RANDOM SAMPLES

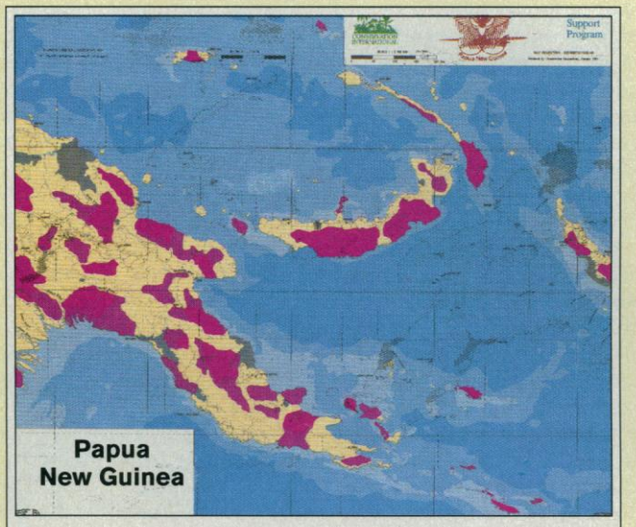
edited by IVAN AMATO

Cancer Vaccine Slated For Tests

The day of the "designer" cancer vaccine may be dawning. The first clinical trials of a vaccine engineered to protect against a form of virally induced cancer should begin within a year, the Cancer Research Campaign (CRC)—one of Britain's largest medical research charities—announced last week. The vaccine consists of a glycoprotein called gp340, which is carried on the surface of the Epstein Barr virus (EBV). Molecular biologists John Arrand and Mike Mackett of the Paterson Institute in Manchester produced the glycoprotein in a recombinant mouse cell line.

Carried by more than 90% of the world's population, EBV is usually harmless. But in southern China, it's believed to be a causative factor in an annual disaster—80,000 new cases of nose and throat cancer and 50,000 deaths from this malady. Mackett notes that EBV probably gets help in its role as a carcinogen from nitroso compounds in the salted fish prominent in southern Chinese cuisine. He hopes that a gp340 vaccine will reduce the annual death toll by "cutting one link in the chain."

Chinese field trials to test that expectation must await the results of the CRC-sponsored Phase I safety trials in British people. But news that the gp340 vaccine is ready to begin clinical trials will nevertheless provide a welcome boost for cancer vaccine research. The biggest success so far has come from vaccines for hepatitis B that also seem to protect against liver tumors. But other specifically designed cancer vaccines are in the works. Molecular biologist Saveria Campo of the Beatson Institute for Cancer Research in Glasgow, for instance, says that her group has developed a vaccine that's "virtually 100% effective" in protecting cattle from papilloma virus infection. She's now working on a human equivalent. Her goal: a vaccine to protect against papilloma virus-induced cervical cancer.



Color of biodiversity. Map charts Papua New Guinea's wildlife.

Charting Biodiversity to Guide Conservation

In the fall of 1991, Papua New Guinea's Department of Environment and Conservation asked the U.S. Agency for International Development (AID) to carry out a "conservation needs assessment (CNA)." The hope was that this would help the country protect its biologically rich terrestrial and marine environments, now under siege by foreign loggers, among others. And now help has arrived in the form of a color-coded map that charts the country's biodiversity, along with a report loaded with data relevant to assigning conservation priorities.

"This is the first time the priorities for conservation of biodiversity have been mapped at a national level," notes biologist Bruce Beehler, assigned to the project by Bronx-based Wildlife Conservation International and the Washington, D.C.-based Conservation International (CI), which provided expertise in computerized methods for integrating cartography and environmental data analysis. Janis Alcorn, director of the Biodiversity Support Program, a consortium of the World Wildlife Fund, the World Resources Institute, and the Nature Conservancy—all of who have been involved in the CNA—adds that the materials should be completed this month and will then be made widely available in Papua New Guinea. Then comes the real test: Can this far from rich nation—where 97% of the land is privately owned by indigenous clans—balance its conservation intentions with economic development pressures?

