

nothing in return—an unreasonable expectation.” Pinching off the supply of drugs, he says, is just as useless. Users, he explains, will simply find other substances to trigger their highs, just as marijuana smokers will resort to nutmeg when they are confined to prisons. Many spices and native plants can be used for this purpose and, in general, says Weil, “the substance people use when they are cut off from their usual drugs are more toxic than the ones they normally use. Our problems are people problems, not drug problems.”

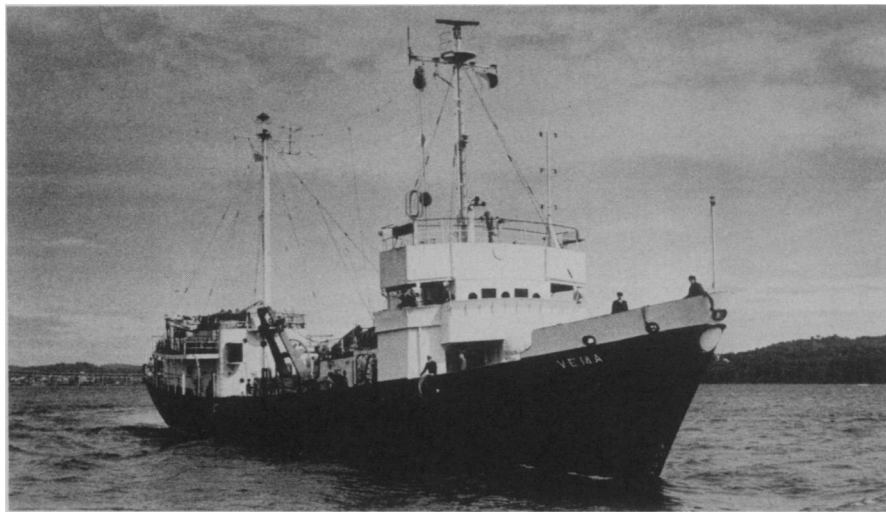
Marvin E. Perkins of the Westchester Community Mental Health Board in White Plains, N.Y., agrees. Methadone has presented new opportunities, he says, but its cheap, simple delivery system places emphasis on the drug and deemphasizes the longer-term psychological and rehabilitation factors. In an editorial following the *AJP* section on methadone, Perkins concludes that attention must be paid to a delivery system that provides for social and vocational rehabilitation. Without this, he says, “the patient is being asked to exchange the thrill of heroin for the thrall of methadone.” □

The voyage of the *Vema*: A view of the past

After two and a half years at sea, Columbia University's research ship *Vema* has returned to port. It was the *Vema*'s longest cruise—the 202-foot schooner circled the globe, traversing 125,000 miles of ocean—and, according to Manik Talwani, acting director of Columbia's Lamont-Doherty Geological Observatory, it was also her most fruitful.

Perhaps the cruise's most significant accomplishment was an extension of scientists' knowledge of the magnetic history of the earth. The record of reversals of the earth's magnetic field entombed in ocean floor rocks is widely used as a time scale for dating past events, such as changes in the rate or direction of sea-floor spreading. Before the *Vema*'s voyage, large sections of the period between 80 million and 180 million years ago were unknown, though some researchers have been able to fill in some of the pieces (SN: 11/27/71, p. 358). *Vema* scientists took magnetic measurements along the Pacific equator and have obtained a comprehensive record of the earth's magnetic history back to 160 million years ago.

Vema scientists also for the first time found evidence of continental slivers off the coasts of Norway and South Africa. Both are about 60 miles wide and 450 miles long. The *Vema* scientists believe these slivers probably broke off from the main continents during the early stages of opening of the oceans



Columbia Univ.

Columbia's Vema: Patterns of magnetic reversals, slivers of continental crust.

and then subsided thousands of feet below sea level. The Norwegian sliver seems to have broken away at least 200 million years ago, the South African about 110 million years ago. The sliver near Norway is now covered by thousands of feet of sediment, and forms a basin that may be a continuation of the North Sea basin. The scientists used seismic refraction profiles to identify the sunken crust as continental.

Over the two and a half years of the cruise, some 18 scientists, serving for periods ranging from a month to six months, have taken turns as chief scientist. The *Vema*, which now navigates by satellite, left New York in June 1970. She went first to the Norwegian and Greenland seas, then sailed south across the Atlantic, through the Caribbean and the Panama Canal and across the equatorial Pacific, the Japan Sea and the Indian Ocean. She then sailed up the Ivory Coast, past the Canary Islands up to Iceland and Nova Scotia, then back to New York. □

McGovern's position papers on science

After several months of labor, Scientists for George McGovern has given birth to the promised position papers on various facets of McGovern's science policy (SN: 8/26/72, p. 140).

The McGovern group reiterates that the policy in essence is to “redirect scientific priorities from military to civilian goals, expand Federal research and development to meet a broad range of human needs, to use science and technology to create new domestic programs and industries, . . . In short science would be allowed to work for mankind as never before.” To aid in the transition, McGovern has promised an immediate investment of \$10 billion to create new peacetime jobs for individuals whose jobs disappear as a result

of defense cuts. The group also notes that McGovern would reestablish the defunct State Technical Services Program to assist state and local governments in applying new technology.

A paper from the McGovern Panel on Science and Technology discusses the problem of encouraging industry to engage in civilian-oriented research and development. “It took 30 years and billions of taxpayer dollars to create our present military-industrial complex. Rapid transformation of our civilian sector into an R&D-intensive activity cannot be expected to take place spontaneously without at least temporary massive public intervention.” The panel names transportation and energy as the two top priority areas for government-financed research and development of “radically innovative systems.” The panel also emphasizes the need for greater support of basic research, even though immediate applications of the research may not be forthcoming. Exploration of the solar system, galactic astronomy, and the functioning of the brain are listed as areas of investigation “so fundamental to the satisfaction of the human urge to learn that we must not ask about concrete practical fall-outs.”

In a statement on energy policy, McGovern promises an end to subsidies to energy industries and to “wasteful uses of energy,” revision of pricing structures where unit cost decreases as more is bought, strict antitrust enforcement in the energy industry and more public participation in government decision-making.

Background papers on unemployment among scientists and engineers and on meteorological warfare, plus McGovern's answers to questions from 12 professional engineering societies, complete the set. The McGovern science policy material has already been sent to over 5,000 regional organizers of the campaign. □