

SCIENCE

16 January 1970

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AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE





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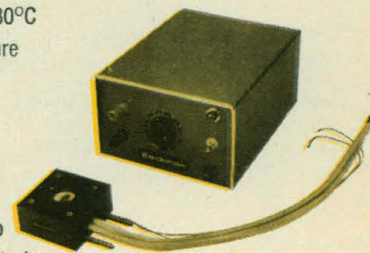
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COVER

Male golden hamster (*Mesocricetus auratus*) investigates the ear of a receptive female hamster prior to mating. After his olfactory bulbs are removed, the male hamster loses almost all interest in the female and his mating behavior is eliminated. See page 302. [Michael R. Murphy, Massachusetts Institute of Technology]

The American Association for the Advancement of Science was founded in 1848 and incorporated in 1874. Its objects are to further the work of scientists, to facilitate cooperation among them, to improve the effectiveness of science in the promotion of human welfare, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress.



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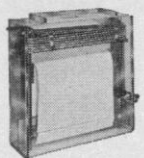
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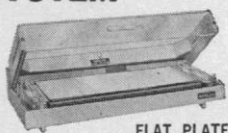
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of General Medical Sciences project for the separation of biological macromolecules. The following transfer RNA's from *E. coli* K-12 MO7, fMet (97 percent), Arg (70 percent), Phe 2 (78 percent), and Glu (~95 percent), and Glu (~85 percent) are fMet (~95 percent), Arg (100 percent), and Glu (~85 percent) are ready for distribution. The values in parentheses are the activities, expressed as amino acid acceptance per terminal adenosine. The arginine tRNA's contain more than one iso-accepting species; all of the others represent a single chromatographic peak. In addition, valine tRNA from *E. coli* K-12 MO7 will be available shortly.

Qualified investigators in the United States or other countries may request samples of these tRNA's by writing to G. David Novelli, Oak Ridge National Laboratory, P.O. Box Y, Oak Ridge, Tennessee 37830. The letter should include a brief justification and explanation of planned experiments as well as an indication of the quantity needed. These requests will then be reviewed by a committee appointed by the National Institute of General Medical Sciences, and samples will be shipped in accordance with their recommendations.

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Well-Rounded Egghead

Bohannon's letter entitled "Fest me no schriften" (14 Nov.) reminds me that the custom of *Festschriften* comes from Continental university systems along with the more common tradition (thank goodness!) of conferring honorary degrees within the framework of commencement and convocation ceremonies in modern colleges and universities. . . . Bohannon is right that *Festschriften* are expensive, space-consuming, and may leave long-lasting effects on the inches (or centimeters) of library shelves to which they are relegated. Perhaps they should all be reduced to microfilm so that they could be retrieved on demand by consulting published index lists.

Bohannon's negative approach to these historic and traditional customs leaves a little to be desired. He says, "Because I am the kind of egghead

who cannot look at only one article in a book, I also looked at the rest of them (I did not say read—I am not *that* kind of an egghead)." But what kind of an egghead is he? The reader is entitled to know since he chooses that appellation, and at Northwestern, Bergen Evans takes seriously his thesis that words mean what he means them to mean. I would only point out that most truly macroscopic eggs have two ends, a rounded one and a pointy one. While the latter gets there first (when laid), it is the well-rounded one that has in it the most stuff.

S. R. M. REYNOLDS

933 Olde Hickory Road,
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Eskimos' Language Links

In Dumond's article on the prehistory of the Alaskan Eskimo (28 Nov., p. 1108), he has elected to propagate the myth that the Eskimo-Aleut linguistic stock is "genetically distinct" from any North American Indian language. He does, however, correctly relate the Eskimo-Aleut languages to the languages of northeast Asia, presumably to the Aral-Altaic languages. His citation of Swadesh's 1962 article (1) for placing the Eskimo-Aleut languages "distinct" from North American Indian languages is interesting in that Swadesh states, in 1969:

It was long thought that Eskimo-Aleut had no relationship with American Indian languages, despite a few points of similarity (such as the dual suffix *-k* of Eskimoan and the *-ki* plural of Algonkin). Evidence was brought forward in the late 1950s, however, to show systematic agreements pointing toward a common origin, particularly with the Wakashan stock Algonkin-Wakashan phylum of the northwest coast of North America (2).

