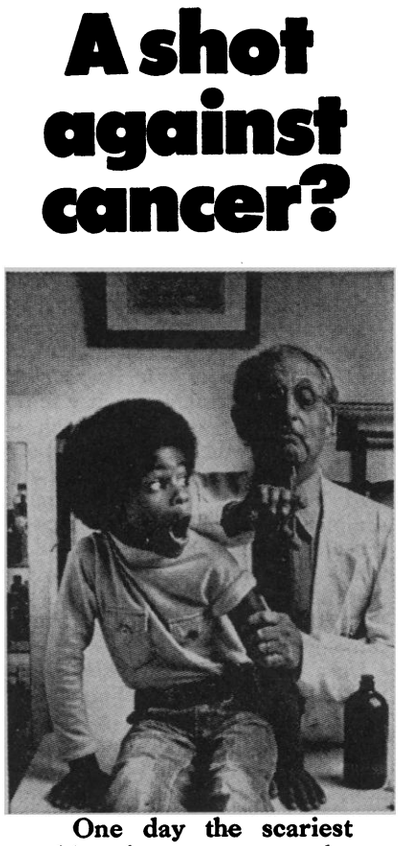
Briefing

Cancer Cure Promised

One of the more unfortunate things about the war against cancer is its implicit promise that cancer will one day be simply cured and that the more we spend the sooner that day will come. Over and over again, concerned scientists have warned against promising the public too much, and their listeners sagely nod agreement. But the alluring promise continues to be made, and in some cases there is nothing subtle or indirect about it.

The people who write ads for the American Cancer Society (ACS) have gone about as far as you can go in making the promise explicit.



The ACS has placed its fund-raising ad in dozens of magazines, including those aimed especially at women, in space contributed by the publishers as a "public service." The publishers may think they are serving the public; the ACS, in this case, is not.—B.J.C.

Cancer Claim Retracted

A year ago April, Albert Sabin called a press conference during the spring meeting of the National Academy of Sciences to announce triumphantly that he had all but conclusive proof that herpesviruses cause certain kinds of human cancer. It appears that Sabin's enthusiasm was premature, to say the least, because he cannot repeat the experiments that had been performed in collaboration with Giulio Tarro of the University of Naples in Italy.

Sabin himself forthrightly revealed his problems when he told a science writers' seminar last March that his efforts to repeat the work were not successful. Now, *Science* has learned that Sabin plans to make an official retraction in a paper to be published in the August issue of the *Proceedings of the National Academy of Sciences* (*PNAS*). Although Sabin refused to comment on the accuracy of this report, he did concede that he has a paper scheduled for publication in that issue of *PNAS* in which he reexamines the involvement of viruses in cancer etiology.

The Sabin-Tarro experiments depend on the production of a reagent containing antigens specific to the herpesviruses. With the reagent, Sabin and Tarro detected antibodies—considered proof of the virus presence—in blood serums of patients with advanced cases of nine different cancers, principally those of the mouth, throat, or urogenital regions. They did not find them in the serums of normal adults, patients with recurrent herpes infections, or in patients with a number of other cancers. Now, Sabin's problem is that he can no longer find the antigens and without them the rest of the work collapses.

In his quest to recover the antigens, Sabin, who has been working as a consultant to the National Cancer Institute, traveled to Tarro's laboratory in Italy earlier this summer where he again attempted to repeat the work without success. Tarro, however, apparently stands by his contribution to the collaboration, for his name will not appear on the retraction.

The history of the Sabin-Tarro collaboration is at least as complicated as the science (*Science*, 11 May 1973, p. 572). It began as early as 1965 when Tarro was a postdoctoral student in Sabin's laboratory at the University of Cincinnati. When Tarro returned to Naples in 1970, he continued the research begun in Cincinnati. By the fall of 1972, Sabin, impressed by the progress of his young colleague, invited Tarro to work in his NCI laboratory at Fort Detrick, Maryland. The experiments in question were done then.

Since attempts to nail down the association between herpesviruses and cancer have proceeded for a number of years in several laboratories, the Sabin retraction does not invalidate the accumulating evidence. Other investigators, using herpesvirus antigens to detect antibodies in cancer patients, say that their procedures differ from those of Sabin and that they are not experiencing difficulties. Nevertheless, one of the nails is falling out.—J.L.M.

Oceans Bills on Course for Passage

The first session of the Third United Nations Conference on the Law of the Sea just finished; but in the next 6 weeks, the Senate could pass two bills that would undermine the U.S. position at future sessions. One bill would extend U.S. coastal fishing rights from 12 to 200 miles offshore, the other would give the mining industry a green light to begin scooping manganese nodules off the sea floor before an international agreement to regulate seabed mining is concluded. Either could be voted on before Congress recesses in mid-October, provided that the Senate Foreign Relations Committee does not act first.

The fishing bill is the darling of the New England and Pacific coastal fishing industries that have been hard hit by competing foreign fleets. But the State Department has said that, if the bill passed, it could destroy the con-

sistency of the U.S. position at the Law of the Sea negotiations, that is, the position that other nations should have access to some fish stocks in the 200-mile zone. During the otherwise motionless negotiations at Caracas all summer, the only agreement reached was that some economic controls should be extended by coastal states to 200 miles. But vigorous disagreement remains as to whether such controls would include jurisdiction over fish. The Commerce Committee was not about to wait for future sessions to resolve these points, and it reported the bill out of committee. The bill is now with the foreign relations committee, which must act before September 18—or it will go on the calendar for a full Senate vote.

