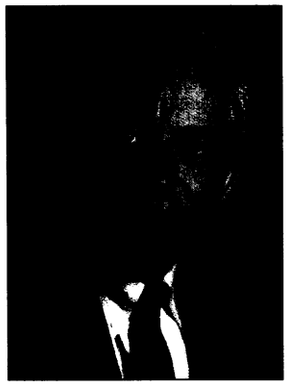
BIOMEDICAL POLICY

NIH Urged to Involve the Public in Policy-Making

With more than 100 standing committees already providing tons of advice, the National Institutes of Health (NIH) wouldn't seem to need more advisers. But that's what the doctor has ordered. To cure a "major weakness" in communication between NIH's leaders and the public, a group of experts at the Institute of Medicine (IOM) chaired by molecular biologist Leon Rosenberg of Princeton University has recommended that NIH create a new network of committees that would enable public representatives to communicate more directly with NIH's brass about research policy.



High marks. Rosenberg says NIH's priority setting is sound.

The 18 to 25 people named to each new panel, the 8 July IOM report* says, should represent "a broad range of public constituencies," including "disease specific interest groups, ethnic groups, public health advocates, and health care providers." Chosen by NIH for 3-year terms, these tribunes would sit on a Council of Public Representatives in the NIH director's office and on similar councils in the offices of the directors of each of NIH's 21 institutes and centers. They would be supported by a new permanent staff of "public liaison" agents, who would also solicit information and help citizens understand NIH. Acknowledging one possible undesirable outcome of this scheme, the IOM report warns that the council "is not intended to serve as a forum for advocacy groups to lobby the NIH director for research dollars" for their special interest. Instead, it says, members would set aside the targeted politics that got them to the table and offer "valuable and thoughtful perspectives on [NIH's] research programs."

These are the most weighty recommendations in a list of a dozen issued last week by IOM, part of a report commissioned by Congress at the request of Republican Senators William Frist (TN) and Dan Coats (IN). Congress asked IOM to carry out this 6-month review of how NIH goes about ranking its funding priorities to help clarify its own decision-making. The assignment, as the IOM report notes, grew out of a contentious debate in recent years over whether AIDS research ought to get the large set-aside it has been receiving—currently about $1.6 billion of the total $13.6 billion NIH budget. The debate heated up when breast cancer activists copied the AIDS lobby and also began to win big funding set-asides from Congress. Next, the traditional groups for research on heart disease and diabetes appealed for attention, arguing that NIH spends less per patient on their diseases than on AIDS. Advocates for Parkinson's and Alzheimer's patients pushed for a bigger share. Congress held some hearings (*Science*, 18 April 1997, p. 344) and in 1997 tossed the problem to IOM.

After holding a couple of public meetings at which NIH officials and disease advocacy groups gave their views, the IOM panel apparently decided—like Congress—to finesse the debate on how best to rank biomedical research needs. Rosenberg says that the panel studied NIH's priority-setting methods, based chiefly on scientific opportunity, and found them "sound." However, the panel felt that NIH does not clearly explain how it uses these criteria. In particular, the Rosenberg panel concluded, NIH is lax in the way it collects and provides data on "disease burden"—indicating the relative impact of different illnesses—and on the amount of money it spends in various disease categories. NIH leaders may not like using such data, Rosenberg says, but "those numbers are used in Congress ... so they should be better." The report makes several recommendations for strengthening the data.

The "hardest part" of preparing the report, Rosenberg says, was figuring out how relations between the public and NIH leaders could be improved. The NIH director's office "currently does not have any mechanism for regular exchange with the public at large," says Rosenberg, adding "we heard quite a lot about that in our public meeting." Asked whether the proposed new advisory councils might not become outposts for lobby groups, Rosenberg said he takes an optimistic view: "If you offer people a special responsibility, they generally rise to the occasion. ... I believe they would educate each other and elevate the entire debate about priority setting and earmarking."

NIH director Harold Varmus, who was being briefed by IOM panel members at press time, could not be reached for comment.

—ELIOT MARSHALL

*Scientific Opportunities and Public Needs, Institute of Medicine, 8 July.