It appears that the Ural-Altaic, Korean-Japanese, Eskimo-Aleut, and Algonkin-Wakashan languages represent a vast language spectrum of greater diversity than the Indo-European language family, with a prehistoric geographic spread of three continents, and a buried insight into the histories and cultures of a multitude of races and peoples.

CHARLES F. FROMME, JR.

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References

1. M. Swadesh, *Amer. Anthropol.* 64, 1262 (1962).
2. ———, "Eskimo-Aleut languages" in *Encyclopedia Britannica* 8, 706 (1969).

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That oceanography rhymes with photography is no accident. Certainly there are even more significant connections. Since we are widely associated with photography, we have been striving ever since oceanography became a popular business topic to find those connections. The search has paid off in new friends—interesting, learned, even beautiful people, some of whom are encountered in such pleasant underwater environments as abound around St. Croix. How useful we can be to ocean science and technology remains to be seen.

It doesn't seem to take much film to accomplish what genuine working oceanographers—beautiful or not—have accomplished to date. Making lots and lots of dependable film

is where we shine. A fairly direct proportionality connects the physical volume of film we make with the income that supports learned discourse on carbonium ions (*see below*) as well as research toward film particularly suited for oceanography. As a matter of fact, little evidence has yet reached us that films we make for other purposes are not already well suited for oceanographic work.

Anybody who can see that we are missing a point here would do us a large favor indeed by dropping a note to S. Phillips, Special Applications, Eastman Kodak Company, Rochester, N.Y. 14650. As for illuminants that would permit aerial-photography-like surveys from a reasonable distance above the ocean bottom, we have thought of that.

How to keep chemists loyal

Some 10 per cent of the papers now appearing in the *Journal of the American Chemical Society* deal directly with carbonium ion chemistry. Though the subject seems scarcely to suffer from inattention, the current issue of *Eastman Organic Chemical Bulletin*, a periodical that has maintained a loyal readership through 41 volumes, consists of five pages headed "The Development of the Carbonium Ion Hypothesis." The former chemical educator who wrote this paper has not given

up on chemical education since joining our Color Physical Chemistry Laboratory. That laboratory has no more or less to do with carbonium ions than many another assemblage of physical-organic chemists, nor is Eastman Organic Chemicals planning a special deal on carbonium ions.

If this tells you enough about Eastman Organic Chemical Bulletin to want to get on its mailing list, please signify to Eastman Kodak Company, Dept. 942, Rochester, N.Y. 14650.

That's an asymptote, Sammy

Familiar KODAK CAROUSEL Slide Trays take 80 slides arranged in a circle. Loaded with Inquiry Slides created by Biological Sciences Curriculum Study (P. O. Box 930, Boulder, Colo. 80301), they are now moving out to high schools in gratifying numbers. Very gratifying.

The United States is one of the few nations without a ministry of education. What shall be taught to its youth is decided by thousands upon thousands of persons, each of whom has a right to his particular shade of opinion. Such an uncoordinated state of affairs is not necessarily deplorable.

Plainspoken straight-thinkers want the teacher to sit up there as an authority figure belting out uncontroverted, opinion-free facts and meting out fair punishment for failure to fire them accurately back on signal.

Missionaries for the scholarly way of life demand the schools send them ever more converts. Let the unconvertible become used-tire salesmen, or something.

In between sit some who foresee countless hordes learning painfully to think like Charles Darwin, only to face employers with little need and much fear of Charles Darwins.

