

Visible Woman joins Visible Man in cyberspace

Visible Woman — a three-dimensional (3-D), computer-generated rendering of a female cadaver — is newly available on the

Internet alongside her 39-year-old male counterpart, Visible Man, who first appeared on the Net a year ago. The image of the 59-year-old woman, which debuted at the 81st Annual Meeting of the Radiological Society of North America held in December in Chicago, allows researchers, medical students and others to study human anatomy in the kind of 3-D detail never before possible.

Virtual Woman: Frozen in time and space.

Imaging and data assembly for both projects were undertaken by researchers at the Center for Human Simulation at the University of Colorado Health Sciences Center in Denver under contract to the National Institutes of Health's National Library of Medicine (NLM).

The female body is that of a Maryland woman who died of cardiopulmonary obstruction and who bequeathed her body to science. The body was embedded in gelatin, frozen at -160°F and then cross-sectioned into more than 5,000 wafer-thin slices, one-third of a millimeter in thickness, using a custom-made macrotome. After each pass of the planing device, the body was imaged using computed tomography, magnetic resonance and X rays. The digital photographs were then fed into a computer along with the radiological data to produce a 3-D computerized image.

Victor Spitzer of the University of Colorado Health Science Center, who led the team, along with David Whitlock, says it took three times as long — one year as opposed to four months — and cost three times as much to section the female as the male, because the slices were cut at one-third of the thickness to produce higher resolution of the stacked data.

The project is now moving into the next phase. Staff at the NLM are busy making meaningful use of the mountain of data, which involves identifying the internal

structures, labeling and annotating them, and determining how they interrelate.

Moreover, there is much work to be done before virtual surgery becomes a virtual reality, says Spitzer. The team is working on "bringing the body to life." It is already possible to make a cut with an "electronic scalpel" and to see inside, but the body does not bleed, and veins and muscles do not react as in real life. To do this, researchers have the daunting task of attaching mechanical properties to them to simulate the forces of resistance.

Spitzer has also set his sights on sectioning additional bodies from head-to-toe into slices of less than one-third of a

millimeter in thickness and without first having to presection the body into four manageable pieces, as this results in a loss of data at these points. "Of course after you've done other races, ages and body builds, then you start talking about pathology, and that's tough because pathologies are so different," he says.

Visible Man and Woman can be accessed at no charge via the Internet, or are available as a set of magnetic tapes for a fee. Interested parties should contact ackerman@nlm.nih.gov or look up the project on the NLM's home page: <http://www.nlm.nih.gov>.

DIANE GERSON

HIV summit is a good show

With activists shouting their cynicism and anger outside the White House grounds, 250 carefully selected men and women representing all aspects of AIDS research and treatment gathered inside on 6 December to tell President Bill Clinton what he should do to end the AIDS crisis. This first-ever White House Conference on AIDS was billed as an attempt to focus the nation's attention on AIDS by using the presidency as a "bully-pulpit," according to press releases.

"I want to spend most of my time listening to you," the president told conference participants during the afternoon plenary session, although he first delivered an applause-punctuated half-hour address that ranged from personal remarks to broadsides at the Republican congressional threats to cut Medicaid and Medicare funding. The president reminded participants of the financial increase in AIDS research and treatment his administration has helped achieve, and he reconfirmed his campaign promise that the "goal must be a cure, a cure for all those who are living with HIV, and a vaccine to protect the rest of us from the virus." He also announced two new initiatives: a meeting of leading scientists and pharmaceutical company representatives to identify ways to accelerate vaccine and drug development (a job formerly belonging to the now-defunct Task

President Clinton addresses the first White House Conference on HIV and AIDS.

Force on AIDS Drug Development), and the development of a coordinated government-wide AIDS plan, to be chaired by Office of AIDS Research Director William Paul.

Following the speech, the president took a seat at a table with Secretary of Health and Human Services Donna Shalala, Office of AIDS Policy Director Patsy Fleming, and representatives from each of nine "working groups" on topics ranging from biomedical research to the housing needs of people with AIDS. Each representative then briefed the president and the rest of the conference participants on the state of their respective topics.

Despite the goodwill demonstrated in the meeting, many participants expressed the belief that, although the words were what they wanted to hear, the worth of the meeting will only be measured by any action that results.

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