

Do They Know Something You Don't Know? . . .



Educators bought 50% more TIAA life insurance in 1965 than in 1964, the previous all-time high. And the *average* policy (\$30,000) continues to be much higher than the average for companies insuring the general public.

It must be TIAA's new lower premium rates.



For example,

A **\$50,000** POLICY COSTS ONLY **\$98** at age 30. Here's how:

\$50,000 20-Year Home Protection Policy

Age at Issue	25	30	35	40
Annual Premium (Payable only 16 years)	\$134.00	\$159.00	\$206.50	\$290.00
Cash Dividend End of First Year (based on 1966 dividend scale; not guaranteed for the future)	55.50	61.00	70.50	88.00
First Year Net Premium	\$ 78.50	\$ 98.00	\$136.00	\$202.00



Mail the coupon for the new Life Insurance Guide and a personal illustration of TIAA policies for your age.

This is a plan of level premium Term insurance which provides its largest amount of protection initially, reducing by schedule each year over a 20-year period to recognize decreasing insurance needs. There are several other insurance periods, and Home Protection policies are available at all ages under 56.

ARE YOU ELIGIBLE FOR TIAA? Yes, if you are employed by a college, university, private school, or other nonprofit educational or scientific institution that qualifies for TIAA eligibility.

TEACHERS INSURANCE AND ANNUITY ASSOCIATION
730 Third Avenue, New York, N. Y. 10017

Please mail the new Life Insurance Guide and a personal illustration.

Name _____ Your Date of Birth _____

Address _____ ZIP _____

Dependents' Ages _____

Nonprofit Employer _____ college, university, or other educational or scientific institution

tiaa

T1

inferential statistics" but did not. "How 'significant' these observations are is a matter for the reader to judge."

As Fisher pointed out in the 1920's (1), the assumption underlying statistical inference is that the experiment to which it is applied meets the following conditions: (i) There has been a random selection of units from the population under study, from which the population parameters can be estimated. And (ii) for the estimation of experimental effects, there has been a random assignment of experimental treatments to experimental units (and of nontreatment to control groups).

Unfortunately many biological and social scientists do not achieve these controlled experimental conditions. Hence, inferential statistics would be inappropriate since they do not meet the assumptions.

Mark Twain said, "There are lies, damn lies, and statistics." Using inferential statistics in preexperimental studies without randomization does not lead to "significance" but to the implication of Twain's third case.

HERBERT J. WALBERG

Graduate School of Education,
Harvard University,
Cambridge, Massachusetts 02138

Reference

1. R. A. Fisher, *Statistical Methods for Research Workers* (Oliver and Boyd, Edinburgh, 1925).

IEG's: Some Evaluations

Hooray for the American Association of Immunologists in its attempt to discontinue the use of IEG No. 5 (Letters, 12 Aug.). I agree with them. I find the IEG's are becoming a dangerous nuisance because these bulky "pre-prints" are piling up, mostly unread. At this moment they are no longer being rapidly published, but are coming to me rather simultaneously (within a few weeks) of the truly published, edited, and refereed papers. They are dangerous because a parallel publication system is being set up for complete papers (and they are being referred to as complete papers), a system which has none of the safeguards associated with scientific publication, which makes up its own rules as it goes along, which has its own little "czar" telling scientists how and what to publish (hurry up, you will get priority), and which is seemingly out of the control of scientific bodies such as editorial boards or societies.

**You can
depend on your
Du Pont Reagents
Distributor
for the best
in reagent
Quality and Service**

When you specify Du Pont Reagents you can be sure of the highest quality as well as fast, dependable service. Here's why:

Quality—Du Pont Reagents undergo twenty-three rigid quality checks to meet Du Pont's own strict standards as well as those of the ACS. And, over 65 years experience in manufacturing reagents has enabled Du Pont to identify and minimize sources of contamination...assuring your Du Pont Reagents Distributor and you of the highest possible quality and uniformity.

Service—There are over 160 DuPont Reagents distributor locations across the country to assure you of fast delivery and dependable service...whether it be for 1 or 5 pint bottles or 6½ or 13 gallon carboys. Since Du Pont pioneered many of the features for safety and convenience in reagents handling, you get them automatically with Du Pont Reagents. In addition, your Du Pont Reagents Distributor will provide you with useful laboratory reference aids...and, in many cases, he is also a source of other Du Pont quality chemicals.

The next time you need reagents, contact your nearest Du Pont Distributor—he's as close as your phone—and specify "Du Pont" Reagents.

