Distribution of American Research Funds

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EQUITY AND WISDOM IN THE DISTRIBUTION of Federal research funds seem of paramount importance in the years ahead. That such funds should and will be made available in large amounts seems now to be widely accepted. The drying up of private bequests has left no alternative. If our universities and research institutions are to continue fostering the American investigative spirit which has been so largely responsible for our past achievements, new sources of financial support must be found. Since the welfare of the whole country is directly concerned, it seems most appropriate that such aid be derived from Federal funds.

There exists no evidence that native intelligence is better in one part of the United States than in another. Opportunities for the blossoming of exceptional ability do vary sharply from region to region, however—a variation which is correlated closely with the availability of institutions of higher learning. This is particularly true of the development of young scientists; there is no way in which promising individuals can be discovered except by bringing them into close contact with science subjects. Encouragement of research in America must thus mean the greatest possible broadening of the base of student exposure, as well as the broadest possible support of promising individuals once they have been found.

In order that future funds may be distributed to the best advantage of the country as a whole, I have sought information from past distributional techniques in the field of medical research, with which I have been most closely in contact during the past 30 years. My findings bring out very disturbing inequalities in the granting of such funds—inequalities so pernicious in end results as to indicate the need for an entirely new basis of action with the large Federal outlays in future years.

Physicians, and particularly medical scientists, have usually been credited with an altruism second only to that of the clergy. Almost all medical research funds available for distribution were, therefore, dealt out only on the advice of committees of these men. Today we must admit that too many such individuals seem incapable of acting without harmful bias, that institutional representation on such committees too often means top recipient rating for funds to be distributed. This is by no means an idle accusation; it is borne out only too well by the facts which follow.

Medical Research Funds Studied: Methods

Because of the long-term dominance exerted over medical research by the older institutions of the eastern seaboard (Harvard, Yale, Johns Hopkins, Columbia, Pennsylvania), the following northeastern states have been set off in a group by themselves: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Maryland, Delaware, and the District of Columbia. Although this small corner of the United States contains less than 30% of the country's total population, it gets 50–80% of all research funds.

Sources of funds for medical research, the geographical distribution of which could be ascertained, included: American Cancer Society, International Cancer Research Foundation, Commonwealth Fund, Life Insurance Medical Research Fund, Josiah Macy, Jr. Foundation, John and Mary R. Markle Foundation, National Foundation for Infantile Paralysis, National Research Council, Ella Sachs Plotz Foundation, Rockefeller Foundation, and U. S. Public Health Service.

American Cancer Society. Of the $14,138,897 raised by this Society during 1945 and 1946 by public subscription all over the country, only 39.5% was contributed by the northeastern states listed above; but in the distribution of these funds for research purposes up to February of 1947, this same northeastern section received *66.7%* of the total. The remainder of the country, which contained over 70% of the total population and contributed 60.5% of the funds, received only *33.3%* of the research money distributed. Of the research fellowships supported by these funds during this period, *34* were for work at institutions in the northeastern section and *only 14* for work in the remainder of the country.

Let us glance now at the membership of the Committee on Growth of the National Research Council, which handled the allocation of these research grants and fellowships. Before July 1, 1946, *10* of its members held posts in institutions of the northeastern section and *only 2* elsewhere; since July 1, 1946, the proportions have been *16* and *3*. Similar disproportion exists in its associated Research Panels set up for channeling requests for funds: *53* from the Northeast against *24* from other parts of the country up to July 1, 1946, and since then, *68* against *36*. *Four* northeastern institutions with representation on the

Committee (Harvard, Johns Hopkins, Yale, and Columbia) received *29% of the total distribution* and 21% of the research fellows, while the best any top four institutions not so represented could do was only 11% and 10%, respectively. *Over half of all research allocations* and 63% of the research fellows went to institutions represented on the Committee on Growth (with its present 19 members).

National Research Council (1941–42 Annual Report). Membership on the Council in 1941–42 included *174* from the northeastern section and only *44* from the remainder of the United States! Its Medical Fellowship Board in 1944 had 11 members from the Northeast and 10 otherwise, while its Fellowship Board in the Biological Sciences had 32 and 23, respectively, and the Board in Physics, Chemistry, and Mathematics, 23 and 13.

In the NRC summary of activities from 1919 through 1944, we find that 276 Medical Fellowships were granted to U. S. workers—146 to men located in the small northeastern section and 130 to persons from the remainder of the country. Places chosen for the work of these Fellows, however, were even more disproportionate: 190 in the Northeast and only 90 elsewhere. (The discrepancy between 276 fellowships and 280 places of work is due to the fact that some men worked in more than one institution and to an imbalance between foreign students coming into this country and U.S.A. workers going abroad.) The net result of NRC activities from 1919 to 1944 was the awarding to 70% of the country's population of only 47% of the Medical Fellowships by place of origin and only 32% by place of work. Choice of place of work was usually left to the fellowship recipient. However, it is not surprising that so many of those from the "provinces" chose to work in the northeastern area when their home states fare so poorly in the distribution of working funds.