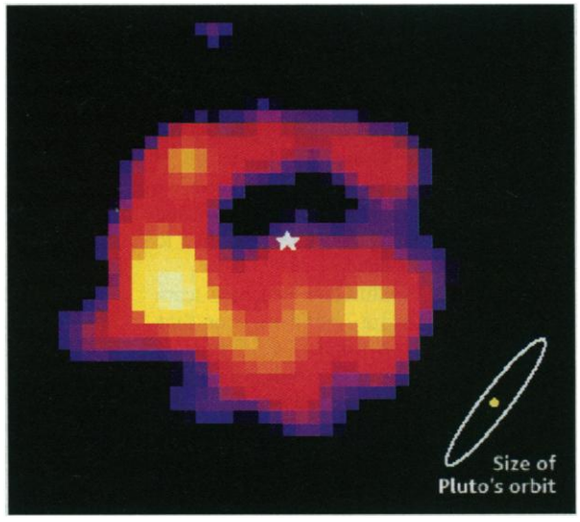
ASTRONOMY

Hints of a Nearby Solar System?

A ring of dust, probably kicked up by a swarm of comets, has been spotted around Epsilon Eridani, the nearest sunlike star, just 10 light-years away. "What we see looks just like the [dusty] comet belt on the outskirts of our own solar system," says Jane Greaves of the Joint Astronomy Center in Hawaii. The appearance of the dust ring also suggests that planets are orbiting nearby, says Greaves, who announced the discovery this week at the Protostars and Planets Conference in Santa Barbara, California.

Greaves and her colleagues imaged the ring with the Submillimeter Common User Bolometer Array (SCUBA), a sensitive camera built by the Royal Observatory in Edinburgh and mounted on the 15-meter British-Dutch-Canadian James Clerk Maxwell Telescope at Mauna Kea, Hawaii. They had already used SCUBA, which is sensitive to the short radio wavelengths at which dust radiates strongly, to detect similar disks around the hotter and brighter stars Vega, Fomalhaut, and Beta Pictoris, and other astronomers have detected disks as well (*Science*, 24 April, p. 523 and this issue, p. 182). But Epsilon Eridani is cooler and more sunlike than the other stars with disks, although it is just a tenth of the sun's age.

Because the star is so close, the dust ring—which can be seen face-on—shows unprecedented detail. The dusty doughnut is about the size of our solar system's Kuiper belt, a flattened disk of comets outside Neptune's orbit. But the strength of the submillimeter waves implies that the dust is far denser than it is in the Kuiper



GREAVES *ET AL.*

Jewel in the crown? The bright knot at the 8 o'clock position in Epsilon Eridani's dust disk might signal a planet.

belt. If it really is cometary debris, the number of comets orbiting the star must be 1000 times larger than in our solar system.

The inner region of the disk, comparable in size to our own planetary system, contains little material, perhaps because it has been swept clean by planets forming from the dust. A bright spot in the ring is probably "either dust trapped around a planet or dust perturbed by a planet orbiting just inside the ring," says Greaves.

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It is "good evidence but not convincing proof" of a planet, agrees theorist Jack Lissauer of the NASA Ames Research Center.

Any planets around Epsilon Eridani are likely to be either relatively small or far from the star, says Geoff Marcy of San Francisco State University. Marcy has observed Epsilon Eridani for the past 11 years, looking for the wobbles that might betray the presence of a massive planet. The absence of detectable wobbles implies, he says, that "no companion having a mass greater than three Jupiter masses is likely to exist" within five times the Earth-sun distance. That, of course, leaves a comfortable margin for planets like our own. **–GOVERT SCHILLING**

Govert Schilling is an astronomy writer in Utrecht, the Netherlands.

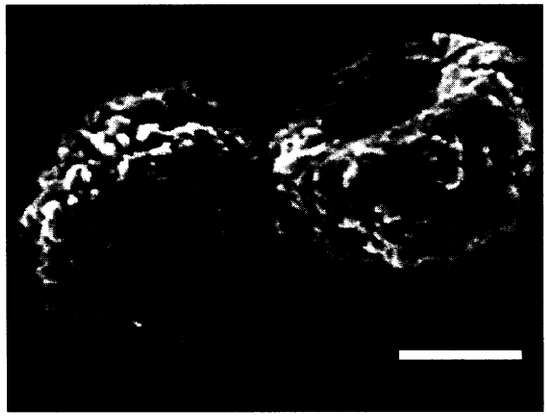
MICROBIOLOGY

Bacteria to Blame for Kidney Stones?

Tiny bacteria have been fingered as possible culprits behind kidney stones and abnormal calcium deposits in other tissues. The bacteria, described in the 7 July *Proceedings of the National Academy of Sciences*, are among the smallest ever found, barely bigger than some viruses.

