Espace Sculpture

Art and the computer (continued)

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See table of contents

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Art
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David Morris, *Umbrella Fountain*, 1970. Portland State University Proposal (Oregon).

Water, like light to a painter, is a primal gift. To David Morris, the sculptor/teacher, it is rooted in his beginnings. When he was very young his parents, both artists, in search nourishment, left the New York art scene, the turmoil of Pollock and Rothko, and settled in the mythic realm of the Pacific Northwest. Mark Tobey was Morris'godfather and memories of the world of calligraphy and flowing rivers linger affectionately with him to this day. Morris'parents are still painting and sculpting today and he is still an artist fascinated with water events: the relationship of liquid to solid mass, and more universally, the underlying principles of growth; to Morris these are inherent and discernible in the flow of the river.

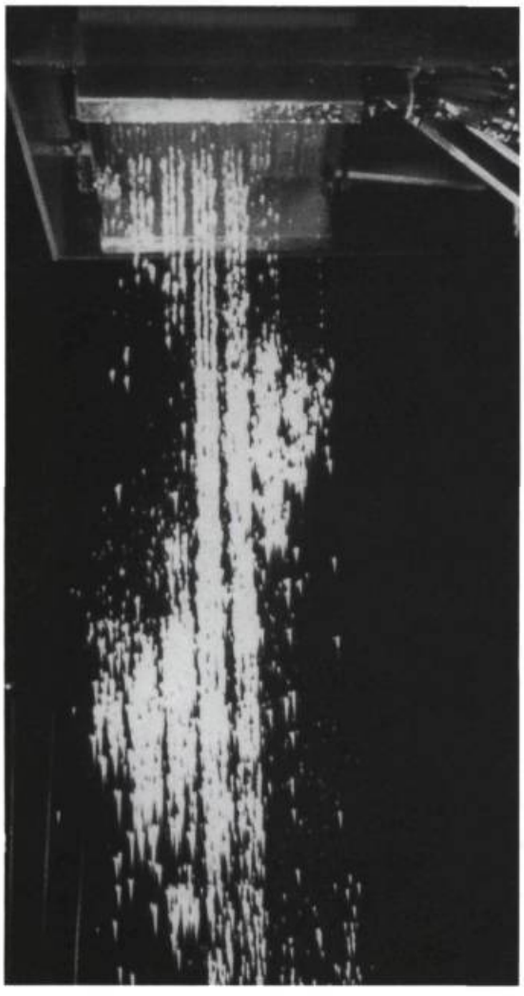
In his Brooklyn studio, Morris has recently used the curvature that reoccurs in many of his maquettes of aqueducts, underground waterways, cascading walk-under plateaus, to program structures on his 386 P.C. Del Computer. By starting with an intuitively-derived, meandering line and by building crystal-like polygons around the curving line, he is generating forms that can be translated into free standing sculptures. The polygons can be neatly welded into faceted units of growth, collected around the vertical original line.

To David Morris the computer can reveal unknowns, a latitude of possibilities, and as with the nurturing of a child, by coaxing it in a direction, not knowing where it will actually end up, some pleasant surprises can result. He also feels the need to compile; having worked freely for years in an area of familiarity he wants now to write down some of the rules, and to extend them. Although he can achieve as much, as quickly, with cardboard and a glue-gun with intuitive structuring, he enjoys the surprises of the computer. He nonetheless maintains a sense of apprehension; and he questions the depth of its questing.

"A good drawing can make your day, or your month for that matter. The computer image doesn't provide that satisfaction." To be on the cutting edge of the art world via technology doesn't interest him... the machine is like fancy cutlery, enjoyable, luxurious, but not essential to the fulfilment of one's daily diet.

As a child damming irrigation ditches, observing the marvelous objects that water often washed up, Morris unconsciously set his course. As an undergraduate at Reid and graduate at M.I.T., he worked his way through myriads of complex form situations and arrived at final and simple resolutions. Now he uses the computer key board over week-long periods to see what will wash up on the screen. To Morris, a mathematical form is as natural as a piece of driftwood or a walk in the forest, and the computer is the tool to get at an infinity of mathematical forms.

The river, as it flowed from somewhere to nowhere, always had the quality of a liquid that magically transformed the world of solid mass; it also had an inner crystalline structure that somehow was the growth principle itself. Perhaps technology is now playing a role in his adult life by helping to order his perceptions into concepts and structures that are palpable expressions of those early dreams.



Steven Pevnick, the *Rainfall* Project, 1984
Helix Image, 5 ft tall.

