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COVER A scanning electron micrograph of the shell of *Margarites sp.* recovered from the feces of *Asemichthys taylori*. The holes in the shell, produced by the vomerine teeth of the predator, allow digestive enzymes access to the body of the prey. The shell is approximately 2 micrometers in width. See page 92. [S. F. Norton, University of California, Santa Barbara, CA 93106, and T. Rice, Museum of Comparative Zoology, Harvard University, Cambridge, MA 02138]

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The Howard Hughes Medical Institute

The Howard Hughes Medical Institute was born rich and has become richer. Like a child with a silver spoon in its mouth, the Institute spoke haltingly in its infancy, but recently it has discarded the spoon and is starting to speak eloquently. Last week the Institute announced a program in which it would give \$30 million to 44 undergraduate institutions, 34 small liberal arts schools and 10 undergraduate black colleges. The program is both wise and timely and offers a constructive response to the chilling statistics on diminishing numbers of young people entering the sciences.

The burden of a large private philanthropic organization is enormous. It should provide innovative new programs because private organizations have a flexibility and freedom only infrequently available to consensus-driven public institutions. On the other hand it must avoid doing something different just to be different. The courage to be conventional and just do good is extremely important in a large foundation that must set standards of excellence.

The Hughes Institute gave money to good people at good institutions right from the beginning. Although that cautious approach was wise for a fledgling organization that did not wish to build up a large bureaucracy, it could hardly be described as innovative. Moreover, some of these early policies seemed to promote a musical chairs switching phenomenon and to drain scientists away from teaching.

Recently the Hughes Institute began to alter its policies, recognizing a key feature of education in the United States—the mutual benefit derived from professors being stimulated by bright young undergraduates and students being inspired by contact with the people who are actually working at the frontiers. Although the main emphasis is on medical research, this mandate is being interpreted more broadly. Hughes supports projects that keep research scientists in contact with students, and its rules allow investigators to carry out all professorial duties except administration. Now the foundation has stepped forth to articulate a creative new project aimed at enticing young minds into scientific fields through enhancement of the scientific environment in undergraduate colleges.

An important source of research scientists is small liberal arts colleges, which outdo their larger rivals in percentage of students going on to graduate and medical schools. Yet these small schools are having increasing difficulty in attracting scientific faculty and in keeping them both in touch with students and in touch with science. The Hughes program, by providing the wherewithal, enables these colleges to maintain modern facilities that not only attract young faculty, but also allow undergraduate students to experience scientific research directly.

Among undergraduate black colleges the need is even more acute. Only 10 percent of the doctorates awarded to black students go to those in the physical and biological sciences. Headlines citing the paucity of black scientific faculty frequently omit mention of the very small pool from which black faculty members must be selected. If there is to be any change in minority representation, increasing the size of the pool is the first and most essential step. A college environment that has an attractive and dynamic science department provides encouragement for students to enter research fields.

The Hughes initiative for small institutions is complemented by a graduate fellowship program that Hughes hopes to expand to 300 students in the early 1990s. Hughes has used the machinery of the National Research Council to select fellows, thus avoiding the need to develop a large infrastructure within its own organization. This program is conventional but needed.

It is good to see this extraordinarily wealthy infant growing up as a disciplined benefactor rather than a spoiled brat. It has shown the boldness to be traditional by supporting first-rate researchers and tried and true fellowships. It is now showing some of the innovativeness that is a particular responsibility of a private foundation in a democracy. There are some who say that money cannot bring happiness. That is a hypothesis that a lot of people might volunteer to test. Certainly those who receive the largesse of the Hughes Institute can manage to go through the motions of simulating happiness and the larger research community cannot help but rejoice that this large and powerful organization is developing into a constructive and imaginative force for science.

—DANIEL E. KOSHLAND, JR.