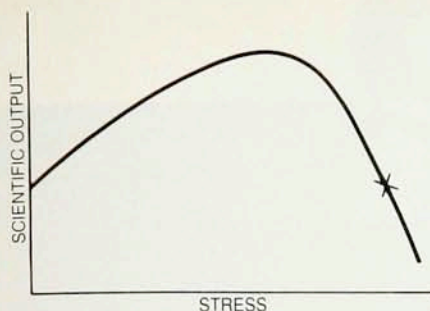




cist, but we are referring to an average over physicists), but it is legitimate to suppose that with some external pressure (a need to feed children, say) he or she would produce more. So we can construct a curve in which the vertical axis represents productivity and the horizontal axis represents the pressure to which the physicist is subject. Like the Laffer curve, of course, the shape of this curve is unknown, but I suspect that the shape is at least approximately like that in the figure above and that in the US physicists operate well beyond the maximum—indeed, probably beyond X, the point at which productivity is lower than if there were no pressure at all. [I thought I had invented the Laffer curve for productivity in physics, but a recent report suggests that this is an example of a much more general law of performance (*Newsweek*, 25 April 1988—I don't have time to track down the original reference; I have to write a proposal).]

Now some of this excessive pressure comes from the general mores of the environment in which we work. The United States, after all, is a very competitive society. However, I believe that a major part of the pressure on physicists and the main contribution to the inefficiency that besets our work comes from the structure of the funding of research.

What I am saying is that by establishing an elaborate procedure to monitor and control the spending of Federal money on physics research, the government has produced a situation in which it gets less for its money than if it just distributed the funds more or less at random. I think that a complete overhaul of the mechanisms of research funding is called for. I do not have a concrete proposal for an alternative, but it must surely be possible to change the means of distributing funds so that it is less traumatic without its becoming either unjust or corrupt. I believe that developing and implementing such a system should be considered one of the highest priorities for science in the United States.

This letter is, regrettably, not as clear and forceful as I would wish, but the writing of a good letter, like good research in physics, requires two things that are in short supply: concentration and peace of mind.

ALWYN EADES
University of Illinois,
Urbana-Champaign

6/88

$\alpha \nu \gamma$. How About You?

As mentioned in our article in the August issue of *PHYSICS TODAY* (part 1, page 24), we are in the process of writing a book on the history of early work on Big Bang cosmology. We already have a good deal of anecdotal material on the cosmological activities and interests of George Gamow, but would be pleased to hear from *PHYSICS TODAY* readers about anecdotal material we might use.

RALPH A. ALPHER
Department of Physics
Union College
Schenectady NY 12308
ROBERT HERMAN
ECJ 6.806
University of Texas at Austin
Austin TX 78712

9/88

Halley: A Name That Lives On in Mortality

The article by Michael Evans (February 1988, page 41) brought to our attention the remarkable diversity of the fundamental contributions of Edmond Halley in the astronomical, mathematical and geophysical sciences. It may be less well known that even had Halley made none of the contributions noted by Evans, he would still have left us an important legacy as the father of actuarial science.¹ The beginning of actuarial science is often traced to Halley's paper "An Estimate of the Degrees of the Mortality of Mankind, Drawn from Various Tables of Births and Funerals in the City of Breslau," published in 1693 in the *Philosophical Transactions of the Royal Society*.² For this great scientist a mortality prediction seemed to be as natural as a prediction of the return of a comet!

References

1. J. C. Hickman, in *Actuarial Mathematics* (Proc. Symp. Appl. Math., vol. 35), American Mathematical Society, Providence, R. I. (1986), pp. 5–15. N. L. Bowlers Jr., H. U. Gerber, J. C. Hickman, D. A. Jones, C. J. Nesbitt, *Actuarial Mathematics*, Society of Actuaries Publishers, Itasca, Ill. (1986).

2. E. Halley, *Philos. Trans. R. Soc.* **17**, 596, 654 (1693).

ED WAYMIRE
Oregon State University
Corvallis, Oregon

3/88

Corrections

October, page 9—The third sentence of the first paragraph should have said that the range of validity of quantum mechanics had been extended to systems with radii on the order of 10^{-13} cm. The equation in the second paragraph should have been given as $i\hbar\psi = H\psi$.

August, part 1, page 43—The second sentence of the caption should have read, "Lines from iron with 16 electrons removed are also present." ■

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION

(Act of 12 August 1970: Section 3685, Title 39, USC)

1. Title of publication: *PHYSICS TODAY*
- 1A. Publication no.: 0031-9228
2. Date of Filing: 1 October 1988
3. Frequency of issue: Monthly (12)
- 3A. Annual subscription price: \$85.00
4. Location of known office of publication: 500 Sunnyside Blvd., Woodbury, NY 11797
5. Location of the headquarters or general business office of the publisher: 335 East 45th St., New York, NY 10017
6. Names and address of publisher, editor and managing editor:
Publisher: American Institute of Physics, 335 East 45th St., New York, NY 10017
Editor: Gloria B. Lubkin, American Institute of Physics, 335 East 45th St., New York, NY 10017
Managing editor: Peter G. Brown, American Institute of Physics, 335 East 45th St., New York, NY 10017
7. Owner (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual, must be given.) American Institute of Physics, 335 East 45th St., New York, NY 10017
8. Known bondholders, mortgagees and other security holders owning or holding one percent or more of total amount of bonds, mortgages or other securities: Guardian Life Insurance Company of America (mortgagee), 201 Park Ave. South, New York, NY 10003
9. Extent and nature of circulation:
A. Total number of copies printed (net press run)
Average* 109 229 August** 114 438
B. Paid circulation:
1. Sales through dealers and carriers, street vendors and counter sales
Average* none August** none
2. Mail subscriptions
Average* 103 650 August** 108 274
C. Total paid circulation
Average* 103 650 August** 108 274
D. Free distribution by mail, carrier or other means, samples, complimentary and other free copies
Average* 2 431 August** 1 830
E. Total distribution (sum of C and D)
Average* 106 081 August** 110 104
F. Copies not distributed:
1. Office use, left over, unaccounted, spoiled after printing
Average* 3 148 August** 4 334
2. Returns from news agents
Average* none August** none
G. Total (Sum of E, F1 and 2—should equal press run shown in A)
Average* 109 229 August** 114 438

* Average number of copies of each issue during preceding 12 months

** Actual number of copies of single issue published nearest to filing date

I certify that the statements made by me above are correct and complete

G. F. Gilbert, Treasurer