Physician Olavi Kajander of the University of Kuopio in Finland first noticed the bacteria more than 10 years ago as a white film in his mammalian cell cultures. From the film, he was able to culture the slow-growing bugs, which he dubbed nanobacteria. At 200 to 500 nanometers wide, they are one-tenth the diameter of a typical *Escherichia coli*. So far, Kajander and his colleagues have found the nanobacteria in cattle blood, in 80% of samples of commercial cow serum in which mammalian cells are grown in the lab, and in the blood of nearly 6% of more than 1000 Finnish adults tested. The organisms had not been implicated in any diseases, however—until now. Kajander and clinical microbiologist Neva Çiftçioglu report that they have cultured nanobacteria from all 30 human kidney stones they examined.

Kajander and his colleagues suspected that the bacteria may play a role in the formation of kidney stones because, under certain growing conditions, they build calcium-rich spherical shells around themselves. Now the team has found that the structures are made of apatite, a primary component of kidney stones and other calcified deposits in tissue but different from the calcium compound in teeth and bones. Blood contains several proteins that inhibit the formation of apatite crystals, but Kajander speculates that the bacteria might be free to form shells if they leave the bloodstream and take up residence in tissues. The small spheres, he says, may be seeds for larger calcium deposits, such as kidney stones or the abnormal calcifications found in patients with scleroderma or some cancers.



Seeds of kidney stones? Tiny bacteria form calcium shells that may trigger larger deposits. (Scale bar is 1 μm.)

The hard shelters protect the bacteria from most assaults, including high heat and many antibiotics. However, says rheumatologist Dennis Carson of the University of California, San Diego, tetracycline is known to accumulate on apatite crystals and so might be a promising candidate for attacking nanobacterial infections.

The link between bacteria and kidney stone disease is far from proven, however. "They may have something here," says microbiologist Mitchell Cohen of the Centers for Disease Control and Prevention in Atlanta. "But I'd like to see broader studies looking at different types of stones in different parts of the world." Nevertheless, the find is "one of the most intriguing and fascinating additions to this area of research that I can imagine," says nephrologist and kidney stone specialist Fredric Coe of the University of Chicago. Coe notes that at least four teams have reported tiny spherical deposits in or near the calcified plaques often found in the kidneys of patients who suffer from kidney stones. "I don't know that it's their bacteria," he says, "but it sure looks suspicious." **–GRETCHEN VOGEL**

ScienceScope

NO ESCAPE FROM RED TAPE

Stanford biologist Paul Berg's idea for cutting through onerous legal paperwork in the lab has taken off somewhat like a lead balloon. His proposal—to abolish material transfer agreements (MTAs) signed when research tools are shared between nonprofit labs—has won plenty of verbal support but only one formal endorsement.

This spring Berg and Stanford's licensing chief Kathy Ku proposed eliminating as many as 50% of MTAs—routine agreements designed to protect an inventor's rights. Berg says that when he phoned scientific leaders at a half-dozen other institutions, they responded enthusiastically. But only one actually signed up—the Carnegie Institution of Washington, D.C. "It's a fine idea, but it cannot bring back the good old days" before universities became enmeshed in a commercial environment, says Karen Hersey, intellectual property counsel for MIT.

Berg, meanwhile, says he is dropping his scheme and hoping for a measure of relief as a result of guidelines on legal aspects of scientific collaborations now being drafted by the National Institutes of Health (*Science*, 12 June, p. 1687).

NEW ERA AT RIKEN

Physicist Shun-ichi Kobayashi will be stepping into some pretty big shoes next month as president of Japan's Institute of Physical and Chemical Research (RIKEN), Japan's leading research center, outside Tokyo. He succeeds physicist Akito Arima, widely regarded as the most powerful scientific figure in Japan. A veteran dispenser of science advice to the government, Arima resigned in May to run for the Diet (*Science*, 22 May, p. 1181).

Kobayashi

Kobayashi, little known outside the University of Tokyo where he is vice president, is by comparison "an unknown quantity," according to one RIKEN staffer. Kobayashi admits "I've got some studying to do," joking that he took the job because Arima, a former mentor, "ordered me to." His immediate challenge will be looking out for RIKEN's interests in the coming merger of its funding body, the Science and Technology Agency, with Monbusho, the Ministry of Education, Science, Sports, and Culture.

Contributors: Dennis Normile, Richard Stone, Eliot Marshall