Steven Pevnick: Water and Myth

An artist and professor at the U. of M., Milwaukee, has made one of the most significant, art-related breakthroughs in the technology of our times. When Steven Pevnick became curious about computers in 1974 and approached a group of computer musicians, they agreed to include him in their ongoing research; they let him use their computer systems, providing he create some visual complement to their own musical interests. With its rhythms, syncopations, repetitions and complex patterning, music offered a real challenge to a visual artist, and Pevnick, on that rainy afternoon, did some soul searching. He returned with a unique proposition: to create an acoustic, percussive definition of space using water droplets.

In the pursuant months, he produced a computerized waterfall that actually shapes and comes close to painting, a space with falling water configurations. Pevnick's excitement about the fountain is not solely over the technical breakthrough that the computer has provided and which has brought him considerable acclaim in hi-sci circles, but more significantly, about extending our perceptions.

"When we come to an experience we've not seen before, we use tools that are fresh and unique about us to try to perceive. The means of communicating is a tool... and ... the tools that we use to perceive will affect what we actually see. The fountain becomes a new tool for investigating how we make images... Then we find things that are really unique at the other end of that."[1]

Thought and visualization are connected again and with an invigorating, bristly-light, yet mysterious media like falling water, Pevnick feels that by subtly altering its path via the computer, he is extending and adding to the mystery, thereby recaptivating and connecting directly to the inner self or eye of the viewer. This process transcends the usual reach for beauty in culture. It engages directly where the viewing of a known icon or painting, in a museum for example, requires a tradition and considerable knowledge to see or "read" according to our current dictates. Intellectuals and little children alike are fascinated with the fountain. A "suspension of disbelief", blended with the technological query "How does it work?" replaces the layering of thought and knowledge of the usual museum experience.

In a highly participatorial culture such as ours, technology can but does not have to erase the collective mythic quality of man's earlier experiences. When, at the turn of the century, a child opened a tap, the ancient question of "how?", the mystery that urban fountains of the past had always prompted, was answered and the mythic quality was lost. Pevnick hopes to restore that quality in his new fountain.

His research led to a modular design that can be altered depending on the height of the fountain. In one configuration, the grid has 2,300 valves and nozzles in groups of nine with 256 individual program channels of dropping water; four personal computers control one square foot, each sending out jets of water according to the given program and creating falling ribbons that spiral, forms that take on crystal focus as they fall, cubes and pyramids that metamorphosize into abstractions as they cascade down. Whatever geometry the program calls for, the viewer experiences in water, a kind of vertical mini-sky writing. This year, at the Chicago Navy Pier installation, the fountain said a visual, watery "Hello" in an array of different languages.

A work of art should not only catch one's interest but sustain it and, notwithstanding the revolutionary technological and perceptual advances, some viewers may still have reservations about the creative integration of all the mysteries involved. In the future, Pevnick hopes that the interaction of the surrounding people will be monitored by the fountain and that appropriate images will be generated for the mood of the group; also, that children will wave and be answered to. The potential as an urban communication media and tool seems unlimited, so we can expect to see his work before long in an increasingly international context.

Jon Fordyce: Direct Creations

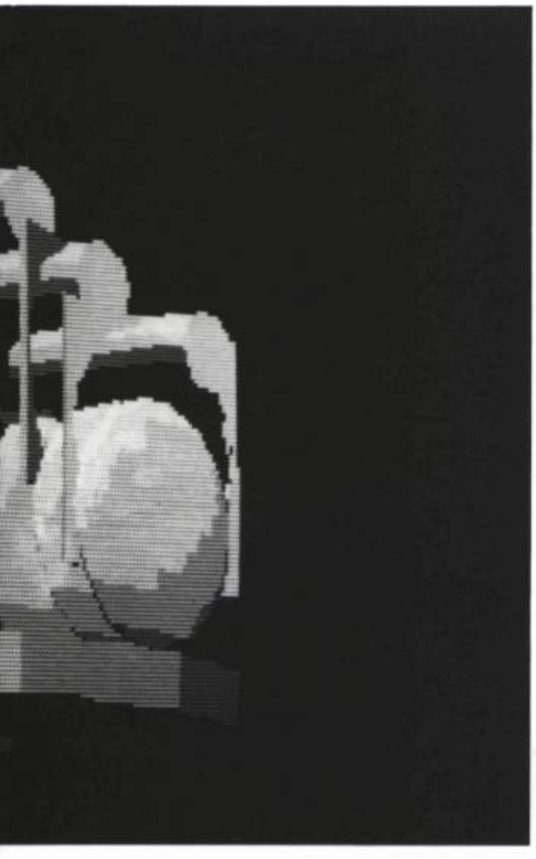
Jon Fordyce likes to work openly with the computer as creator. Rather than enhancing perceptions and working traditions, he feels it better to use graphic dot-matrix printouts directly in generating new form combinations. By a kind of trial-and-error dialogue between ancient manual approaches to metal, and the hi-tech graphic images, he finally emerges with a three-dimensional sculpture.

