As for the practical implication of removing Burt's data from the scientific literature, there is, naturally, a range of opinion. Kamin states that the data have played a "monumentally important role," particularly those to do with certain rare kinship correlations (such as between second cousins). Richard Lewontin of Harvard, an anti-hereditarian and eminent population geneticist, says that Burt's twin study "is the only large study which is methodologically correct, so its loss is no trivial problem for the heritability people. It is also not nice for them to have this mess in their backyard," he observes. But according to Jensen, all Burt's salient results have now been duplicated, and no one was led to any conclusions which they would not have reached even if Burt had never existed. "It is not like the Piltdown man which led people into error," Jensen says, adding that he does not mean to imply by the comparison that Burt's data too were forged. Scarr-Salapatek, on the other hand, thinks that subtraction of Burt's data "results in a downward estimate of heritability, though not a radical reassessment." The reassessment might require the hereditarians to reduce their estimate of the heritability of intelligence from 80 percent (Herrnstein, 1971) to nearer 60 percent, the figure arrived at by Christopher Jencks of Harvard without using Burt's data.

Burt's data are probably now unusable in any case, but it would still be of some historical interest to know whether the flaws resulted from systematic fraud, mere carelessness, or something in between. The facts so far available do not allow any of these explanations to be ruled out. The only sure evidence of error, the invariant correlations, is a curious mistake for a cunning forger to make. Perhaps, when old and ill, Burt was too proud to ask for help in doing the calculations and, as Eysenck suggests, carried over the results from earlier papers. That is probably the most plausible present explanation for those who like economy in hypotheses. The question is how well it stands up under such burdens to belief as the failure to locate Misses Howard and Conway, the implausibility of some of Burt's results, the apparent use of pseudonyms, and any other suspicions that may accumulate. Should it not, Burt would have much to answer for.—NICHOLAS WADE

Superport for Palau Debated: Ecopolitics in the Far Pacific

Although the planners insist that it is still only a "concept," the possibility that a superport for transshipping Iranian oil to Japan will be built in a remote island group in the western Pacific has spurred American environmental groups to concerted opposition.

The proposed location for a deepwater port, where supertankers from the Middle East would deliver oil for transfer to smaller tankers, is the island group of Palau in the western Caroline Islands, part of the U.N. Trust Territory of Micronesia administered by the United States.

Initially, only port and oil storage facilities would be constructed, but the proponents of the plan contemplate later addition of a refinery and energy-related industry to form what they call an "energy-industry complex."

Backing the plan are Japanese industrial and financial interests. The Iranian government also apparently would be a partner, and Iran would be involved both as a supplier of oil and investor. A pivotal role in the formative stages of the project has been played by Robert Panero, a New York consultant specializing in resource development. Panero has orchestrated the complicated negotiations, now advanced to the point where a feasibility study is to be carried out.

Opposition to the project has come from some Palauans—the islanders appear to be divided on the issue—and from American scientists and environmental organizations. Scientists have been attracted to the islands by the particularly rich and fragile ecology of Palau's coral reefs and enclosed lagoons. They fear the effects of dredging and construction on the ecology of the islands, and also predict that the economic development and increased population which would accompany a half-billion-dollar project would have a devastating effect on the Palauan culture.