**You Can Depend on Du Pont Reagents...
for Quality, Service and Safety Features**

NITRIC ACID	GLACIAL ACETIC ACID
SULFURIC ACID	AMMONIUM
HYDROCHLORIC ACID	HYDROXIDE
	FORMIC ACID 90%



Du Pont Co., Room 3314A
Wilmington, Delaware 19898

Send ☐ name of nearest Distributor
☐ Du Pont Reagents Catalog Sheet ☐ prices

Name _____

Title _____

Firm _____

Address _____

City _____ State _____ Zip _____



Better Things for Better Living...through Chemistry

I suggest that we all stop sending completed papers to the IEG's. I further suggest that there still is some usefulness left in parts of the original idea in setting up this system; namely, that it be used solely to acquaint people in the field, by means of short letters, of new findings and developments with regard to methods, with regard to simple salient findings concerning single points and which would not be suitable for a full paper, and with regard to comments and criticisms of papers already published in the scientific press. I think it is a good idea to try to get some controversy back into print in science, and the IEG's, it seems to me, would be just the forum for such an exchange of controversial views about data and interpretations.

Finally, one last, though not minor, point. Why the rush? Suppose the "code" is to be learned two months later; so what? Let us leave a little for our children to do; anyway we will all die before we learn the "final" answers. The work in the laboratories is less gay now; the enthusiasm is becoming misplaced, from the acts of discovery to the works of quick publication. The practice of science is becoming less for its own sake than for the advancement of scientists. A slow terror is descending upon us, compounded of fear and pride and envy, of hate and waste and misguided zeal, of lacks of joy and satisfaction; let us stop this before it becomes complete.

PHILIP SIEKEVITZ

Rockefeller University,
New York 10021

We wish to second all of the nine objections which led the Association of Immunologists to vote for discontinuation of IEG No. 5, particularly the following two reasons: no refereeing process is provided for what is, in essence, a form of publication; and the IEG places undue emphasis on priority.

We would add two points. First, it has been our experience that each of us discards more than half of the communications received from IEG No. 7, no matter how rapidly they have been transmitted from the author's typewriter to our wastebaskets. Moreover, of the manuscripts we do examine, the majority are either published rapidly (*Proceedings of the National Academy of Sciences* and *Biochemical and Biophysical Research Communications*) or are of insuffi-

cient urgency to warrant immediate attention. If our experience is typical, then the IEG must be considered an inefficient function. NIH funds would be more efficiently employed in supporting research.

Second, we are concerned, as a matter of scientific values, with the overemphasis placed by the IEG on speed. Standards of scholarship should be the dominant concern in any form of scientific communication.

AUGUST H. DOERMANN

JONATHAN A. GALLANT

BRIAN J. MCCARTHY

DAVID R. MORRIS

EUGENE NESTER

WILLIAM J. RUTTER

Departments of Biochemistry,
Genetics, and Microbiology,
University of Washington,
Seattle 98105

The desire to impose censorship can take various forms, such as Dray's ingeniously worded letter listing the following nine reasons which summarized the Immunologists' objections to IEG No. 5:

1) *IEG communications are sent only to a limited number of members of the scientific community.* One shudders to think what would happen if all scientific communications were sent to all members of the scientific community.

2) *The preprints are read by the same scientists who will later read the published articles.* Evidently it is undesirable to read the same articles twice. Many of us, however, customarily forego such a temptation because of a lack of time.

3) *Informal publications may not be cited in bibliographies.* Most authors surely are aware of how to cite a private communication by a footnoted reference.

4) *The preprints may ultimately supersede existing journals.* This process is commonly termed "evolution" and the struggle for existence leads to the survival of the fittest. The current tendency is for journals to multiply rather than to disappear.

5) *No refereeing process is provided for what is, in essence, a form of publication.* This objection seems to be overcome by Dray's proposal that "each memorandum should be clearly marked with the warning that it does not constitute a formal publication."

6) *The IEG places undue emphasis on priority.* This is a common attribute (or failing) of most scientists.

7) Preprints infringe upon copy-rights. IEG communications are not sold.

8) Little or no free discussion takes place in the IEG. Surely this is the fault of scientists rather than of the IEG.

9) The IEG costs money at a time when funds available for research are limited. Everything is comparative; one IEG memo could potentially save large sums of money by forestalling duplication of research or by providing ideas that will enable research to advance more quickly.