The ocean mining bill is a new incarnation of one drafted by the American Mining Congress about 4 years ago. It would protect the investments of such companies as Tenneco, Inc., and Kennecott Corp., both of which have plans to mine the seabed, and Summa Corp. (Howard Hughes's giant), which already is mining. No one knows who owns the minerals on the mid-ocean floor, and how they should be recovered is one of the most heated disputes at the Law of the Sea meeting. Like the fishing bill, the mining legislation is opposed by U.S. negotiators.

The Interior Committee reported the mining bill out of committee unanimously in July while most experts on the issue were in Caracas, and the bill is now in line to come to the Senate floor for a vote. The foreign relations committee could stop this, if they persuaded the Senate leadership that it should examine the legislation first. Pat Holt, chief of staff for the committee, says the committee is considering doing this.

But the issue is not just whether the committee will give U.S. negotiators a break by being fast on its feet in the next few weeks. The reports coming from the Caracas meeting, which closed on 29 August, are that it will take at least through the meeting in Geneva next spring, and through one in Caracas again next winter, to even draft a treaty. Once a treaty is drafted, ratification by the 148 nations will take years. Hence both the Senate and the State Department have to decide how they will deal with the affected industries in the meantime—D.S.

than fact and theory. They want to know the meaning of their existence, "not out of childish weakness of mind, but because we sense . . . that it is there, a truth that belongs to us and completes our condition." Roszak goes on to say:

> It is precisely at this point—where we turn to scientists for a clue to our destiny—that they have indeed a Promethean role to perform, as has every artist, sage and seer. If people license the scientist's unrestricted pursuit of knowledge as a good in its own right, it is because they hope to see the scientists yet discharge that role; they hope to find gnosis in the scientist's knowledge. To the extent that scientists refuse that role, to the extent that their conception of what science is prevents them from seeking to join knowledge to wisdom, they are confessing that science is not gnosis, but something far less. And to that extent they forfeit—deservedly—the trust and allegiance of their society.

Roszak's thesis is paralleled at some points by the contribution from Edward Shils, the University of Chicago sociologist, although the two arrive at completely divergent conclusions. Like Roszak, Shils traces the anti-science movement back to 19th century romantics who condemned science for tearing the veil of beauty from nature. As Roszak himself exemplifies, Shils believes that scientists have become the heirs of the need for certitude once reposed in priests, a burden that is not without danger to the bearer. The public has faith in scientists because it sees them as disinterested seekers after truth; should the disinterest ever appear as a guise for partisan ends, the believers could easily turn against science and scientists.

Shils does not think this is likely to happen, nor does he much fear the other possible dangers to science he examines. If the public ceased to believe in the link between science and material well-being, support for science would diminish. But the link is accepted because there is a mood to accept it. The "will to believe" in science is deep in our cultural heritage and "is not likely to be dislodged by a decade of bitter criticism by academic humanists and journalists." Such criticism, Shils believes, is a marginal phenomenon, espoused by fewer prominent intellectuals now than in the 19th century. The present irrationalist current "will not therefore ignite the mass of society, which, although disillusioned about much in today's society, does not seem to be disillusioned about the value of earthly gratification, social stability, and a relatively ordered existence. . . ."

For denying the ultimate seriousness of the contemporary challenge to science, Shils has an ally in political scientist Don K. Price of Harvard. There is no doubt, Price says, that politicians have lost faith in the automatic beneficence of technology—the political clout of the environmentalists is testimony to that. But how far have politicians really been influenced by the disillusion of the academic critics of science? Laymen and politicians are more likely to take notice of cracks in the collective morale of the scientific community than to be persuaded by "esoteric theories." Price doubts that practical public policy toward science is "for the time being very deeply affected by philosophic qualms."

The editor of the *Daedalus* issue is Gerald Holton, a physicist and science historian at Harvard, who complains that scientists are under attack from two opposite directions, one group of attackers wanting to expand the allowable limits of scientific rationality and the other to narrow it. Scientific discovery can be considered as a two part process—the intuitive inference whereby a hypothesis is created and the deductive process whereby it is established. Philosophers of science such as Karl Popper and his school consider the intuitive part of this process a matter of personal psychology of no interest to philosophy. On the other hand, critics such as Roszak and Charles Reich, author of *The Greening of America*, believe the intuitive leap—by convention ignored in the scientific literature—is the kind of mental process that should be emphasized.

Reich, Holton believes, carries dislike of objective procedures to the point of solipsism, while the Popperians, in turning their backs on the scientist's cry of *heureka*, are displacing the baby with the bath water. "Caught in between," he warns, "scientists, virtually without exception, pay no attention to either side, not even to defend themselves against grotesque distortions of what it is they really do."

Science so dominates the age, both as an explanatory system and as a determinant of material conditions, that it is the obvious, and maybe in part appropriate, target for those discontent with Western civilization in its present avatar. The purpose of the *Daedalus* issue is to understand and be prepared for such challenges.

—NICHOLAS WADE