Launch of Russian Reactor Postponed

Astronomers and weapons scientists seemed headed on a collision course a few months ago over the military's plans to send a Russian nuclear reactor into space. But an agreement reached in late January has prevented a pile-up, at least for 6 months.

The astronomers, led by Donald Lamb of the University of Chicago, were objecting to plans by the Strategic Defense Initiative Office (SDIO) to launch Topaz II, an experimental Russian nuclear reactor, arguing that rogue particles from it might ruin sensitive gamma ray experiments. The reactor is designed to propel itself in space with a jet of xenon ions. One worry was that leaking gamma rays and positrons, which can travel in the earth's magnetic field and pop up in the darndest places, might cause false signals in gamma ray monitors (*Science*, 18 December 1992, p. 1878).

The worry has abated now that SDI officials will postpone choosing a rocket and mission altitude for Topaz II for 6 months, while experts study how its emissions at various altitudes might affect instruments aboard the Gamma Ray Observatory and other satellites. In effect, the SDIO has agreed to an environmental impact study for space, following an unusual meeting organized by former Russian space official Roald Sagdeev at the University of Maryland on 19 January. There the Russian designers of Topaz II, its new owners at the SDIO, and critics in the astronomy community achieved common ground: that more study was needed.

President Clinton Gets His Science Adviser

Confirmation hearings for presidential science advisers don't usually pack lots of drama, but onlookers snapped awake last week when Senator John Danforth (D–MO) tossed the popular Jack Gibbons a hardball on his way to what figured to be an easy confirmation as director of the White House Office of Science and Technology Policy. The issue was animals.

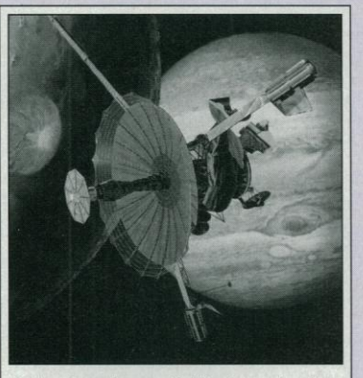
Danforth warned Gibbons—whom he and every other veteran senator has known for years as the director of Congress's own think tank, the Office of Technology Assessment—that some scientists had expressed concern about Gibbons' stand on animal research. Danforth asked the nominee to explain his position.

Gibbons' response didn't endanger his confirmation—he was unanimously approved later in the week—but it may ruffle feathers in the animal research community. The "Native American concept of the use of animals" was particularly admirable, he said. When Native Americans killed for food, he pointed out, they said

a prayer for the animal making the ultimate sacrifice for human sustenance. Although he is not opposed to the use of animals in research, he said, scientists should give more attention to the ethics of such use. Finally, he suggested that an "enormous number" of existing technologies can substitute for animals in research.

If these statements make some scientists nervous, another may prove soothing to scientists hoping to see President Bill Clinton vest more power in his science adviser. Gibbons announced that Clinton had appointed him last week to serve on the newly created National Economic Council. One of the things he'll presumably discuss there is his view that change is needed in the way federal research dollars are distributed, especially at the Department of Energy's national laboratories. As the traditional defense mission of these labs fades, Gibbons told his confirmation committee, the government may need a new funding framework: A "substantial fraction" of funding for each lab should be awarded competitively, based on merit, compared to research at other labs and at universities. Then again, that view too might bring out the animal in researchers used to guaranteed funding.

Hammering Fails to Unstick Galileo's Antenna


NASA/JPL

Data slowdown. Galileo's umbrella-like antenna as it might have looked.

Engineers at the Jet Propulsion Laboratory (JPL) have all but given up hope of freeing the stuck antenna onboard the Galileo spacecraft now headed for Jupiter. After failing to open fully the umbrella-like main antenna using gentler techniques, late last December the engineers began beating on it—by repeatedly turning on and off the motor that should have opened the umbrella on the first try. After 13,320 on-off cycles, the force on the three or four stuck ribs of the antenna had doubled, as predicted. That wasn't enough, concedes project manager William O'Neil of JPL. "There were conditions that we simply couldn't overcome," cascading from an early loss of lubrication on the tips of the ribs.