In there pitching is BSCS. It describes itself as "an essentially autonomous organization of high school biology teachers, science educators, school administrators, and college biologists concerned with the improvement of biological education." Friendly to textbook publishers and others commercially involved with education (like us), BSCS nevertheless counters the tendency to leave the content of education to be decided in combat among sales managers. In addition to its well-established textbook program, BSCS now ventures forth with an initial 20 sets of Inquiry Slides in sequences of 6 to 15 slides, at various levels in various biological topics. A KODAK EKTAGRAPHIC Projector puts them on the blackboard. There teacher and class, employing thought, chalk, opinion, and normal roomlight, interact with data and questions presented in bold, colorful graphics and labeled co-ordinates awaiting curves to be drawn in by reasonable individual and group hypotheses. Next slide, bearing further data, may confirm or refute. As in life. Thinking like Darwin becomes less painful. Less painful also for the teacher not to have to feel all that authoritative.

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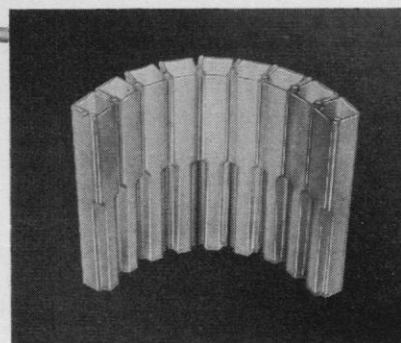
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Social Responsibilities of Scientists

A few decades ago, most scientists held the view that their principal duty was to advance the frontiers of knowledge. Correspondingly, the scientific societies limited their activities to publications and meetings centered on their chosen fields. During the past few years, the activities of scientists have expanded. Many of the principal symposiums at the recent Boston meeting of AAAS dealt with public policy aspects of science and technology.

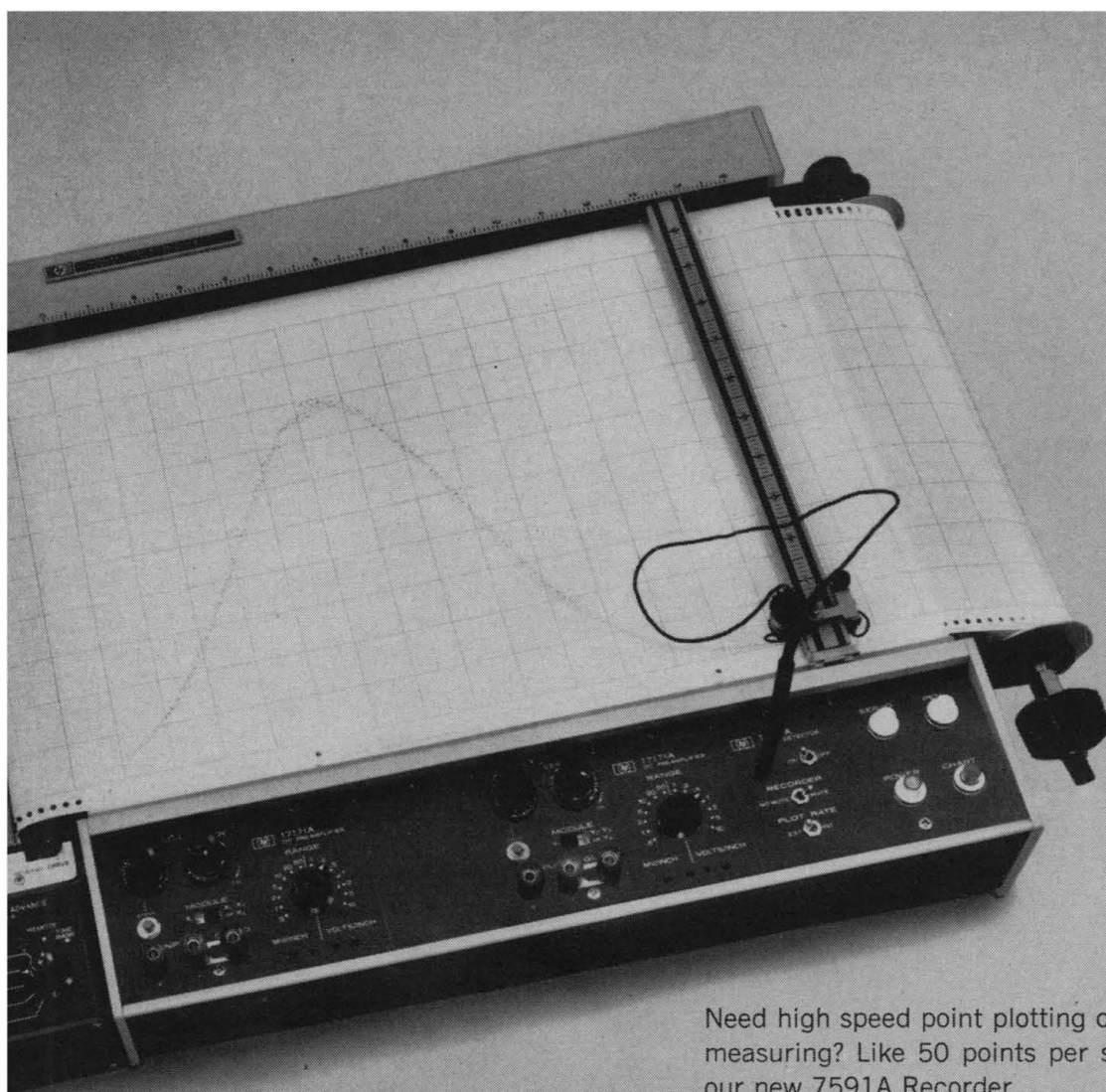
Scientists have not unanimously approved participation in policy matters by their colleagues. Some have objected that spokesmen certainly did not speak for them personally. Others have pointed out that once facts have become generally known, the scientist can no longer determine how his discoveries may be applied. To some degree, this argument is valid. Nevertheless, scientists will have continuing and important roles in determining how science is applied. One important function is that of watchdog.