Seminar clubs and discussion groups have sprung up during the past year in various parts of the country for the purpose of reviewing the communications in IEG No. 7. The preprints have acquired an international flavor. Let us hope that an immunological reaction will not agglutinate this useful means of communication.

THOMAS H. JUKES

*Space Sciences Laboratory,
University of California, Berkeley*

An account of the Information Exchange Groups as an experiment in communication among scientists was given in *Science* on two occasions [143, 308 (1964); 148, 153 (1965)]. With the approach of their sixth birthday, a summary statement about the IEG's may be in order. Seven groups in different areas of biomedical science have been established, with membership ranging from 100 to 1500. So far as the scientific community is concerned, the IEG's have passed the experimental test of usefulness, as shown by the participation of active workers in each of the fields represented by the seven groups—a participation that extends to 38 foreign countries. In that it has emerged as an aid to communication with a potential as great as that of the scientific journals or international conferences, the IEG would seem sufficiently acceptable as a device for facilitating speedy interactions and communications among scientists. This is not to say that the final form of IEG has been reached. Further modification and experimentation may be expected. It is significant that the success of the IEG concept in the biological sciences has created great interest in setting up similar groups in the physical sciences.

Fortunately the IEG has been spared negative criticism during its formative years. The organizers have been able

SPECIFY DU PONT REAGENTS FROM:



ALABAMA
BIRMINGHAM
Cenco Instruments Corp. 324-2433
F. H. Ross & Co. 841-6451
E. H. Sargent Co. 251-5125
Wittichen Chemical Co. 322-1639
HUNTSVILLE
Wittichen Chemical Co. 539-3402
MOBILE
McKesson & Robbins, Inc. 457-9265
F. H. Ross & Co. 471-3404
Wittichen Chemical Co. 457-0142
MONTGOMERY
Wittichen Chemical Co. 263-9495
ALASKA
ANCHORAGE
Van Waters & Rogers, Inc. 277-6726
ARIZONA
PHOENIX
Van Waters & Rogers, Inc. 254-6111
TUCSON
Van Waters & Rogers, Inc. 793-9731
ARKANSAS
LITTLE ROCK
McKesson & Robbins, Inc. 372-4161
CALIFORNIA
ANAHEIM
E. H. Sargent & Co. 772-3550
LOS ANGELES
Van Waters & Rogers, Inc. 269-9311
SAN DIEGO
Van Waters & Rogers, Inc. 262-0711
SAN FRANCISCO
Van Waters & Rogers, Inc. 334-2600
W. SACRAMENTO
Van Waters & Rogers, Inc. 371-7600
COLORADO
DENVER
E. H. Sargent Co. 534-6203
Van Waters & Rogers, Inc. 388-5651
CONNECTICUT
SHELTON
Axton-Cross Corp. 735-4691
STAMFORD
McKesson & Robbins, Inc. 325-4171
DELAWARE
WILMINGTON
Danforth Drug Co. 655-6271
FLORIDA
JACKSONVILLE
Apperson Chemicals, Inc. 388-6514
F. H. Ross & Co. 387-5531
MIAMI
Biscayne Chemical Labs. 377-1421
N. MIAMI
F. H. Ross & Co. 624-8541
ORLANDO
Atlantic Chemicals, Inc. 241-1751
TAMPA
Lanfesty Supply Co. 223-3771
F. H. Ross & Co. 877-6751
GEORGIA
ATLANTA
Estes Surgical Sup. Co. 521-1700
McKesson & Robbins, Inc. 873-1643
F. H. Ross & Co. 524-2621
COLUMBUS
F. H. Ross & Co. 327-3669
SAVANNAH
F. H. Ross & Co. 234-5186
HAWAII
HONOLULU
Van Waters & Rogers, Inc. 507-431
IDAHO
BOISE
Van Waters & Rogers, Inc. 343-5468
ILLINOIS
CHICAGO
Central Scientific Supply Co. 935-8600
Graphic Arts Supply Co. 486-2200
C. P. Hall Co. of Ill. 767-4600
McKesson & Robbins, Inc. 254-1100
E. H. Sargent Co. 777-2700
Stansi Scientific Co. 276-8737
CHICAGO HEIGHTS
McKesson & Robbins, Inc. 756-1300
DECATUR
McKesson & Robbins, Inc. 428-3823
MOLINE
Dico Company 4-6422
PEORIA
McKesson & Robbins, Inc. 673-9149
ROCKFORD
Industrial Oil & Chem. 963-5261
ROCK ISLAND
McKesson & Robbins, Inc. 788-5647
SPRINGFIELD
Industrial Chem. Supply 522-9281
INDIANA
FT. WAYNE
Inland Chemical Corp. 742-4481
INDIANAPOLIS
Globe Chemical Co. 632-8546
Wm. Lynn Chemical Co. 637-3463
SOUTH BEND
Inland Chemical Corp. 289-0328
IOWA
BURLINGTON
McKesson & Robbins, Inc. 754-4603