As a carver and forger of steel, he has confidence to proceed in his ex-

Jon Fordyce, C.A.D. *Image for Mandala in Transformation I*, 1987.

plorations, though in 1981, when he began with the computer, he still had a lot to discover. Learning the craft skills of the computer and making the software entry required many months. The range of equipment has varied from Atari 800, to Atari 1040 ST with Antic Software CAD, 3D, 2D and Cyber texture, a Gemini 10 Dot Matric Printer, Micro Painter, a video cassette recorder with camera combination and finally, stereo tek LCD 3-D glasses.

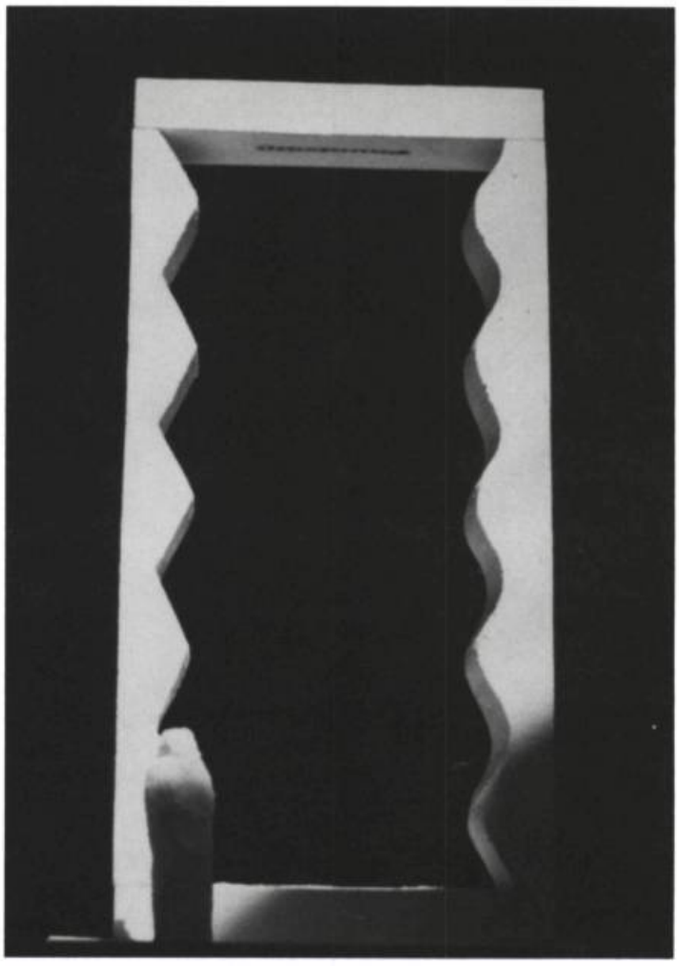
An interesting observation by Fordyce about the transformation from 2D to 3D is one that concurs with the late David Smith and his credos regarding gravity. Although welding offered "drawing-in-space" and many illogical-sense propositions, Smith would never violate the natural order of things; visually, the forms always stood up in a way that would not fool the eye. Fordyce has realized the difference between real space and computer imagery and has had to make the adjustment as he proceeds. His images do have a repetitional, pattern-like quality reminiscent of computer print-out, which is interesting, but they also sit solidly on the ground. Fordyce believes that "as more fertile artistic minds take advantage of technology, and as that technology becomes even more capable and complex, we will see the evolution of styles and techniques that now exist only in our dreams."[2]



Semiotics: The Generative Languages of Manfred Mohr

The week before the symposium, a visit to the New York studio of known computer artist Manfred Mohr, who has exhibited internationally and has held numerous Montreal shows with Gilles Gheerbrandt and two museum retrospectives in Germany, not only augmented the scope of the overall investigation but also raised and addressed the timeless issue of æsthetic standards, the parameters implied in this relatively new game of computers in its interaction with art.

Mohr began his work with computers[3] in 1969 and, being constructivist-based, like Snelson, he also deals with primary geometrics. An underlying desire of Mohrs is to not only investigate the inner workings of primary forms but to fracture their perfection and stability, to upset their inertia, and to release their dynamics to create new worlds.



