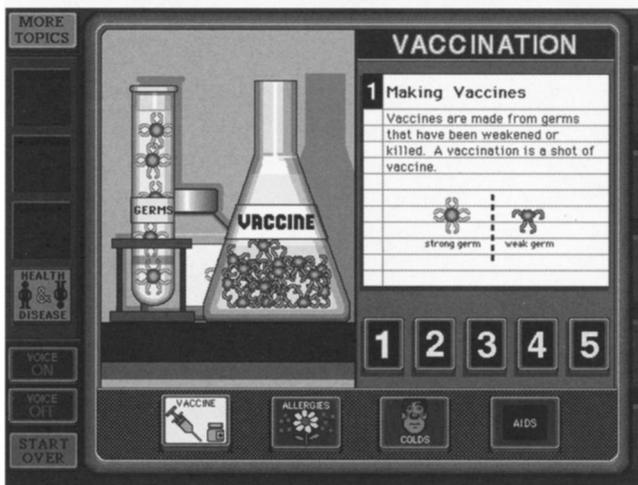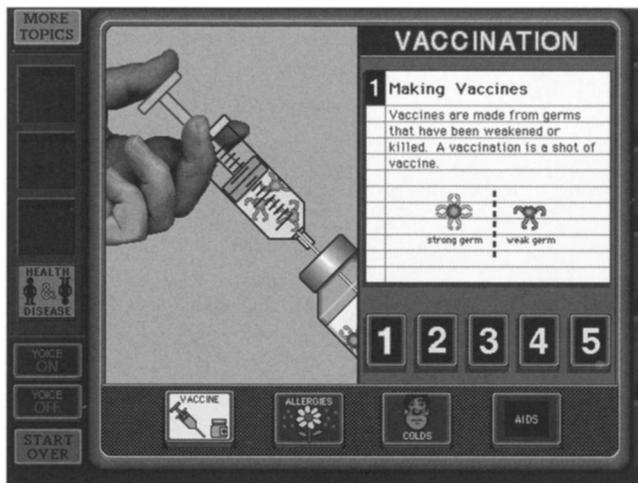**FIG. 4a, b** Paul Zelevansky, screens from *The Human Immune System*, 1991, interactive educational computer installation.

Zelevansky has extended his investigations of issues of cognition, perception, and the symbolic features of communication to the video medium as well. In a 1994 installation at the Sculpture Center in New York, he created a four-part work titled *In the Dark*. Consisting of four scenes, each installed for one week in succession, the work was meant to evoke sensory, psychological, cultural, theological, and mythological associations. The concept of darkness has links to the cave, the womb, spaces of terror, loss, blindness, and the idea of the void—though Zelevansky suggested that it might serve as a metaphor for the blank space of the page and the computer screen as well, both sites of potential and creative origin. Video, with its own electronic specificity as a means of producing an ongoing, temporally self-renewing trace—the endlessly redrawn message of the signal transmission—served as the means through which the four successive themes of orientation, security, night, and light were explored through images that were both banal and symbolically charged. Thus, the mythic dimensions of human experience were made manifest in the profoundly familiar domain of daily life.

# Dew Harrison

Dew Harrison has been using digital media in her teaching and art practice since the mid-1980s, when she was struck by the fact that personal computers had found ready acceptance in applications to classroom work in the sciences and languages. She became interested in the potential of these desktop tools as they could be used in artistic explorations. Though trained in the use of traditional drawing media—and paints applied to a two-dimensional surface—she has been particularly drawn to the electronic environment because of its capacity to support concept-based work, which combines a heavy textual component with elements from other media. Her interest in hypertext has therefore led to her working with hypermedia defined quite broadly—what she describes as "the linkage of multimedia items through structures of association." The unique capacity of hypermedia to cross-reference multimedia files of sound, image, animation, and text so that they function as integral parts of a single work or document has exceeded the integrative capabilities of any other art form. In effect, she does not conceive of these pieces as unique artworks in the conventional sense, but as multimedia systems through which the viewer chooses a route. The viewer/participant's encounter with such a work of art is as a series of choices, each unfolding according to the individual's disposition with regard to time, sequencing, and duration of the experience. Like other artists working in this domain, she is most comfortable locating her pieces within the Internet environment, where it exists simultaneously as an independent site and as a point at the intersection of various "doorways" connecting it to the rhizomatic matrix of the Net. The definition of the "piece" in this context occurs at several levels: within the design of the site, its immediate connections to other sites, and as a function of the ongoing transformation of the work through the contributions of other artists or participants who help shape the site over time *(fig. 5)*. Excited by the idea of collaborative work unconstrained by limitations of geographic location or temporal synchrony, Harrison has also produced open-ended hypermedia systems to promote contributions by a wide range of participants. "Work," "piece," and "site" are being continually transformed in definition, conception, and practice by this activity, which takes as a

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FIG. 5 Dew Harrison, from *4-D Duchamp.*Caiiamind website, 1996.



FIG. 6 Eduardo Kac, *Telepresence Garment,* 1995–96.

given that there are no fixed boundaries to the artwork, that it is a collective project mutating through the input from geographically and temporally dispersed locations.

# Eduardo Kac

Eduardo Kac first integrated electronic media into his work as a writer and artist through holopoetry, which he pioneered in the early 1980s, but his other emphasis has been in the fields of telematic and telepresence art. He also began working with robotics in the 1980s, with a dialogic performance between a radio-controlled robot and a human performer wearing a wireless video monitor as if it were a head. He has subsequently produced a series of robotic-telepresence works such as his series of Ornitorrinco pieces, developed with Ed Bennett since 1989. These works take their name from the robot Ornitorrinco, which means "platypus" in Portuguese, emphasizing the hybrid qualities ascribed to that animal that are manifest in the telerobotic creature. Ornitorrinco has "journeyed" to various real and mythic places while being controlled by

viewers from around the globe accessing the work through the Internet and the telephone network.

Working extensively with these telematic pieces—in which participants in widely separated geographical sites are linked through electronic media—Kac has placed particular emphasis on the possibilities of real-time dialogic exchange. In a 1994 piece titled *Essay Concerning Human Understanding*, he created (with Ikuo Nakamura) a "live, bi-directional, interactive, telematic, inter-species sonic installation." The premise of the piece is that two different species of living organism—a philodendron and a canary—exchange acoustic signals in a telephonic conversation. To facilitate this, Kac and Nakamura attached a sensory electrode to one leaf of the plant in a site in New York. Fluctuations in the electric field of the plant were processed through a Macintosh computer running a brainwave analysis program. Meanwhile, the song of a yellow canary was picked up by equipment installed in its cage at the Center for Contemporary Art at the University of Kentucky and transmitted to the plant in New York. Thus the bird and the plant engaged in a real-time telematic exchange, a process that questioned the very idea of communication. The proximity of human observers affected