

Howard Hughes Medical Institute: In the Reclusive Tradition

The late Howard Hughes once had a dream of creating an enclave for medical research patterned after the illustrious Rockefeller Institute (now Rockefeller University). It was to be a place where scientists could pursue the cure of disease in a fertile intellectual environment, free from the cares of the workaday world. It was in the late 1940's and early 1950's that Hughes talked about his desire to create an archtypical ivory tower, back in the days before he adopted the life of an eccentric recluse. The institute was to have been situated on an island in Florida (where he also hoped to establish a plant to build jet engines for his TWA planes), and Hughes intended to recruit some researcher of national reputation to head it.

But that dream never materialized. Instead, Hughes settled for an institute whose basic program is to support bright investigators at a handful of the country's best medical schools. In 1953, he founded the Howard Hughes Medical Institute, which, today, has its headquarters not on a private island but on a couple of floors of a nondescript "medical arts" building at 1550 NW 10 Avenue in Miami, across the street from the University of Miami. Persons who have been allowed in report that there are a few laboratories at Institute headquarters, but it is hardly a thriving research center. The Institute is headquartered in a Miami office building but, it is said that its real walls are the Atlantic and Pacific oceans.

At present, the Hughes Institute supports the work of approximately 60 young scientists at 12 specially selected universities,* but just how those institutions were chosen, no one will say. The Institute has long operated with the obsessive concern for secrecy that characterized the latter years of Hughes' life. Even now, after 23 years of existence, very few persons, including those within the medical establishment, know very much about how it works. And, it seems

that Hughes has managed to reach out from the grave to try to keep people from revealing even the most ordinary things about himself and his institutions. Virtually everyone *Science* interviewed for this article, whether directly connected with the Institute or not, asked for anonymity. "Please don't tell a soul I talked to you," was said again and again, by grown men. The Institute's director could not be reached to confirm or deny what was said.

There is no such thing as a descriptive "This is the Howard Hughes Medical Institute" brochure, and there is no point in anyone's just sending in an application for support. One probably could not get an application if one tried because, as a medical dean noted, "You don't ask to become a Howard Hughes investigator. You have to wait to be anointed."

Research and the Tax Collector

The Hughes Institute seems to operate with one eye on good research and one eye on the Internal Revenue Service (IRS), which has to decide just what kind of organization the Institute is for tax purposes. There is little doubt that the "anointed" Hughes investigators are among the best young researchers around, hand-picked as they are by a medical advisory board of men with impeccable scientific credentials. But the way the Institute works appears to be designed so as to keep as much Hughes money as possible out of the hands of the tax collectors.

In papers on file with the IRS, the Institute is described as existing for the "primary purpose of promoting knowledge within the field of the basic sciences and its effective application for the benefit of mankind." (Hughes is reputed to have said he meant to exclude cancer research.) And it is natural to assume that any organization bearing the Hughes name is playing in the big leagues. However, in terms of research support, the Institute thus far has been strictly a minor league player, apparently spending no more than \$2 to \$3 million a year on its "primary purpose." But that could change now.

The Howard Hughes Medical Institute gets its money in the form of dividends

from the Hughes Aircraft Corporation, which it owns, lock, stock (all 75,000 shares), and barrel. During the past decade, Hughes Aircraft has done well over \$5 billion worth of business in government contracts, but in that time, as far as can be discovered, the Institute has had less than \$20 million to spend on research, with the rest of the aircraft company profits going back into the Hughes empire in one way or another.

But now that Hughes is dead, it is conceivable that a fair chunk of his fortune, estimated at \$1.5 billion, will eventually find its way to the Institute and to medical research. Should the Institute inherit all, or even a major share, of Hughes' giant holding company, the Summa Corporation, it could become what one observer had called "the only significant private money in this game," second only to the National Institutes of Health (NIH). (The huge Robert Wood Johnson Foundation's funds are directed more toward the improvement of medical care than research.)

