

HOUSE SUBCOMMITTEE ON PUBLIC HEALTH AND ENVIRONMENT

STATEMENT OF JOSHUA LEDERBERG, PH.D., REGARDING THE  
NATIONAL HEALTH RESEARCH FELLOWSHIP AND TRAINEESHIP ACT OF 1973

H.R. 5640

Presented by

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Joshua Lederberg, Ph.D., Chairman, Department of Genetics, Stanford University School of Medicine, and recipient of the Nobel Prize for physiology and medicine for research in genetics of bacteria in 1958.

I am grateful for the opportunity to record my strong support for Mr. Rogers' Bill, the National Health Research Fellowship and Traineeship Act of 1973. At the conclusion of my remarks I have some technical drafting suggestions which should not be taken as any blunting of that support.

In principle, one could accept the potential merits of any number of alternative methods of financing graduate education. My point of departure is one of great confidence in the free market as a method of efficient allocation of resources. Perhaps we should be considering some gradual steps to enhance free market mechanisms in this field. However, I must emphasize that only disaster will follow from efforts to revolutionize the system by a fiat which takes no account of the other governmental stresses on the market nor of the social needs that underlie them; and which imposes the implementation of a sudden, capricious shift to a new system. Yet, this is precisely the implication of the administration's sudden revocation of the NIH training grants--an executive fiat applied in sweeping fashion to the entire system, without discrimination or regard for the special circumstances of some of its parts. Thus, the allegation that many trainees actually pur-

sued careers in medical practice specialties of higher earning potential is put forward as an argument to abolish research training support in basic sciences like biochemistry and genetics!

At the same time we are told there will be a new emphasis on health research having well-defined missions like the conquest of cancer and of heart disease--missions which simply cannot be accomplished without a continuous flow of new, young ideas from basic investigators. (This is not the place to discuss in more detail the futile strategy of deploying most of one's resources in attacking a problem like cancer in a narrowly goal-directed fashion, at a time when we have only a glimmer of the basic scientific insight required for such a formidable task.)

I could resonate with the steps intended to improve the quality of scientific training and performance if this in some way were in competition with the overall extent of training support. In fact, quality is now generally very high in many areas and is improving rapidly in specialty areas like obstetrics, ophthalmology, urology and anesthesia--a trend that has been frustrated by the program termination. Candidly one must admit that graduates of some of these programs have often strayed away from research, testimony to the power of the marketplace and to the difficulties of mounting innovative research in some traditional areas. The contingent obligations in the present bill if applied to such programs also would redress the possibility of exploitative diversion of

research training funds and help ensure that they achieved their intended purpose.

In fact, it is self-evident that the marketplace has not done very well to equilibrate the supply and demand for specialties like radiology and pathology, judging from the price (income level) that the market has placed on their services. More, rather than fewer, specialty training programs in such high demand areas are needed to readjust that balance. The government can properly and effectively intervene just in this way, by further subsidies, if it wishes to avoid the brunt of market valuations for such services in government sponsored or insured health service programs. But the clinical specialties are a very different matter from basic science.

If I place such an emphasis on market allocation, it is in direct response to the administration's assertions that this is the mechanism that should govern career choice and investment in graduate education!

I can visualize an economic system that followed such Friedmanian prescriptions, though I doubt that any economists would pursue them to their logical conclusion in this particular field. For one thing, to do so would overturn our moral sense, evolved over centuries, about the limits to which one demands all the traffic will bear when life and limb are at stake. We can fantasize a system in which a Sabin-Salk Corporation would sell a polio vaccine at \$100 per shot, and recover the Research and Development costs by benefiting only the more affluent sector of the public. Penicillin

doses at \$10,000 per treatment would have been a bargain in a manifest confrontation with life-threatening septic disease. But the basic scientist would have to be incorporated into the reward structure also, for his basic studies on growing viruses in cell culture were a necessary prerequisite to the vaccines. And the pyramid would extend much further, of course.