The northeastern Big Four (Harvard, Yale, Columbia, and Johns Hopkins), with heavy representation on the Medical Fellowship Board, were awarded 53% of all Medical Fellows (75% of all who chose to work in the northeastern area). The top midwestern four with heaviest Board representation received only 16% of the U. S. total, but this represented 49% of all workers not locating in the northeastern area. Harvard alone got 26% of the total number of fellowship workers and 49% of all locating in the northeastern area.

Rockefeller Foundation. In its appropriations of 1944, 1945, and 1946 for the support of medical teaching and research and for research in experimental biology, the Foundation awarded 77% of the U. S. total to teaching and research institutions in the northeastern area.

John and Mary R. Markle Foundation. Of the payments made in 1944, 1945, and 1946 for medical research grants in the United States, 58% were to institutions in the northeastern areas, 42% elsewhere.

Commonwealth Fund. Over the 5-year period, 1942–46, this Fund granted 74% of its U. S. medical research funds to institutions in the northeastern area and only 26% elsewhere.

International Cancer Research Foundation. The *Report of Activities* for 1943 indicates that 18 grants (69% of U. S. total) were made to workers in the northeastern area and 8 (31%) to workers elsewhere in the country. Of the 24 U. S. members of the Advisory Trustees, 22 (92%) are located in the northeastern area and 2 (8%) elsewhere.

Josiah Macy, Jr. Foundation. Of the grants for medical research in the United States during the 5-year period, 1937–41, 81% went to the northeastern area and only 19% elsewhere.

Ella Sachs Plotz Foundation. During the 5 years 1941, 1942, 1944, 1945, 1946, 48 grants (54%) were made to northeastern institutions or workers and 41 (46%) elsewhere in the United States.

Life Insurance Medical Research Fund. This recent addition to the medical research funds has a Medical Advisory Committee of 8 members, 5 located in the northeastern area and 3 elsewhere. Two committee members are from Harvard, 2 from Yale, and 1 each from Columbia, Vanderbilt, Minnesota, and Southern California Universities. Harvard received 16.5% of the funds distributed; Yale, 9.4%; and Columbia, 7.0%—*a total of 33%* thus going to these three institutions with top rating as recipients. Five institutions in the Northeast received a total of 43% of all funds distributed, while only 20% went to the luckiest 5 elsewhere. The Northeast received 51.3% of all funds, 48.7% going to the remainder of the country.

Similar inequality occurred in the distribution of Fellowships granted by this Fund. Sixteen Fellowships were granted to workers in the northeastern area, 22 to men elsewhere; but 22 spent their year working in northeastern institutions and only 16 in institutions elsewhere in the country—a net loss of 6 out of 22 young scientists from the West. Harvard received 16% of the Fellows for their year's work; Yale, 11%; and Columbia, 5%—a total of 32% of all Fellows thus going to work in these three institutions.

National Foundation for Infantile Paralysis. Annual nationwide money-raising campaigns provide funds for distribution by this Foundation, and, for once, less than half of the funds (48.7%) went to the northeastern area with its 29.7% of the total U. S. population. In 1946 its General Advisory Committee

consisted of 6 members from institutions in the northeastern area and 7 from institutions elsewhere in the United States; the "Committee on Virus Research," 3 and 5, respectively; and the "Committee on Research for Prevention and Treatment of Aftereffects," 4 and 13, respectively. Taking all the Foundation's advisory committees for the whole 9-year period (1938–47), there were 21 members from the northeastern area and 28 from the remainder of the country. This represents the most equitable geographic distribution of membership thus far encountered in committees dictating the disbursement of research funds.

With this more equitable distribution of committee membership, however, there still remained the very strong tendency for research grants to go to institutions with committee representation. From 1938 to 1947 there were 18 universities, 5 hospitals without medical school affiliation, 4 public health agencies, and 1 research institute represented on the Foundation's advisory committees, and in every one of these years the lion's share of disbursements went to the home institutions of these committee members (over 90% in the year 1941–42). During the 9 years, *75% of all research funds* went to institutions with committee representation, leaving only the morsel of 25% for all other research institutions in the country. As usual, Harvard, Yale, and Johns Hopkins were well to the top of the recipient list, being 3 of the top 5. The Universities of Michigan and Minnesota, both with committee representation, were the other two lucky recipients among the top 5. *Twelve of the country's institutions received 77% of all research funds distributed during this 9-year period. Eight universities with committee representation took for themselves 67% of all research funds distributed.*

Several committee members took nothing for their home institutions and two, only small single grants. One fair-sized grant (and only one) was made to an institution during the only year it had committee representation. The author's own university was doing quite well each year until it lost its committee representation by death.