There is reason to believe that once the 18 or more "Hughes wills" are sorted out and his estate is finally settled, the Institute will get some Summa money. But even if this does not happen, there remains a possibility that the IRS will force the Institute to begin spending more than token amounts of Hughes Aircraft money on research, so that in either case, science would still be a beneficiary of the mysterious recluse. The issue in the latter case lies all in a name. Is the Hughes Medical Institute a nonprivate operating research organization as it claims, or is it really a "private foundation?" Only the IRS can decide for sure, but for 6 years it has resolutely refused to do so. It will not say why. But it does not take much imagination to speculate that Hughes, whose vast government dealings included work for the Central Intelligence Agency, was in a position to persuade the IRS to treat him benignly while he lived.

In the late 1960's Congress became aware of a number of tax abuses on the part of so-called charitable organizations that were taking quite literally the adage that charity begins at home. Under the leadership of the late Wright Patman, who was chairman of the House Banking and Currency Committee, tax laws governing charities were rewritten for the express purpose of denying millionaires (and billionaires) the chance to escape taxes by setting up half-hearted charitable enterprises. Hughes was certainly among the Patman committee's targets.

The new (1969) tax code defines two classes of charitable organizations. It

*The 12 institutions that currently have Howard Hughes investigators are Duke, Harvard, Johns Hopkins, Stanford, Texas Medical Center (Houston), the University of California at San Francisco, the University of Miami, the University of Utah (Salt Lake), University of Washington (Seattle), Vanderbilt, Washington University, and Yale.

calls outfits like the Red Cross and the American Cancer Society, which get money directly from the public and provide some services to the public, "non-private," or "public" charities, and puts them in the same tax-free category as schools, churches, hospitals, and operating medical research organizations. The rest—organizations including the Ford, Rockefeller, and Robert Wood Johnson foundations—are classed as "private foundations," subject to strict requirements about the way they acquire and disperse money.

The new tax code (i) prohibits private foundations from owning more than 20, or in some cases, 35 percent of the stock of any company; (ii) requires them to invest or otherwise handle their assets in a way that will make money; and (iii) mandates that they spend for charitable purposes each year the equivalent of at least 6 percent of the value of their total assets. The Howard Hughes Medical Institute does none of these things, on the grounds that it is not a grant-giving private foundation at all, but an operating medical research organization, the important concept here being "operating."

One can imagine Hughes' horror of such a tax code. Were the IRS to rule that the Institute is a private foundation, it would have to spend more money each year than Hughes, its sole trustee, ever saw fit to spend. For instance, in tax filings for 1974, the Institute claims that the total assets of Hughes Aircraft come to only \$154 million, a figure no one really believes but which no one has disproved. Even if the aircraft company assets are that low, it takes only simple arithmetic to show that the Institute would have to spend \$9 million, not \$2 to \$3 million, a year on research. Furthermore, a "private foundation" ruling would mean that the Institute would have to change its pattern of investing, or whatever, its money. Figures show that in some years, the Institute has earned only about 2 percent on its assets. As one financier noted, it could do better than that by putting its money in an ordinary passbook savings account. But worst of all, if the Institute were declared a private foundation, some of the stock in Hughes Aircraft would have to be sold, and that was one thing Howard Hughes did not want to happen.

It is not yet certain that the IRS will finally get around to doing its job by ruling on the status of the Hughes Institute, but there are indications that the financial officers of the Institute are sufficiently worried that they are beginning to change the way in which they go about the business of supporting research, possibly to try

to clinch their "nonprivate" status.

Technically speaking, the Hughes Institute does not behave like a foundation. First it insists it does not give grants. Ask anybody involved about Hughes "fellows" and you immediately will be told that they are "investigators," not "fellows." As one person pointed out, "It may seem like a fine distinction, but it is important to the IRS." Howard Hughes investigators are considered *employees* of the Institute, even though they are on the faculties of Harvard or Yale or Duke or one of the other favored dozen. Their salaries are paid to them directly by the Institute (although their fringe benefits may be provided by the university), and every year they submit reports of their work to Institute headquarters from which, investigators say, the reports never emerge.