In exploiting scientific discoveries, humanity will squander resources and unwittingly conduct profoundly important experiments on itself and on the environment. Who will evaluate such experiments and be alert to emerging problems? The man in the street can scarcely fill such a role. Government might, but its leadership is in the hands of politicians who rarely act until an issue is crystallized by others. Scientists or engineers in government service might act as watchdogs, but in general, politicians prefer that the bureaucrats speak only when spoken to. Employees of industry are in much the same circumstance. Thus academic scientists and the scientific societies have responsibilities that they cannot escape.

In attempting to convert opinion into action, scientists should avoid internal conflict. They form only a tiny fraction of the electorate, and at best their prestige is not such as to give much weight to partisan exhortations. In matters that are more political than scientific, members of societies are likely to be divided in their preferences. When a society attempts to achieve a monolithic position on such issues, it does so over strong objections. The outcome convinces no one, serves little purpose, and leaves debilitating wounds. The societies are more effective when they employ leverage furnished by other opinion makers. During the past decade, AAAS has met this challenge by providing forums in which technological problems that affect all of us were discussed. These presentations have been well covered by the mass media.

After the mass media begin to devote attention to a problem, public awareness increases, and politicians become interested. However, in helping to create judicious public opinion, the scientific societies can have an important role. Especially useful are fact-finding commissions and committees. Thus the Air Conservation Commission of AAAS served a valuable function in early delineation of facts concerning air pollution. Reports from committees organized by the National Academy of Sciences have been helpful in crystallizing public opinion on such issues as birth control. In general, the reports have had an effect roughly proportional to the level of scholarship and objectivity which characterized them.

The goal of opinion-making should be constructive action. A prerequisite for this is thorough planning based on an adequate fund of knowledge. Scientists can make imaginative contributions to planning, and they can help ensure that the factual bases for decisions are as sound as possible.—PHILIP H. ABELSON



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