

Holography museum offers illusions, high-tech 'magic'

By Holly Liss

I saw a vision the other day. Scores of them, really: A luminous bronze horse sculpture leaping forward from a picture frame as I walked by. A well-toned nude revolving in the surf of a multi-hued ocean. A revolting Mike Royko glaring disdainfully at me, only to flash a conciliatory smile at the last minute... then the glare again... then the smile. Weird. Magical.

And the amazing thing is that *you* can see these exact same visions. It will cost you only \$2.50, and you won't have to sneak into a back alley to experience them, either. Instead, you can walk right on over to 1134 W. Washington and enter the Museum of Fine Arts Research and Holographic Center.

These aren't really visions, though; on display are holograms. A hologram is an image produced by a holographic plate, though the museum's pamphlet takes the long way around and explains it as "a recording on a light sensitive medium of the light waves that reflect from an object illuminated with laser light, forming in complete and full dimension an image of that original object."

But, to the average non-scientific Joe on the street, it's easier to describe a hologram as a photograph that captures an

image in three dimensions. While a regular photograph of an object as innocuous as a Steuben glass apple would have limited appeal for all but the glassblowers among us, a hologram of the same apple, such as the one in the museum, is downright mystifying. Inside the frame, the apple seems to hang in space, its smooth shape so real and so detailed that you feel you can reach out and touch it. But when you try, your hand passes right through the image, and your fingers end up bumping into the glass plate, reminding your slow-to-catch-up brain that this is just an image after all.

The museum is full of these finely detailed holographic portraits of anything from a gigantic computer chip, to a bewitching lunar landscape called "The New Territories." An image's color depends on the type of laser used to record the hologram — the common helium/neon laser renders the image red, argon green; recent innovations include multicolored holograms with hues of dazzling clarity.

Particularly noteworthy in the museum collection is the "pulse portrait" of a beautiful woman's face. The recording of a human in a hologram requires a pulse laser, which releases its energy and records in one-billionth of a second; any

longer and even the slightest movement of the subject will interfere with the recording. Also worth a close look are the "integrals" — a marriage of movie footage and holographic cylinders.

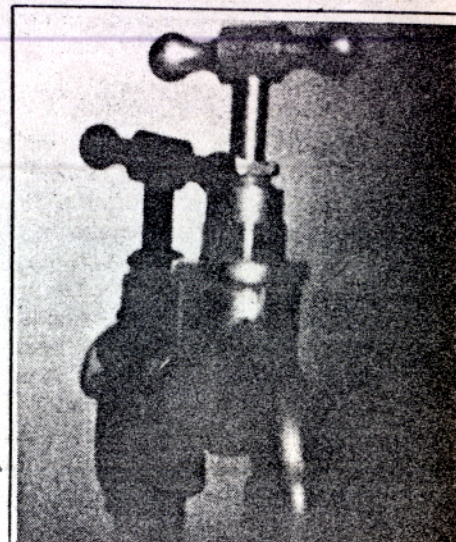
If it all sounds a bit mind-boggling and futuristic, then Loren Billings, founder and executive director of the museum and center will confirm this notion: "Holography really is a medium of the 21st century. It was just discovered in the latter half of this century" by accident, when scientist Dennis Gabor was trying to improve electron microscopy. However, no substantial progress was made until the early '60s, after the first lasers were constructed.

The great expense of these lasers — some are tens of thousands of dollars — has had a limiting effect on experimentation with holography, especially as an art form. Not all holographic artists are as lucky as Nick Phillips, of Loughborough University in England, whose works comprise nearly the entire first gallery of the museum. Much of Phillips' work was possible due to the generosity of his benefactors, members of the rock band the Who, who gave him two very expensive argon pulse lasers at a time when pioneer holographic researchers were still scrambling to use any laser at all.

It was the scarcity of opportunities for those interested in holography that motivated Billings to create the museum in 1976 and to add the teaching and research facilities of the center the next year. She is proud to point out that it is now the most complete institution in the world devoted to holography.

Billings' enthusiasm is also bolstered by the increasing use of holography in a wide range of fields. The center has produced holograms for such diverse customers as Zenith Corp., Upjohn Co., the McDonald's franchise at Wells and Ontario and the Museum of Science and Industry.

The center's most current work involves taking computer-generated animations



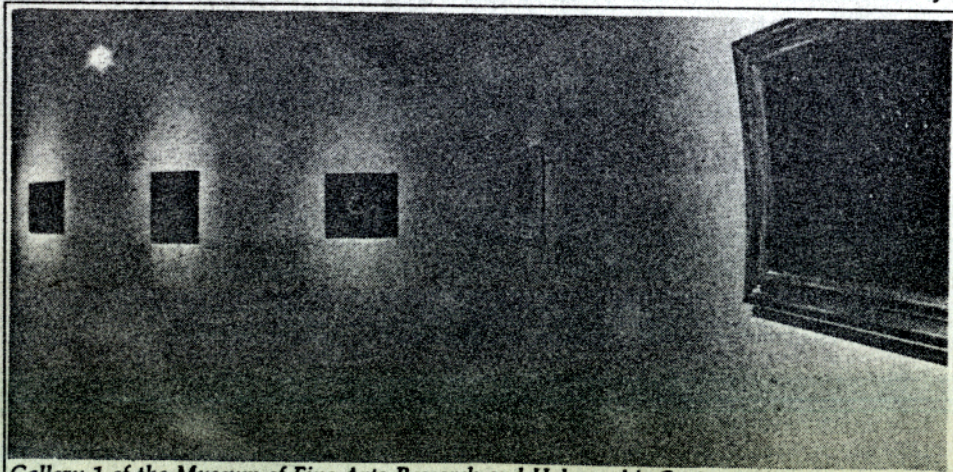
A photo of a hologram of a faucet; try to touch a hologram and your hand passes through the image.

and transferring them to holograms. Making three-dimensional models from two-dimensional information programmed into a computer has wide-ranging applications for industry, architecture and medicine, since students and professionals will finally be able to take a close look at things, like a DNA molecule, that they've never seen in detail before.

So what's all this holography stuff got to do with you? You're closer to it than you think, as close as your wallet or your local grocer. The intricate little birds and globes on your credit cards were placed there to stop credit card counterfeiters, and holograms are used for scanning grocery product codes. And coming your way by the year 2000: holographic films.

In the meantime, though, Billings wishes more Chicagoans would stop by the holography center (open Wednesdays through Sundays, 12:30 to 5 p.m.):

"Holography is vital. It is our contribution to future generations, and it really is a momentous time. Half the people don't even realize we're here in their midst."



Gallery 1 of the Museum of Fine Arts Research and Holographic Center.