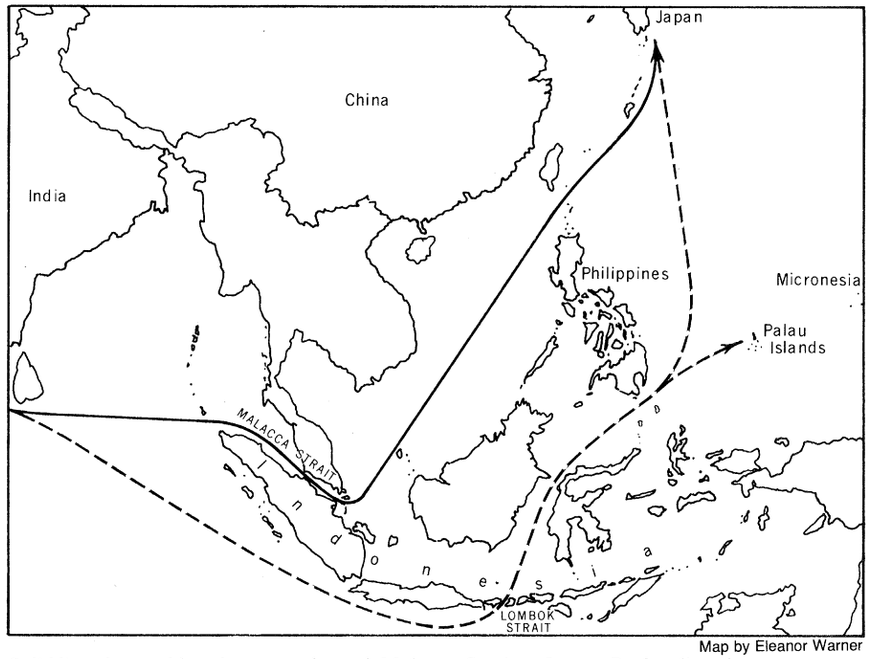
This concern was expressed in a resolution passed at the Pacific Science Congress in Vancouver last year, which made the point, among others, that, "marine scientists who have worked on Palau and in other areas of the Pacific consider the site of the proposed development to be of value (scientific and park) unequalled in Oceania and of an order of importance rendering it eligible for designation as a World Heritage Area as defined by UNESCO." The resolution "strongly urges the appropriate authorities that this project should be abandoned on scientific grounds and because of the potential adverse effects upon the human population and biota of Palau."

Environmentalists in the United States, Japan, and elsewhere have taken up the issue. In this country organizations such as the Audubon Society, Sierra Club, and Environmental Defense Fund have shown interest, with the Natural Resources Defense Council apparently seeking to organize a coalition effort.

Palau is the westernmost territory now under direct U.S. control. An archipelago curving some 250 kilometers north and south on the edge of Micronesia, the islands have about 14,000 inhabitants, Palau's colonial history began with its discovery by the Spanish in 1543 and annexation a century later. In 1899 Spain sold the islands to Germany, and after World War I they were put under League-of-Nations mandate and administered by the Japanese. Palau was an objective in the American island-hopping offensives of World War II and briefly made the news in 1944 when U.S. Marines took Palau's Pelelieu Island where the Japanese had an air strip. After the war, Palau was part of the U.N. Trust Territory assigned to the U.S. The trust ends in 1981 and Micronesia, of which Palau is a district, is scheduled to vote on independence or association with the United States. The Palauans are said to be most likely to opt for self government, but to retain a tie with the United States, which would handle defense and foreign policy affairs.

The decision is expected to be crucial to the life of the project because the Japanese promoters of the superport are said to stress political stability and to believe that only association with the United States would assure military protection and stable government.

The idea of the superport is in part a product of the change in the economics and technology of the oil trade. The main



Solid line shows old tanker route through Malacca Strait to Japan. Broken line shows new route for deep draft vessels through Lombok Passage.

route for tankers carrying oil from the Middle East to the Pacific has been via the Indian Ocean through the Malacca Strait, taking them near Singapore. The straits are long, narrow, shallow, and heavily trafficked. The size of tankers has grown so that 500,000-ton tankers are being designed and even million-ton oil carriers contemplated. Increasingly, the bigger tankers in service—those near 200,000 tons and over—have shifted course to the east, sailing along the southern coast of Indonesia and then heading northward through the Lombok and Makassar Straits. This course takes tankers bound for Japan invitingly close to Palau (see map).

Further impetus to the superport plan was provided by the Japanese government's decision after the 1973 oil crisis to require storage of a 90-day supply of oil. Only two Japanese ports have deepwater harbors capable of accommodating supertankers; and, perhaps even more important, pollution has become such a problem in Japan and the coasts of the home islands have become so crowded with industry that creating additional oil port and storage facilities to reach the 90-day-supply requirement is regarded as a practical impossibility.

