

## Simulated Travel in Inner Spaces

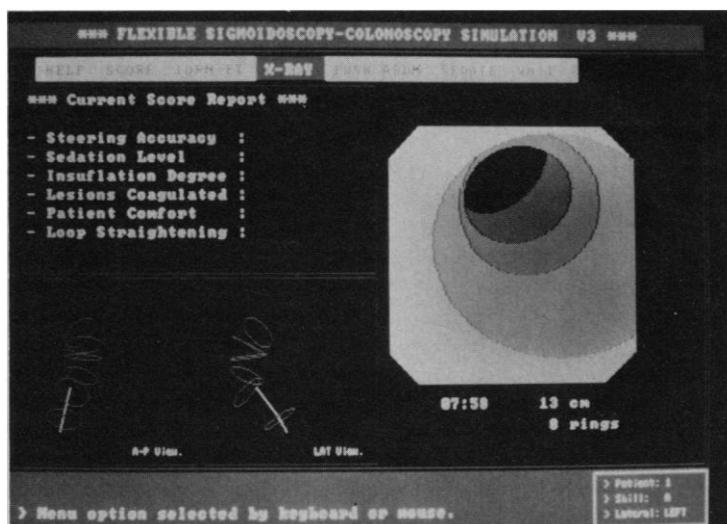
Harbinger of the video game of the future for medics-in-waiting? A physician and a computer expert in London have collaborated in the design of an endoscope simulator. Imagine young docs exploring a model of your insides long before they actually get inside you with those long, flexible fiber-optic tubes for examining and treating internal cavities without surgery.

Turns out this is just what the doctor ordered because, although endoscopes cause problems in fewer than one in a thousand cases, the risks rise tenfold among doctors still learning to use the instrument.

So, to help train physicians, Duncan Gillies, head of the computer graphics and vision section at Imperial College in London, developed a simulator at the instigation of Christopher Williams, a consultant at St. Marks Hospital in London and one of Britain's foremost endoscopists. "It's not as realistic as a flight simulator," says Gillies, "but it's pretty good."

The computer—an ordinary PC—contains several mathematical models of colons from patients with different diseases. As the student guides the

endoscope tip, the software works out what the tip would see and displays it on screen. Fluid, spasms, debris, and loops are all programmed in as obstacles to negotiate. And there is an elaborate scoring system that awards points for the number of polyps detected and the precision of steering, complete with bells and whistles to announce mistakes. Head into the colon wall,



for example, and the image turns red; as the endoscope pushes blood from the tissue, the image turns white; and if the young endoscopist bursts through the gut wall, a mess erupts on the screen followed by a brief message: "You better call your lawyer."

mates that recovery for all species known or expected to warrant protection could cost \$4.6 billion.

Although the main problem is a shortage of personnel and money, the report also blasts the structure and management of the endangered species program. The FWS, it says, "has neither developed nor implemented a basic management system for effective administration of the program." And it has not set priorities for listing, nor has it developed or implemented recovery plans for many species already listed.

The endangered species program got bad marks last year from the General Accounting Office, which said its investigation of the spotted owl was influenced by political factors. The owl finally got on the endangered list in June.

## NAS to Study Federal Environment Role

What began less than a year ago as a grassroots campaign by two university-based ecologists to create a National Institutes for the Environment (*Science*, 30 March, p. 1536), has now borne its first fruit. On 18 October House and Senate conferees agreed on an appropriation of \$400,000 in the fiscal 1991 budget of the Environmental Protection Agency for a National Academy of Sciences study of the concept.

Especially gratifying to Henry Howe of the University of Illinois at Chicago and Stephen Hubbell of Princeton University, who have been deeply concerned about the paltry state of government funding in environmental research, is the fact

that the NAS is already gearing up for a 15-month study. Pending approval late this month by the NAS governing board, the effort is expected to start early next year, according to assistant study director James Reisa, head of the Board of Environmental Sciences and Toxicology. It will be a "very high level, multi-commission activity," says Reisa, which will not only evaluate the idea of a National Institutes for the Environment but will also examine "the health of the whole field of environmental research, including the scientific base for environmental and regulatory decisions." The Academy is seeking additional agency sponsors in hopes of augmenting the budget.

Howe and Hubbell have set up a committee that could help the Academy project. Headed by ecologist David E. Block-

stein, it has started a drive to raise up to \$400,000 a year to support an office and conduct studies. The Committee for the National Institutes for the Environment is located at the American Institute of Biological Sciences, 730 11th Street, NW, Washington, D.C. 20001-4521.

## EPA Flipflops on Smoking Critic

Will the real Environmental Protection Agency please stand up? David Burns, an expert on lung disease who has spoken out against smoking, was first invited to, then dismissed from, and finally readmitted to an EPA scientific advisory board that will review the risks of exposure to environmental tobacco smoke. The confusion would appear to mirror EPA uncertainty about how to cope with pressure from the tobacco industry—and from the public.

Burns, who teaches at the University of California at San Diego, has written or edited many U.S. Surgeon General's reports on smoking since 1975. He thinks an objective reading of the data compels him to speak out on the hazards of tobacco smoke. But the industry sees him as a partisan in the "debate" on smoking and health and therefore not qualified to advise the government.

Two weeks ago, word leaked out that Burns's nomination to the EPA panel was coming under heavy fire from the tobacco industry (*Science*, 12 October, p. 203). On 23 October, Donald Barnes, staff director of EPA's Science Advisory Board, said he was going to drop Burns from the panel because "articles...in the media show that he is viewed by some people as a champion of one point of view." Oh, but then EPA's top management insisted that the matter be put to a vote by peers on the science panel, and they invited Burns back. Says EPA spokesman David Ryan: "It's all a misunderstanding; Burns was never officially off the list."