In tax papers, the Institute makes a point of saying that it engages in medical research "in conjunction with hospitals," an important technicality for tax purposes. In 1974, for instance, it told the IRS, "At Institute laboratories within the University of Miami (Florida) Medical Center, which includes Jackson Memorial Hospital and the National Children's Cardiac Hospital, Institute Investigators have engaged in research to determine why certain patients develop a profound anemia and very low white blood cell count when they are treated with commonly used antibiotics." There is no doubt that such research did, indeed, take place and that it was conducted by Hughes-supported investigators. But whether it is accurate to say that the Institute has laboratories within the university is not so clear. University officials have denied that there is any agreement—written or verbal—between them and the Institute that would justify such a claim. The same situation appears to apply to other universities that have faculty members who receive Hughes money.

The Hughes Institute pattern has been to select young, nontenured faculty members whose research is at least in part related to patient care, and to support them for periods of 3 to 6 years. They are chosen, or "anointed," by the members of the Institute's medical advisory board who, in turn, are chosen by the Institute's officers, presumably with the approval of Hughes himself, as the Institute's president and sole trustee.

The Institute's executive committee includes Frank W. Gay and Chester C. Davis, who were members of the Hughes' circle and still are officers of the Summa Corporation. The Institute's day-to-day affairs are handled by Ken-

neth E. Wright, the administrator and assistant treasurer. Wright began his career as a doorman at a hotel where Hughes once stayed, and he first worked for the Institute as its librarian. It was Wright who made the arrangement to have Hughes admitted to Houston's Methodist Hospital under the name of "J. T. Conover" on the day he died. As of 1974, Wright's salary was only \$36,155 a year.

Medical Board Has Some Autonomy

While Hughes and the members of his organization made decisions about the financial affairs of the Institute, the medical advisory board apparently has some autonomy in deciding who gets to become a Hughes investigator. The director of the medical board is George W. Thorn, professor emeritus at Harvard Medical School. For years, Thorn was chief of medicine at Harvard's Peter Bent Brigham Hospital and, it is said, in that capacity he once treated Hughes in a suite in a Boston hotel. But Thorn will neither confirm nor deny the story. In fact, Thorn, in fine Hughesian style, refused to come to the phone to discuss either his role as the Institute's first and only medical director (he was called to the position in 1956) or his own background as an endocrinologist. According to 1974 tax records, Thorn devotes 50 percent of his time to Institute duties, for which he is paid \$31,000 a year.

Other members of the medical board are: George Cahil, professor of medicine at Harvard; Victor A. McKusick, chairman of medicine at Johns Hopkins; Hans Neurath, professor (and former chairman) of biochemistry at the University of Washington; Charles R. Park, chairman of physiology at Vanderbilt; Lloyd H. Smith, Jr., chairman of medicine at the University of California, San Francisco; and James B. Wyngaarden, chairman of medicine at Duke. It would be hard to find a more "establishment" group. Each receives \$10,000 a year for his services, which include attending occasional board meetings and "supervising" the work of Hughes investigators at his own institution and one of the others that has no representative on the board.

For a long time Hughes investigators were concentrated along the East Coast, but in recent years the Institute's reach has broadened to include places such as the University of California, San Francisco, and Stanford Medical School (Smith, who is new to the advisory board, is the Hughes representative at these schools); and the word is that the University of California at Los Angeles

will soon be invited to join the Hughes club.

So, first the school is chosen. Then, the eligible departments. At some places, more departments are eligible than at others. Informally, deans or department chairmen are told how many candidates to submit, and internal screening committees are set up to decide which young researchers on the faculty seem best to fit the Hughes bill. "Some years, we know we can submit only one candidate. Other years, they let us know that a couple of slots may be available. It's all meant to seem very casual, but you know it isn't," said one of the persons who chooses Hughes candidates for his school. A candidate or two is chosen by the school and then applies for an investigatorship. When asked why they had applied to the Hughes Institute, most of the investigators *Science* queried replied, "Because my department chairman told me to."