Observers speculate that the superport project may also be attractive to the Japanese because it would be founded on agreements between the governments of Japan and Iran and would reduce the control of the major oil companies, which now ship 95 percent of the oil used in Japan.

To Panero is attributed the original action nominating Palau for the project. Since 1974, the islands have been the subject of a series of "pre-feasibility" studies including reports done by the Mitre Corporation and Bechtel Corp., and, most recently, a site screening study by two New York engineering firms. The Japanese have been the financial backers of some preliminary work, and Nissho-Iwai Trading Company and the Industrial Bank of Japan last April entered into an agreement with the government of the Trust Territory which grants them a two-year exclusive right to conduct "initial exploration, development, and feasibility studies."

Panero, a former member of the staff of Herman Kahn's Hudson Institute, emphasizes the preliminary nature of work on the superport, or "Port Pacific" as he calls it in a report done by his own firm in 1975. "There has never been a question of there being a site or a project. There is a concept," says Panero.

From Palau there have been reports that the feasibility study is already under way, but Panero says this is not true. The feasibility study will include a separate environmental assessment, an engineering feasibility and cost study, and an evaluation of the economics of transshipment. Panero says that the environmental study will be done under the auspices of the Palauans, since "if the Japanese were to do the study, it would be suspect." Panero says he regards completion of this environmental assessment as a "precondition" to the rest of the feasibility study process.

It is understood that Palauan officials have been making inquiries about the study in the United States at such places as the Scripps and Woods Hole marine science laboratories and that they have approached the Interior Department for help in financing the study with funds available for development activities in the territories.

The Palauans are apparently split on the superport issue. Environmentalists here say that the legislature, which passed a resolution backing the feasibility study, is dominated by business interests who favor the port. The opposition on the islands has coalesced around a "Save Palau Organization" headed by Ibedul Yutaka Gibbons, Palau's high chief, the traditional leader of the islanders, who has established links with mainland environmental groups. There have been reports of gifts and trips for island politicians and of some remarkable conversions to the superport.

The legal situation is complicated, not least because the trusteeship expires in 1981 and the Palauans and other Micronesians will decide on their future association with each other and the United States. As things stand now, there will be a referendum on the issue of the political future of Palau but not on the superport, and it seems likely that the superport question may influence the vote on independence or association.

If a formal proposal is made to go ahead with the superport before then the primary decision will be made by the Palau Board of Economic Development, which was set up in 1974 to act on proposals for foreign investment in the island. Environmentalists regard the board as prodevelopment.

If rejected, the proposal would die. If the board approved, the matter would be referred to the high commissioner for the Trust Territory, but whether or not he approved, final action would have to be taken by the Department of Interior. The major factors in the federal decision are supposed to be security in the area and the general welfare and development of the Micronesian people.

The official position of the Interior Department, according to a spokesman in Washington, is that no proposal for a superport has been officially made and that, therefore, any comment on the matter would be premature. Critics say that the department has belatedly adopted an attitude favorable to economic development in the area. The Micronesian districts have been receiving a federal subvention of about $90 million a year. Fred Zeder, head of Interior's Office of Territorial Affairs in Washington, is said to have publicly taken the position that,

with the vote in prospect, it is desirable to encourage development projects to reduce Micronesian economic dependence; he is regarded as a strong backer of the superport idea.

The environmentalists believe that the government attitudes are also influenced by defense considerations. Since the U.S. pullback from the Asian mainland, the Pentagon is said to have become interested in using Palau for anchorages, storage, and training but has met stiff resistance from the islanders to proposals to use Palau as a base and is apparently backing the superport idea.

Because of Palau's status as a Trust Territory there is some confusion about whether federal legislation such as the Endangered Species Act applies. A crucial question is whether the Environmental Protection Act applies, and an environmental impact statement must be submitted before a superport project could be approved. An Interior Department spokesman notes that an impact statement is required in cases where significant federal action affects the environment, but says Interior officials decline to speculate on whether the act would apply in Palau on the superport issue. Environmentalists say that a U.S. Corps of Engineers' statement indicates that an impact statement would be required. If battle lines are drawn on the superport, environmental groups' initial tactics might well include efforts to prove that U.S. environmental legislation does pertain.