In fact, the structure would never be built; if it did, it would collapse under the weight of bargaining over every intellectual transaction. At present, all new basic scientific knowledge is quickly added to the common pool, available for free access and prompt elaboration. Contention among scientists for recognition of priority adds to the incentive for rapid publication. It does little damage and /some good by reminding us of our human frailties. For a market-based system we would either face costly walls and edifices of trade secrets, or have to augment the patent system to recognize a new marketable property right in scientific discovery and basic knowledge. As justified as this may be for inventions whose exploitation typically requires large capital investments towards a previsible target, such property rights in facts and ideas, the substance of discovery would create such difficulties in communication that I hardly need elaborate any further. Long ago, the most doctrinaire ideologues of capitalism recognized the need to socialize knowledge and to put limits on property rights that bear on life and health. If there are still arguments for a free market in the latter arena, which I would by no means advocate, except as intellectual exercises to illuminate the policies we do choose,

they have been joined in no way to the administration's actions in terminating the subsidy of graduate education. The Ph.D. who has invested in his own education is still expected to submit to confiscation, to subsidize the social pool of knowledge by freely entering all of his discoveries without specific reimbursement. And without private or corporate property rights in that knowledge, his later salary can only dimly reflect the social value of his contributions!

Even if you believed a scientist's education was worth your venture capital, you would face further deterrents. We frown upon long-term indentures that might assure the investor of gaining a return: bond service is a relic of another century. (This impairment of the right to contract one's life services, the free enterprise doctrinaire will say, unfairly raises the cost of venture capital to the investee!) Any practical system of enforced repayment--and I apply this remark also to the present bill--has to be related to later income and for efficiency to the system of collection of income tax.

And reference to taxes reminds us finally that the IRS simply does not accept the expense of graduate education as a capital investment--not even tuition paid, much less the costs of subsistence and of lost income from employment, during the training period.

Also ignored are the consequences of sudden change. The administration knows that faculty reward structures include tenure, in direct compensation for giving up other economic

advantages in industry. To break the tenure system now would be a retroactive confiscation; institutions that in good faith, and in a socially encouraged pursuit of their own ideals, have enlarged their teaching faculty over the years, are now smitten simultaneously with the abrogation of training funds and with the shrinkage of research support. These weighty steps deserve the most thoughtful exploration in legislative hearings to determine if they are, in fact, consistent with sound and properly determined national policy.

Even if the policy direction were less faulty than it is, the pace of its implementation should have attended such issues as:

1. The impact of abrupt cut-offs on aspiring students who have already invested a great deal in their undergraduate training plans.

2. The actual establishment of alternative patterns of educational financing and revision of tax laws.

3. Responsibilities to non-profit, educational institutions which have undertaken long-term contractual obligations to their faculty--in lieu of a higher salary structure--  
and which, <sup>unlike profit-making firms</sup> have no earnings with which to secure capital resources.

4. The time required to solicit private philanthropy which has been displaced by immensely larger public investments in training and research. The equivalent of years of accumulated endowments is now lost to scholarship funds, over an interval in which the demand has grown enormously.

But from both a short-term and long-range standpoint, federal responsibility for basic research training is a logical corollary of what government and the people expect from those graduates. That expectation is a crucial necessity if we are to sustain progress in health as in other technologies where we may soon lose world leadership.

Finally, "health progress" is not just a progressive decrease in sickness and mortality. As the world grows more crowded, more complex, more polluted, and more babies have been saved from early deaths, just keeping up to our present standards will take ever increasing efforts.

TECHNICAL COMMENTS:

434. (b). The three-year limit is not realistic, especially for the most intricate sciences. It would be better to allow the Secretary to establish limits, or to extend them, at least, to three years predoctoral plus the possibility of two years postdoctoral, and occasional special years thereafter under well controlled programs. Three years at one institution would be an acceptable, but not uniformly advantageous limitation.

(2) (1) Clearer to specify two months for each month of support. This is the effect of (c) (3) anyhow.

(2) (2), last line. The draftsman undoubtedly intended "teaching" for "training". However, individuals still in training status should be allowed to defer repayment.

(2) (3) (A). "amount of assistance" should be defined, preferably to include direct payments, plus one-half of tuition and similar benefits paid on the individual's behalf. (To blunt the contrast between state and private institutions.)

It should not include a share of supporting program grants to the institutions which would be difficult to calculate.

Steps to relate rate of repayment obligation to income should be spelled out here, as a directive to the Secretary.