

Ice ages freshen up the Black Sea

In spite of Johann Strauss, the Danube's not blue—it's green. And the Black Sea, into which it flows, is never black and sometimes not a sea. And all that's due to the beautiful green Danube. Or such is the most general piece of information resulting from deep drilling in the Black Sea by the research ship *Glomar Challenger* operating on leg 42B of the seven-year-old Deep Sea Drilling Project.

It all has to do with ice ages and the shallowness of the Bosphorus, the fabled and much disputed strait by which the Black Sea connects to the Mediterranean. The Bosphorus is only 150 feet deep. Comes an ice age, and a lot of water gets removed from the meteorological cycle and locked up in glaciers. Sea levels fall some 300 feet. Cut off from the world ocean, the salt water of the Black Sea is overwhelmed by fresh water from the Danube and the Russian rivers that drain into it and becomes a freshwater lake. The scientists studying the drill cores figure it will happen again in about 10,000 years when the next ice age hits.

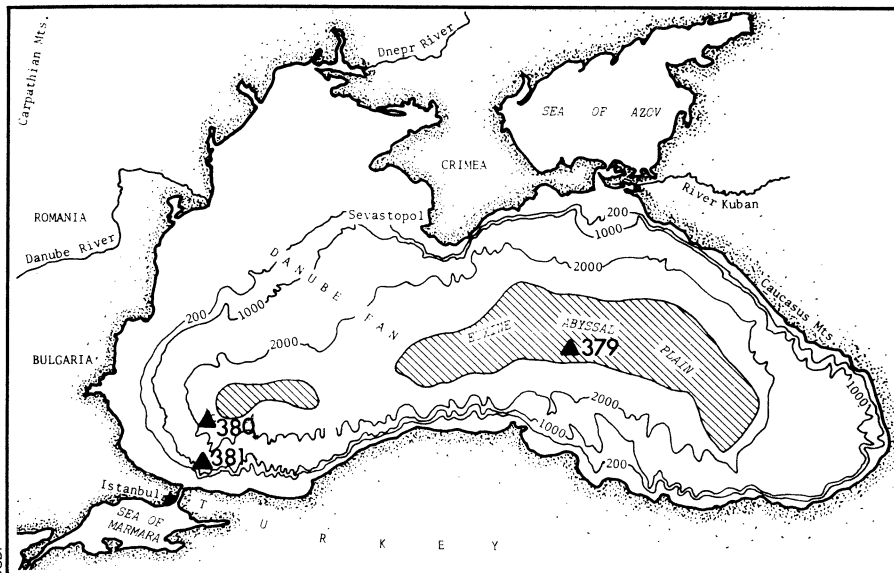
The sediments in the core alternate between lakelike and marinelike. The lakelike layers contain the pollen and spores of the sort of plants that should have grown around the Black Sea in glacial periods (low shrubs and grasses). The marine sediments contain pollen and spores of trees suitable to warmer periods. The alternations appear to correspond to three of the four recognized glacial periods. The fourth is still under study.

Another result of the shallowness of the Bosphorus is that oxygen-rich deep ocean water does not penetrate. The lower depths of the Black Sea are devoid of life, and organic detritus gets buried without decomposing. This is the sort of thing that happens where oil is formed, and study of these sediments may throw light on that process.

Co-chief scientists for leg 42B were David Ross of the Woods Hole Oceanographic Institution and Yuri Neprochnov of the P.P. Shirshov Institute of Oceanology in Moscow.

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The National Science Foundation and the Ocean Research Institute of the University of Tokyo last week signed an agreement calling for Japanese support of and participation in the upcoming International Phase of Ocean Drilling (IPOD) of the Deep Sea Drilling Project. The memorandum of understanding calls for a Japanese contribution of \$1 million a year in support of the project. Japan thus joins the Soviet Union and West Germany as partners with the United States in the international phase of ocean drilling of the project. During IPOD, scientists will drill



Challenger's drill sites in the Black Sea: From sea to lake to sea in 20,000 years.

holes deep into the basement rocks underlying the sediments of the sea floor in an attempt to determine their composition,

structure and geologic history (SN: 1/4/75, p. 9). The coring of sediments will also be continued. □

Cancer program: The good and bad news

After much legislative hustling and scientific fanfare, America's National Cancer Act became a reality on December 23, 1971. It set the stage for investing billions of Federal dollars in the search for the cause and cure of cancer and for bringing the latest cancer diagnoses and treatments to those people who need them (SN: 5/31/72, p. 309).

Earlier this year, Daniel S. Greenberg, science critic and publisher of the Washington-based newsletter *SCIENCE AND GOVERNMENT REPORT*, released a multimedia critical barrage against the program. Greenberg charges that the program is not extending the lives of cancer patients. On May 9, National Cancer Institute Director Frank J. Rauscher Jr. responded to this indictment. And now, in the July 17 *NEW ENGLAND JOURNAL OF MEDICINE*, three NCI statisticians—Sidney J. Cutler, Max H. Myers and Sylvan B. Green—do too. On the whole, their reply is the more dispassionate and credible of the two, primarily because the argument centers on cancer survival rate data published by the NCI.

Greenberg's indictment has appeared in *SCIENCE AND GOVERNMENT REPORT*, the *COLUMBIA JOURNALISM REVIEW*, the *Washington Post* and the *NEW ENGLAND JOURNAL OF MEDICINE* under several titles: "Cancer: Now the Bad News," "A Critical Look at Cancer Coverage" and "Progress in Cancer Research—Don't Say It Isn't So." He argues that although cancer survival rates did increase during the 1940's and early 1950's, little change has been observed during the past 20 years, a period marked by a rapid growth in expenditures on cancer research and

cancer control. He thus concludes that the current war on cancer, under the National Cancer Program, "is going badly."

The major flaw in this assault, Cutler, Myers and Green contend, is that it is based on cancer survival rate statistics that go only through 1970—data published in the NCI's *End Results in Cancer* (Report No. 4). Cancer survival rate data, they say, is now available through 1972 as well, and on the basis of both that and the statistics that Greenberg used, they conclude that "the picture is neither as dull nor as bright as some have claimed."

The improvement in patient survival observed during the 1940's and 1950's, they concede, has generally slowed since then. They point out, however, that continuing improvement in survival rates did occur during the 1960's and is continuing into the 1970's for a substantial segment of cancers. "In fact," they assert, "prognosis for more than half of all patients with cancer is better now than it was 10 years ago. The recent upward trend is less dramatic, but is nonetheless real and consequential."

Even if Greenberg were correct about cancer survival rates not increasing during the 1960's, Rauscher believes it is a quantum leap to conclude that the present National Cancer Program is a failure. He pointed out in his special written communication of May 9: "While Mr. Greenberg is correct in stating that survival from major forms of cancer did not improve dramatically between 1964 and 1969, obviously this cannot be used to evaluate a program which became operational eight years later. . . . The fact is that increased funding for the National Cancer Program