Palau's ecology, described in a long article in the September *Audubon* magazine, is both valuable and vulnerable. The main features of the island group are the big island of Babelthaupe—about 25 miles long with hills and jungle, which are unusual in Oceania—and a long barrier reef system on the western, leeward edge of the group which encloses two major lagoon areas to the north and south. The lagoons and some rare inland "lakes," which combine salt and fresh water in varying proportions, provide important breeding grounds for Palau's exotic biota. Native to Palau, for example, are a breed of dugong, an aquatic herbiverous animal, the Hawkbill turtle, and Palau owl, all of which, say environmentalists, would be endangered by the superport. The superb coral reefs are also said to be at risk from the effects of dredging, construction, oil spills, and industrial wastes. A longer range fear is that further development of refinery and petrochemical industry would involve the bringing in of construction crews and workers who would inevitably upset the life-style and culture of the inhabitants.

Palau is not entirely unspoiled. Particularly in the administrative center of Koror at the south end of Babelthaupe, where a large part of the Palau population is concentrated, there is evidence of the adoption of the sleazier features of American culture that have blighted Guam, American Samoa, and other Pacific islands. The Palauans are certainly more dependent on American money and modes than they were a generation ago, but so far have retained their own culture and village living patterns to a remarkable extent.

Panero and his colleagues agree that the ecology of Palau is fragile and argue that the superport could, so to speak, be sealed off in a northern area of the islands. No specific site, however, has yet been picked. Sound planning and the use of new techniques could minimize damage from dredging, construction, and operation of the port, says Panero, and prevailing winds and ocean currents would carry any oil spills or pollution away from vulnerable areas. And the port would provide jobs which the Palauans need. The environmentalists are inclined to dispute this analysis point by point.

What appears to be emerging is not a contest along conventional lines between developers and preservationists. An accident of geography and the turn in oil politics has made Palau a natural target for economic development by powerful international interests. There is disagreement over whether "self-determination" by the Palauans on the issue can mean very much when the members of an isolated and unsophisticated society are subjected to such pressures and temptations. Add to this the claim that Palau is of such environmental value as to be a rare world resource. Consider also that, for the United States, there may very well be a conflict between acting in the best interests of the Palauans and furthering its own strategic and economic aims. All in all, the issue of Palau and the superport is shaping up as a challenge for the new Administration from an unexpected direction.

—JOHN WALSH

Birth Control: Report Argues New Leads Are Neglected

One thing this overcrowded world needs most is a perfect contraceptive—safe, effective, long-lasting but reversible in action, easy to administer, and inexpensive. Granted, there are very few individuals who actually believe that such an ideal agent is likely to come along. And no one is so simplistic as to believe that, even if there were a perfect contraceptive, it alone could reverse the world's headlong course toward disaster that is accelerated every time the birth rate rises. But there is reason to believe that a limited variety of new and better contraceptives are well within the realm of possibility and that they would contribute measurably to slowing the rate of population growth.

The trouble is, according to a major Ford Foundation report* that will be released within a couple of weeks, neither governments nor drug companies nor scientific institutions are doing nearly as much as they might to exploit available leads to make improved contraceptives possible. Nor are they devoting adequate resources to studies of safety of existing methods of fertility control.

From the mid-1960's until the early 1970's, population control was a very glamorous subject that attracted a lot of attention as women by the millions began using oral contraceptives or intrauterine devices (IUD's) and people expressed high hopes that these agents of modern technology would work wonders by putting the brakes on the perpetual baby boom in developing countries in particular. It was not long, however, before it became apparent there were many obstacles to zero population growth. Women in developing countries, the members of ancient cultures that prized

*For information about obtaining a copy of *Reproduction and Human Welfare*, contact MIT Press, Cambridge, Massachusetts 02142.