CEDAR RAPIDS
McKesson & Robbins, Inc. 362-2169
DES MOINES
Dico Company 244-7286
McKesson & Robbins, Inc. 282-4392
SIOUX CITY
McKesson & Robbins, Inc. 5-0123
KANSAS
WICHITA
McKesson & Robbins, Inc. 267-6292
KENTUCKY
HENDERSON
PB&S Chemical Co. 827-3545
LOUISVILLE
Globe Chemical Co. 587-6506
Love Chemical Co. 635-7803
Wm. Lynn Chemical Corp. 583-8369
McKesson & Robbins, Inc. 366-1406
Freiser Scientific Co. 636-3307
LOUISIANA
BATON ROUGE
McKesson & Robbins, Inc. 356-4591
NEW ORLEANS
W. H. Curtin Co. 524-0475
McKesson & Robbins, Inc. 861-8191
MARYLAND
BALTIMORE
Leidy Chemical Corp. 685-2200
MASSACHUSETTS
FRAMINGHAM
Axton-Cross Corp. 872-4378
MEDFORD
McKesson & Robbins, Inc. 395-6560
SOMMERVILLE
Cenco Instrument Corp. 776-1800
SPRINGFIELD
Hampden Color & Chem. 732-2112
WESTFIELD
Eastern Chemicals, Inc. 568-8669
MICHIGAN
DETROIT
Eaton Chemical Corp. 962-5216
McKesson & Robbins, Inc. 834-7830
E. H. Sargent Co. 931-0337
GRAND RAPIDS
McKesson & Robbins, Inc. 451-2938
Wolverine Solv. & Chem. 245-9111
LANSING
Carrier-Stephens Co. 482-0838
SAGINAW
McKesson & Robbins, Inc. 754-7478
MINNESOTA
HIBBING
Lerlab Supply Co. 262-3456
MINNEAPOLIS
McKesson & Robbins, Inc. 789-2403
Geo. T. Walker & Co. 333-3343
ST. PAUL
Lyon Chemicals, Inc. 646-1351
MISSOURI
KANSAS CITY
McKesson & Robbins, Inc. 842-6240
ST. LOUIS
McKesson & Robbins, Inc. 231-0944
SPRINGFIELD
McKesson & Robbins, Inc. 866-3501
NEBRASKA
OMAHA
McKesson & Robbins, Inc. 341-4755
NEW JERSEY
BLOOMFIELD
McKesson & Robbins, Inc. 748-6300
MOUNTAINVIEW
Cenco Instrument Co. 233-2000
NEWARK
Dooner & Smith Co. 623-1905
PATERSON
Brown Chemical Co. 684-0388
SPRINGFIELD
E. H. Sargent Co. 376-7050
WHIPPANY
Nitinex, Inc. 887-6000
NEW MEXICO
ALBUQUERQUE
Van Waters & Rogers, Inc. 344-3407
NEW YORK
BUFFALO
Chemical Sales Corp. 885-5100
McKesson & Robbins, Inc. 873-8590
BROOKLYN
Enequist Chemical Co. 497-1200
Robinson Bros. Chemicals 497-0043
NEW YORK CITY
McKesson & Robbins, Inc. 674-5700
Std. Scientific Supply 777-0660
RENSSELAER
Eastern Chemicals Inc. 465-2474
ROCHESTER
Chemical Sales Corp. 235-2480
SYRACUSE
Eastern Chemicals Inc. 463-8669
UTICA
Matheson Chemicals, Inc. 732-6151
NORTH CAROLINA
CHARLOTTE
F. H. Ross & Co. 392-2121
ELON COLLEGE (BURLINGTON)
Carolina Biological Sup. 584-8801
GREENSBORO
F. H. Ross & Co. 299-1101

