

tions beneath the ice pack. The study, an examination of conditions below ice packs in the Beaufort Sea near Prudhoe Bay, was conducted from last November through this May. The research "was intended to plug major gaps in scientific understanding of the life forms and cycles of the Beaufort Sea, and how these could be affected by offshore oil and gas development there," according to NOAA.

With the severe conditions limiting dives to a maximum of 45 minutes, dry-suited diver/scientists placed current meters under the ice, sampled sediments and searched for various species and their eggs and larvae. "No one else had looked at this ecosystem systematically in winter," Norton says. "We needed to know whether it's advisable to dump drilling muds and cuttings, for example, into the water column or out on the ice, or whether this material must be hauled ashore."

These results indicate that whatever the technique used, there is a functioning ecosystem under the winter arctic ice that would be vulnerable to disruption by technology.

"Ecologically, we need to know more about the overwintering organisms so that

we don't let environmental changes tip the balance against them during what may be the most difficult period in their annual cycle," says Norton, who is based in OCSEAP's Arctic Project Office in Fairbanks, Alaska. One study area that appears to be particularly at risk is "the boulder patch," an undersea field of rock formations serving as home to maverick communities of kelps, soft corals and other organisms hundreds or thousands of miles from their nearest kin. A major problem if and when oil exploration begins would be to find a way to protect such a sensitive biological formation. "Pollution, however mild, could obliterate this community, and changes in seafloor sediment movement could bury the boulders forever," according to NOAA officials.

With data from this and future studies, the NOAA-sponsored team hopes to determine the physical conditions for survival, food requirements, energy use and overall winter activity level of fishes and other species. One part of the research — to continue over the next two years — will examine the spawning patterns of the Arctic cod, a key figure in the ecology of the Beaufort Sea. □

Now there's placebo abuse

Drug abuse is a well-known phenomenon. But what is not so well known is that many physicians and nurses abuse placebos (fake medicines) because they do not appreciate the power of placebos to relieve pain and they do not know which patients are best helped by placebos. This surprising fact is reported in the July *ANNALS OF INTERNAL MEDICINE* by James S. Goodwin, Jean M. Goodwin and Albert V. Vogel of the University of New Mexico School of Medicine in Albuquerque.

Past studies have shown, contrary to what one would think, that placebos have great power to relieve pain whether it is of psychological or organic origin, and that those persons who respond best to placebos are self-sufficient, highly educated persons who tend to be stoic in the face of pain and who are apt to cooperate with medical personnel in the control of their pain (SN: 7/12/75, p. 20; 3/20/76, p. 182).

The Goodwins and Vogel, however, had the impression that physicians and nurses generally believe that placebos only relieve psychological pain and thus give them to hypochondriacs and malingerers rather than to those patients who can best profit from placebos. The researchers surveyed 60 physicians and 39 registered nurses at two university teaching hospitals and found that most physicians and nurses greatly underestimate the percentage of patients who experience pain relief when given placebos. Most physicians and nurses also give placebos to problem patients who demand excess pain medications because they believe that placebos will reveal whether the pain is psychological or organic, and reason that if the patients' pain is judged to be psychological, it does not deserve "real" treatment.

Subsequent interviews with some of the physicians and nurses surveyed reinforced the above results. A senior resident declared, "Placebos are used with people you hate, not to make them suffer, but to prove them wrong." One physician said he had given a placebo to an alcoholic because "we didn't think the patient was worthy of 75 mg of Demerol." A nurse decided to give a placebo to a low-back pain sufferer because he had not been helped by an array of pain pills, and when the patient fell asleep, the nurse concluded that the placebo had helped the patient and his pain was psychological.

So it appears that many physicians and nurses greatly underestimate the percentage of patients who experience pain relief when given placebos and fail to realize that overdemanding and complaining patients are, if anything, less likely to respond to placebos than are patients well liked by the hospital staff. Yet it is the hypochondriacs and malingerers who are most likely to get placebos. □

Can the Tall Ships return?

Is it possible that the large merchant sailing ships that graced the second half of the nineteenth century are about to gain a second wind and a new lease on life? A growing band of naval architects believe not only that they can build a much better sailing ship than did their Victorian ancestors, but also that rising costs of fuel and machinery in diesel ships have now made sail power very attractive economically.

Earlier this month scientists and naval architects gathered at the Royal Institution of Naval Architects in London to subject these ideas to critical scientific scrutiny. The great merchant sailing ships, which reached 300 feet overall in size, were killed off finally in the 1920s by the recession and by very cheap diesel fuel. In a study of these ships, A.D. Couper, P.B. Marlow and J. King of Cardiff University of Wales Institute of Science and Technology have concluded that they were very efficient indeed, being the culmination of perhaps 5,000 years of sail evolution. The best were those fitted with an auxiliary motor to help out during calm days. The *Great Britain*, built in 1859, once averaged 13.6 knots during 30 days under sail alone, and regularly averaged over nine knots during the round trip from London to Melbourne, Australia.

In fact, smaller merchant sailing ships flourish almost everywhere in the world even today. Only in North America, Europe and on the deep sea routes are diesel and steam shipping the norm. Modern materials, equipment and design should allow the large sailing ship to make a comeback. The detailed plans for one such vessel al-

ready exist. Captain Mike Willoughby, a freelance consultant naval architect, has outlined for a \$12 million, 482-foot-long, five-masted barque *Windrose* that serve to illustrate the benefits. The ship would have sophisticated weather and navigation devices, stabilizers and a computer to control and trim the forty driving sails. The ship is all metal with steel masts and cables and would complete the Australia run in about 45 days, compared with the 35 days taken by modern diesel shipping. The ship would carry 12,000 tons of cargo and the running costs would be one-fifth less per ton than diesel shipping. The ship's main costs would be salaries of the officers and crew, with estimated annual fuel costs for the auxiliary motor only ten percent of a motor ship's. The more fuel prices rise, the more competitive such designs become.

The clear consensus at the meeting was that modern technology could indeed build a reliable sailing merchant ship that was economically very attractive. Delegates saw no problems in recruiting crews, but two big difficulties remain. The giant new ships would be as vulnerable as their predecessors when clawing out to sea in the face of a heavy gale and would remain unhandy in confined waters. But the most important problem is the shipping industry's inertia in trying new technology. Only moderate interest has so far been shown in designs by Willoughby and others. The rising price of bunker oil and the industry's reluctance to use nuclear-powered ships, however, could be the deciding factors that force a return to the days of sail. □