The applications of the prescreened candidates are then examined in Miami by the medical board that makes the final cut, usually turning some applications down to show that there really is a selection process going on. Then, the winners are notified. Most of them find the whole business somewhat odd but don't pay

much attention to it. They say that they continue to do the research they had been doing and feel under no pressure to do anything in particular to satisfy "the boss," except to write those reports that stay buried in Miami. And being, for a time, an "employee" of the Hughes Institute apparently does not change much one way or the other as long as their relationship with their universities remains secure. Being a Hughes investigator is like having an NIH career-development award, only its different. It's not a "grant," or so they say.

Apparently the members of the executive committee of the Institute recognize that the distinction between an "investigator" and a "fellow" or "grantee" is a somewhat tenuous one when it comes to proving that they are running an operating research organization, because they have called for a new strategy. In addition to supporting young individuals, to the tune of \$30,000 to \$50,000 a year apiece, the Institute is planning to support what one man called "a senior investigator and all his show," meaning everyone in the laboratory right down to the bottle washers. In these cases, the Institute would be making commitments of several hundreds of thousands of dollars at a time. It is interested in "employing"

senior scientists working in genetics, immunology or endocrinology, and metabolism.

In these days of tight budgets and dwindling research funds, what medical school deans would like most is to have someone come along and say, "Hello. I'd like to foot the bill for your department of genetics." Sounds good. But what if, after a couple of years, the Hughes Institute changes its mind about supporting whole groups. Then, it's back to NIH, which may not be making any new awards, even to those whom it had supported for years. What then? Schools acknowledge their concern about the risk they see in taking Hughes money under these terms, but several have decided that it is an acceptable risk. Preparations are being made for the establishment of "Hughes laboratories" at Harvard, the University of California at San Francisco, Duke, Vanderbilt, Hopkins, and the University of Washington, among others.

The new pattern of Hughes funding is clearly tempting, if slightly discomfiting. What remains to be seen is whether the IRS will buy it as evidence that the Institute really is something other than a private foundation.

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Office of Technology Assessment: Bad Marks on Its First Report Cards

The Office of Technology Assessment (OTA), which was established in 1972 in an effort to boost the analytical capabilities of Congress, has come under criticism for alleged failures to perform up to expectations.

The first darts to be tossed at the agency were thrown by Harold Brown, president of Caltech and first chairman of the Technology Assessment Advisory Council, a group of 12 outside experts who meet periodically to offer advice to the board that runs OTA. In a letter of resignation submitted 10 December, shortly before completing his service as advisory chairman, but only recently made public, Brown lamented that "few of us on the Council, I believe, would say that we are satisfied with what has been accomplished, compared with what we hoped for and still believe possible."

This rather mild rebuke was followed by a more harshly worded critique published in June by the House Commission on Information and Facilities, a unit that was set up to study the various information services available to the House. In its first report—devoted to OTA—the commission concludes that "OTA remains substantially short of reaching levels of performance reasonably expected of an information resource of its size and cost and access to expertise." It attributes OTA's shortcomings to ambiguities in the law that established the agency, the inherent difficulties of performing technology assessments, and the "youth and inexperience" of the office.*

*The Office of Technology Assessment: A Study of Its Organizational Effectiveness, House Document No. 94-538, issued by the House Commission on Information and Facilities, Washington, D.C., 18 June 1976.

The criticism comes at a time when OTA has been functioning for little more than 2 years, so it must be read, not as a final judgment, but as advice offered to correct alleged weaknesses that have been discovered during the start-up process.

Some of OTA's difficulties stem from an unusual tripartite structure. At the top is the Technology Assessment Board, a bipartisan body of six senators and six representatives, currently chaired by Representative Olin E. Teague (D-Tex.), which sets policy and acts as an oversight body. Reporting directly to the board is the full-time director of OTA—currently Emilio Q. Daddario, a former congressman—who sits as a member of the board and acts as chief executive officer for the entire operation, including staff and outside consultants. The third major element in the structure is the advisory council, which reports to the congressional board.

In its brief existence, OTA has grown rapidly, reaching an appropriations level of \$6.05 million and employing the equivalent of 89 full-time personnel in fiscal year 1976, the current year. The agency conducts a variety of studies, some