U. S. Public Health Service. The Service's report of roughly $2,000,000 in grants approved March 26, 1946, revealed fairly equitable geographical distribution of funds—only 38% to the northeastern area with 30% of the population. Membership on the National Advisory Health Council, which recommends the distribution of these funds, is composed of 14 members: 4 from the USPHS, 2 each from Harvard, Columbia, and the University of Illinois, and 1 each from the Universities of Wisconsin, Michigan, California, and Tulane University in New Orleans.

Here again, however, the evils of committee representation show up clearly. Seven institutions with committee representation were among the 13 highest on the recipient list, these 13 receiving 47% of all research funds distributed. The 6 highest on the list received 31% of the total. The 2 northeastern institutions with committee representation received 23% of all funds allocated to that section, while 22% of funds allocated to the remainder of the country went to the other 5 represented on the Committee. Harvard, Columbia, and Johns Hopkins were, as usual, among the country's top 6 recipients.

Discussion

"For unto everyone that hath shall be given and he shall have abundance; but from him that hath not shall be taken away even that which he hath."

Present evidence points clearly to the dominant role membership on disbursing committees plays in the acquisition of research funds. From high places to low this devastating tendency holds sway. Even with the author's local section of the American Cancer Society, the first thousands of dollars locally collected for cancer research were taken by committee members: requests from researchers not on the committee would be cared for later if sufficient funds became available.

The obvious weakness of present distributional methods is that individual investigators are often the most biased in their appraisal of research proposals. Surely the projects they are working on seem most important to them; if not, they would not be so engaged. This weakness is of such basic significance today that it would almost seem imperative for disbursing committees to be prohibited from recommending grants to the institutions with committee representation. It seems clear that our top scientists are no more able to provide equitable distribution of funds at their disposal than are the politicians they have so castigated.

The author is well aware of the justification usually given for present distributional inequality—the larger research institutions receiving the lion's share of funds are best equipped for the prosecution of research. Such justification was very appropriate with the emergency needs for quick results during the war years. In peacetime, however, the basic need is not for quick results but rather for the broadest possible distribution of research opportunity to the country's whole population, especially where governmental funds or those collected from the whole country by popular subscription are concerned. There can be little real justification, for instance, for the New England and North Atlantic states with 30% of the country's population and contributing 39.5% of the cancer funds collected, receiving 66.7% of the research funds disbursed (by a committee on which they have a disproportionately large representation).

Most large funds have been contributed, directly or indirectly, by the country at large, even though their distribution as grants from New York City assumes a distinct appearance of largess when minor sums go west of the Alleghenies. For Washington, D. C., to follow a similar course with purely public funds—in amounts which will soon dwarf into insignificance previous distributions for research—would mean a tragedy of major proportions to the scientific development of the country as a whole. Until the proper technique for assuring unbiased distribution of such funds has been devised, the President seems justified in withholding his approval of any science-support program. Any state's use of its proper share of public funds for research should not be subject to dictation from eastern-dominated committees, else those of its residents who benefit will all too often be those with eastern friendships or connections.

The time has arrived when the West should shake off the stunting dominance of the northeastern seaboard in scientific matters, insisting on autonomy and a just share of public funds for its scientific development. So long as the rich eastern institutions secure the major part of funds disbursed, western institutions will perforce remain relatively pauperized and their most promising young scientists drift eastward, where working facilities are more propitious.

Corrective measures, however, must go beyond restoring a proper balance between East and West. The present tendency to benefit representation on disbursing committees must be broken. Scientists themselves have demonstrated a most unfortunate inability to act without bias in overseeing the distribution of funds in their own fields. No one believes that the politicians would themselves do any better, but theirs is the duty of so legislating that the proper end will be accomplished where public funds are concerned.

In the long run, the greatest good to the greatest number would probably be served by securing the distribution of Federal research funds—or those collected by public subscription—on a state-population basis. Perhaps the less wealthy states should even receive an added bonus to stimulate development, instead of being almost completely cut off as at present. Distribution within the state would present the next problem, for state committeemen would still be inclined to favor the institutions they know best—their own.

Obviously, distribution within a state must also be automatically determined. Whether it should be to educational institutions on the basis of numbers of science students enrolled or of numbers graduating with a science major is a matter for careful consideration and thorough discussion. At any rate, it seems imperative that the distributional mechanism be set up to be automatic down to the individual recipient institution. Even within each institution, the evils of committee membership should be guarded against, perhaps by prohibiting grants to a committee member's department in excess of the general department average in the college concerned, this provision to be broken only on unanimous approval by the whole committee. Whether the needed control within a state can be accomplished by Congressional action is another matter.