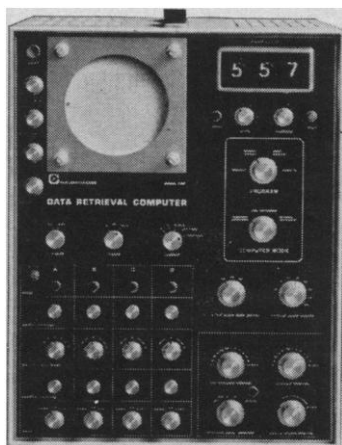
RALEIGH
F. H. Ross & Co. 833-1688
OHIO
AKRON
Farley Chem. & Solvents 762-7261
BEDFORD HEIGHTS
McKesson & Robbins, Inc. 292-7500
CINCINNATI
E. H. Sargent & Co. 771-3850
Globe Chemical Co. 242-2300
McKesson & Robbins, Inc. 771-4311
CLEVELAND
Inland Chemical Corp. 771-1660
McKesson & Robbins, Inc. 292-7500
COLUMBUS
Eton-Colby Chem. Co. 252-7170
Globe Chemical Co. 231-3671
McKesson & Robbins, Inc. 443-7629
DAYTON
Globe Chemical Co. 222-4035
Industrial Chem. Prod. 222-6391
LIMA
Inland Chemical Corp. 223-2075
TOLEDO
Inland Chemical Corp. 243-5295
OKLAHOMA
OKLAHOMA CITY
McKesson & Robbins, Inc. 232-1351
TULSA
Chemical Products, Inc. 587-8135
McKesson & Robbins, Inc. 627-6550
OREGON
PORTLAND
Scientific Supplies Co., Division of
Van Waters & Rogers, Inc. 222-1721
PENNSYLVANIA
ALTOONA
McKesson & Robbins, Inc. 944-9438
PHILADELPHIA
McKesson & Robbins, Inc. 446-5585
Phillips & Jacobs Co. 922-0900
Pioneer Salt Co. 627-1200
PITTSBURGH
McKesson & Robbins, Inc. 923-1100
YORK
North Chemical Co. 843-0829
RHODE ISLAND
PROVIDENCE
McKesson & Robbins, Inc. 421-0262
SOUTH CAROLINA
COLUMBIA
Columbia Org. Chem. Co. 787-7606
F. H. Ross & Co. 239-9107
GREENVILLE
F. H. Ross & Co. 239-9107
TENNESSEE
CHATTANOOGA
Burkart-Schier Chem. Co. 266-0101
KNOXVILLE
Burkart-Schier Chem. Co. 523-7171
F. H. Ross, Inc. 525-9356
MEMPHIS
Ideal Chem. & Supply 278-0200
NASHVILLE
Burkart-Schier Chem. Co. 255-0487
TEXAS
BEAUMONT
McKesson & Robbins, Inc. 832-1612
CORPUS CHRISTI
McKesson & Robbins, Inc. 883-8464
DALLAS
W. H. Curtin & Co. 747-2503
McKesson & Robbins, Inc. 421-7668
E. H. Sargent Co. 352-8411
EL PASO
Van Waters & Rogers, Inc. 778-4225
FORT WORTH
McKesson & Robbins, Inc. 624-7204
HARLINGEN
McKesson & Robbins, Inc. 423-2487
HOUSTON
W. H. Curtin & Co. 923-1661
Matheson Scientific, Inc. 923-1627
McKesson & Robbins, Inc. 644-5461
Refinery Supply Co. 644-1401
SAN ANTONIO
McKesson & Robbins, Inc. 333-2310
UTAH
SALT LAKE CITY
Van Waters & Rogers, Inc. 328-1112
VIRGINIA
RICHMOND
Phipps & Bird, Inc. 644-5401
WASHINGTON
SEATTLE
Scientific Supplies Co., Division of
Van Waters & Rogers, Inc. 624-5050
SPOKANE
Van Waters & Rogers, Inc. 747-4183
WEST VIRGINIA
CHARLESTON
Freiser Scientific, Inc. 343-5515
HUNTINGTON
Cabell Chemical Co. 522-3122
WISCONSIN
APPLETON
McKesson & Robbins, Inc. 734-9888
MILWAUKEE
McKesson & Robbins, Inc. 645-7909



Better Things for Better Living . . . through Chemistry

What price signal averaging?

Here's a quick look at the real expense—in data as well as dollars—of signal-averaging devices, including our averager, the Model 7100 Data Retrieval Computer.



Will you pay for less than excellent resolution?

You will in any signal averager that has a minimum dwell-time per data point of more than 39 microseconds. Resolution, after all, is a function of the number of data points that can be placed within a region of interest. Our Model 7100 Data Retrieval Computer (DRC) uses *all* 400 of its data points for signals occurring within as little as 15.6 milliseconds. The DRC, therefore, gives much better resolution than averagers that use only a fraction of their data points to represent the signal of interest.