David Sorensen, *Gate which will contain computer controlled panel*, 1988. Granite. 26 ft high.

For fifteen years, Manfred Mohr has disciplined his interest, much as Albers did with the square, to a logical yet poetic research on the cube. Where multitudes of artists have passed over such a basic research, Mohr has generated an endless variety of new propositions and visual statements of high æsthetic interest by staying within the confines of a single premise or form. As such, we sense his affinities with anthropologist/author Claude Levi-Strauss (Elementary Structures of Kinship) and deconstructivists such as Michel Focault and Roland Barthes, all radical investigators of our compilation of cultural knowledge and its relationship to actual experience, and further, to language.

To Mohr, the stereometric cube as we know it is like a language, the English language, for instance. Once the underlying order and symmetries have been explored in an extended work period, an alphabet and a vocabulary start to make themselves available to the artist. When the cube has yielded its inner workings: points, lines, vectors, squares and its potential system of line relations, Mohr begins to compose, combining logic and flights of fantasy or fun; he begins to write poetry. In this instance, the poetry is English poetry. To extend the metaphor, after a period of perhaps two years, he will become restless with English poetry, or the cubes potential as English poetry, and he will move on to a second work phase in which the modalities of expression increase. He then turns to French poetry.

By combining his first work phase with French poetry, dividing the cube and rotating its separated planes on different axes, creating outer structures with inner signs, running lines of growth from one side to the other, superimposing frontal and rear views of structures and signs; by pursuing these complex manipulations assiduously and logically within the matrix of conceptual verisimilitude, Mohr ultimately finds himself in the sunrise zone of linguistic and visual disclosure. This language blend is directed through what he refers to as "æsthetic filters".

Despite the pleasurable aspect of such voyaging, Mohr is constant in his dedication to the logic implied by the computer. He does not interfere with the algorithmic aspect of the process; intellectual integrity always stands first. If the occasional result is visually less than satisfying, it is not necessarily removed but is seen as part of the true form of the program. To this degree Mohr consents to the attribution of "purist".

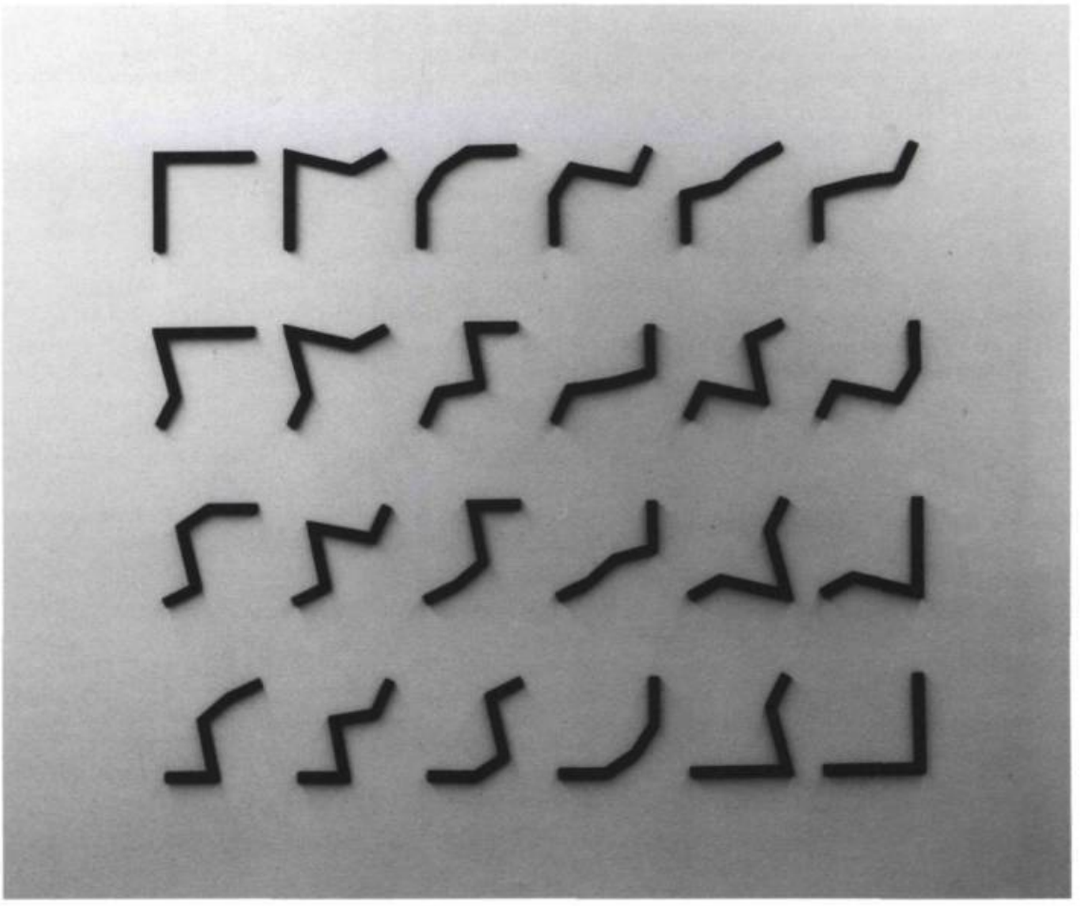
The fusion of poetry with mathematical accuracy is sec-

