annual cost to society is now estimated at $100 billion. Paperwork is one of the reasons why the federal bureaucracy is held in low regard and why Congress fares poorly in opinion polls.

But Congress often acts constructively. This was true when it enacted Public Law 93-556 in December 1974, creating the Commission on Federal Paperwork. The Commission was given a 2-year mandate and total financial support of about $10 million. Work of the Commission began 3 October 1975. When its term ends shortly, the Commission will have issued 25 well-written reports and made about 750 recommendations for cutting paperwork. Already about a third of these have been adopted, involving annual savings of $3.5 billion. Ultimately, after implementation of more of the recommendations, the annual savings could mount to $10 billion. The staff of the Commission believes that with additional determined efforts, the annual savings might be made to rise to $30 to $40 billion.

Four key ingredients went into the success of the venture. The staff of the Commission was small but excellent. The 2-year time limit lent urgency to the enterprise. The staff reached out and involved citizens broadly, casting itself in the role of ombudsman. On the Commission were key figures including the Comptroller General, the Director of the Office of Management and Budget, Senator McIntyre, and Representative Horton, who could help expedite the implementation of recommendations.

The average citizen views the federal government as a single coordinated entity. In a report on federal, state, and local cooperation, the Commission sets forth a quite different view. With the tremendous growth in federal activities (more than 1000 assistance programs) we now live in an era of government by program. The realities are described in the report.*

"Such growth has fostered the development of compartmentalized and distinct interest groups, committed to individual program objectives more than to the general welfare of the Nation and its citizens. These program interest groups are represented organizationally by programmatic bureaucracies and constituencies containing those individuals concerned with delivering the services and achieving the objectives of that particular program. The interest groups extend from congressional committees, through Federal bureaucracies and their delivery systems within State and local governments. The result has been, in effect, a *series* of governments, based not on geographic communities and their own elected governments, but rather, separate, administrative governments intent on achieving program objectives. . . .

"Each program and its bureaucracy has developed its own separate information requirements, separate reporting and recordkeeping systems, separate financial management systems, separate audit systems, separate accounting systems and separate planning requirements. Even within the separate program administrative governments, regulation, information and paperwork requirements have created enormous burdens."

In effect, the Commission is telling us that with the proliferation of programs, a corresponding proliferation of paperwork was inevitable. Some of the paperwork can be eliminated, but the true solution lies in consolidating or eliminating programs.

The Commission on Federal Paperwork has demonstrated that a government organization can be forthright and effective while being responsive to citizens. A new follow-on organization designed to help point the way to more efficient government seems indicated.—PHILIP H. ABELSON

*"Federal/state/local cooperation, final report," staff report submitted to the Commission on Federal Paperwork, 29 June 1977, pp. IV-2 and IV-3.

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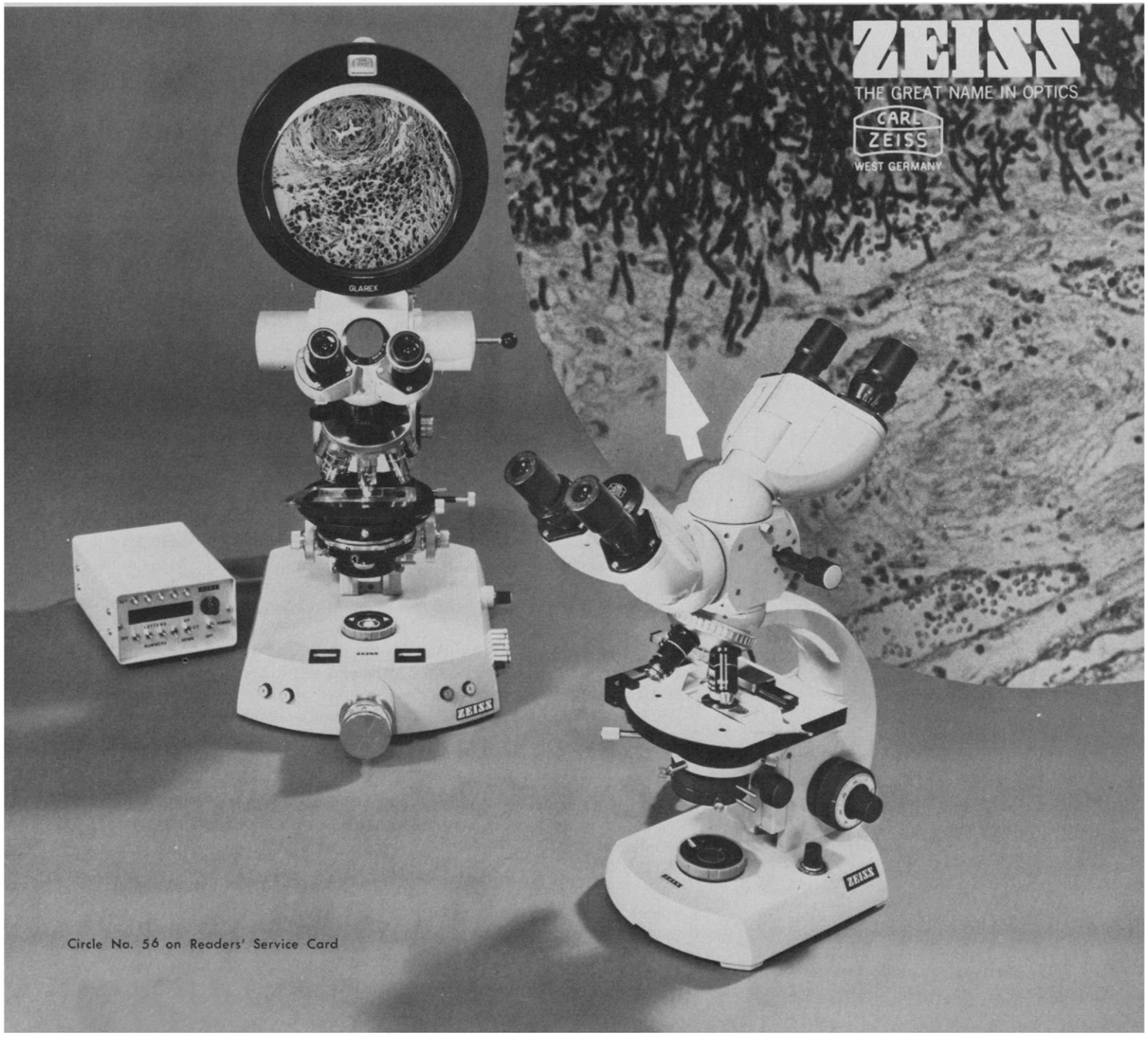

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