Will you pay for less than total versatility? You will in any averager that doesn't have the built-in capability—without add-on options—for interval- and time-histogram analysis, as well as transient-averaging. The DRC will operate in *any* of these three modes, which are selected on a front-panel switch.

Will you pay for less than maximum input sensitivity? You will in an averager that needs a pre-amplifier to accept low-amplitude input signals. The DRC has 20-millivolt input sensitivity. So, most of the time, the DRC requires *no* added pre-amps.

What should you pay for a basic signal averager? That's up to you. But for its price, the DRC offers you more performance, versatility, and convenience than any other comparable signal averager.

The Model 7100 Data Retrieval Computer.
Now available at a new, lower price.

For more information, consult your local Nuclear-Chicago sales engineer or write to us.



**NUCLEAR-CHICAGO
CORPORATION**

349 E. Howard Ave., Des Plaines, Ill. 60018 U.S.A.
Donker Curtiusstraat 7, Amsterdam W.

to enlist the cooperation of scientists representing all shades of opinion. What is even more remarkable, the venture has consistently enjoyed the benevolent and essential cooperation of many individuals representing the scientific journals and societies. The IEG program, administered under the direction of E. C. Albritton, has shown itself to be unusually receptive to suggestions for improvement, reform, and change.

The American Association of Immunologists recently passed, at a business meeting held in April 1966, by a vote of 56 to 39, a resolution recommending that IEG No. 5 be discontinued. The officers announced this in a letter to *Science* and evaluated IEG's generally [see *Science* 153, 649 (1966)].

At the time of its submission to *Science*, a copy of the letter was sent to the IEG. The chairmen of the various IEG's pointed out to Sheldon Dray, the secretary of the association, that the letter contained many inaccuracies and unjustified assumptions. Yet no correction was made of any of these errors of facts, and the letter was published in virtually its original form. As chairmen of four of the IEG's, we feel that an answer to such criticism, point by point, would assign more value to the letter than it deserves. There may, indeed, be valid reasons for the dissatisfaction of some immunologists with the management of IEG No. 5. But to proceed from a specific complaint to an attack on IEG's generally, without detailed knowledge of the relevant facts, is unwarranted.

D. E. GREEN

*Institute for Enzyme Research,
University of Wisconsin, Madison*

J. GERGELY

*Retina Foundation, Institute of
Biological and Medical Sciences,
Boston, Massachusetts*

W. DAMESHEK

*Department of Hematology,
Mount Sinai Hospital, New York*

S. BARON

*National Institute of Allergy and
Infectious Diseases,
Bethesda, Maryland*

The published form of the letter concerning Information Exchange Group No. 5 (12 Aug.) failed to make it clear that this letter was transmitted by Sheldon Dray in his official capacity of secretary-treasurer of the American Association of Immunologists. The let-

ter represents a report of discussions at the annual AAI business meeting. The original version, which was drafted and approved for publication by the Council of the Association of Immunologists, was somewhat shortened by the editors.—ED.

Ancient China

The legend for the cover of the 12 August issue errs (p. 671), as several readers have noted, in stating that "the miners were attached to winches by a safety line." The line is clearly attached to the basket at the miner's feet rather than to his neck.

NATHAN SIVIN

*Department of Humanities,
Massachusetts Institute of Technology,
Cambridge 02139*

... The discussion of the meanings of the word "ch'i" in Sivin's book review ("A Chinese classic," p. 730) is interesting. The word also has the meaning of "anger." In the illustration Sung Ying-hsing used an expression for poison gas which definitely is not ambiguous. It is literally translated as "poison smoke gas," or possibly, "poison smoke essence."

L. A. LOVEGREN

Cherry Grove, Oregon 97119

Cruelty in the Laboratory

Letters published in this section have at times revealed the concern of readers over the type of experiments conducted on laboratory animals. I would like to voice a marked distaste for the experiments on sleep deprivation ("Sleep deprivation and brain acetylcholine," 16 Sept., p. 1416). These strike me as objectionably cruel in view of the length (96 hours) and conditions of the procedure. It is to be hoped that no further experiments along this line will be pursued; the act of slowly depriving animals of an activity essential to life is comparable to inducing death by starvation or thirst. Research scientists, even if committed to objectivity, are still ethically bound to refrain from inflicting unnecessary suffering on other sentient beings, particularly in a situation not crucial to mankind.

F. A. VELAY

*500 South 47 Street,
Philadelphia, Pennsylvania 19143*