Researchers originally feared that loss of the main antenna would virtually wipe out Galileo's mission to Jupiter because a planned torrent of data will now have to be funneled through a far less capable backup antenna. But, thanks to some re-engineering on the ground and new data compression techniques that will be installed in the spacecraft's computers, Galileo will still be able to carry out much of its agenda. About 70% of the planned data will be returned without the main antenna (*Science*, 26 June 1992, p. 1762). Not bad for a nearly voiceless planetary probe.

Sex Study Center Director Gets Apology

If the quickest way to end a spat is for one side to beg forgiveness of the other, Indiana University (IU) has opted for a speedy resolution—finally—to its battle with June Reinisch, director of the Kinsey Institute.

On 20 January, IU president Thomas Ehrlich not only formally apologized to Reinisch, he withdrew the school's request for her resignation, which had been made back in 1988. The renowned center for the study of sexual behavior was founded in 1947 at the university, and Alfred Kinsey ran it until his death in 1956. Reinisch took over the helm in 1982. Six years later, she ran afoul of the IU administration, when a routine review of the institute harshly criticized the quality of its research and its financial management. And that prompted Morton Lowengrub, then dean of research at IU, to ask Reinisch to quit.

She refused—and she had the backing of the institute's board of trustees, the only body with the authority to fire the director. Moreover, Reinisch last year filed a lawsuit to force IU to make public all of the documents upon which the review committee based its report (*Science*, 17 April, 1992, p. 304). In the suit, she claimed the university had not allowed her sufficient opportunity to defend herself against anonymous charges.

Now, suddenly, IU has accepted Reinisch's protests. In a written statement, Ehrlich says "that an organized pattern of vicious attacks and hostility toward the director of the Kinsey Institute exists" and that the administration "is now satisfied that unknown individuals personally hostile to Dr. Reinisch...deliberately provided false information to the Review Committee." Reinisch, who is out of the country until March, could not be reached for comment. Her staff at the Kinsey Institute expressed delight at Ehrlich's apology and hope that their deteriorating relationship with the university will now take an upswing.

Academy Splits On Risk

National Academy of Sciences (NAS) committees usually strive for consensus. Congress, the federal agencies, and private groups pay for NAS reports so they can get clear recommendations, spoken with one voice. So when you see a new NAS report that not only has dissenting opinions, but even offers "majority" and "minority" recommendations, you know that loud debates raged behind closed doors.

The subject that prompted the divide was risk assessment. In 1990, the Environmental Protection Agency (EPA) asked NAS to evaluate several issues in the regulation of suspected carcinogens, especially the use of a controversial federal standard known as Maximum Tolerated Dose (MTD). In the method, animals are fed a compound at the highest dose just below the level at which toxic effects other than cancer occur, so the compound's carcinogenic potential can be determined in the shortest time with the fewest number of animals. Since MTD has come under increasing fire from critics who say that the high doses introduce artifacts that exaggerate carcinogenicity in humans, EPA was hoping for a quick and clear answer to resolve the debate.

Not this time. The NAS report* was finally released last week, nearly a year late. An early draft of the document covered the areas in which committee members agreed, but peer reviewers nixed it for lack of substance. In the end, says Gail Charnley, who headed the project, the committee "decided it was better to admit disagreement than to say nothing at all." The result: Two-thirds of the 17-member panel recommended that the MTD method be retained, while one-third urged expert panels to select more moderate dosages, typically the highest dose that gives results relevant to humans, based on more sophisticated dose-response analysis.

After 20 years of similar debate between industry groups against environmentalists on MTD, it's not surprising that the panel members (some of whom came from each camp) were at loggerheads, Charnley says: "It's an ideological argument. But we just don't know which is right."

*"Issues in Risk Assessment," National Academy Press, 1993.