ond nature to Mohr due to his early involvement as a jazz musician (tenor sax and oboe) and his formative random-choice, gestural paintings. Jazz in its improvisational digressions treats rules and strict definitions as membranes rather than borders and walls; it explores with fancy the variations implied in a theme. With this approach, implicit before 1974, the time when he first made the cube his topic, it was natural for him to play through and beyond restrictions where a more austere or strictly scientific artist may have faltered.

He indeed has no laws to set or to demonstrate through solutions. "I don't create solutions. I create problems!", declares Mohr. His computer and its connected plotter, large enough to take on six-foot shaped canvasses, gradually draw or paint his discoveries, assisting in accuracy and relieving the artist of long hours of application. They have no part in the design or the creation but can do things – painting perfectly near the edge for example – that the human hand may have difficulty doing. Their real role is to generate and execute programs that Mohr creates from the beginning.

Of course, in his extended work phases, it is not unusual to reach a dead end and to put a problem aside for a year or two, finding the next step after an extended rest. He feels his approach is a personal way to guide his thinking about art and to further his thinking in general. All the little hang-ups are challenged. If he does not like a particular angle, say 30°, and would normally avoid it, the program does nothing to respect his idiosyncrasy. The 30° angle will appear from time to time in a given scenario and provide him with the needed therapy for a clearer view of the present.

Some of Mohr's working notes, paraphrased and abbreviated here, from a retrospective catalogue[4] give more specific insights into his approach between 1967 and 1987:



Manfred Mohr, *P-229-A*, 1978. Wood. 190 x 240cm.

1968: *Subjective Geometry*, Geometric elements influenced by electronic and other technical signs... Mobile and exchangeable signs creating abstract visual tensions in space.

1969 to 1973: *Early Algorithmic Works*, Hieroglyphics or magical formulæs... individual algorithms (calculations with cyclic, repeatable regularities[5]) invented and written as computer programs... All forms and structures generated solely from these... Meta languages, signs which reveal their own story... "Aesthetic filters" to build and compose algorithm.

1973 to 1977: *Cubic Limit*, Systems are fixed. The cube, later the n-dimensional hyper cube (superimposition of cubes in "mathematical" space... obeying mathematical laws... any number of vectors or sides radiating from a given point) provides a repertoire of elements for developing signs.

1973 to 1975: Second phase... division of cube by a cartesian plane... rotate opposite sides... project in 2D and clip (through flat cube window... 0,0,0 degrees)

1978 to 1979: Graphs, two dimensional cubes as basic generators of signs.

1980 to 1986: *Divisibility*, ...visual stability by diagonal repetition... growth... cutting into two and four... "outlines" used for rotation and production of new generations.

1980-1982: The four cut -:- is the basic structure with which the "outlines" form shapes, and the "inlines" create signs.

1982-1984: Decide which "outlines" of quadrants created in preceding generation will be used to produce the "4 cuts" of the new generation (molecular growth).

1984-1986: Contours of "4 cuts" seen as "shadow forms" or 2D visual history of cube growth... connect path of centre points of "4 cuts" and create spinelike black growth line.

1987: Four dimensional projection of the hyper-cube (a construction of eight simultaneous cubes) generates signs and shapes. Two dimensional projection of hyper-cube of given rotation fractured to square windows related to each of its eight inherent cubes. Front and back views respectively black and grey.

These notations, upon reflection, show not only the concern of a twentieth century scientist but that of an art adept: the rotations starting in 1987 with simultaneous front and rear view coded as black and grey acknowledge Picasso's cubism; the "clipping" in 1977, or framing of rotated cube parts through a window-like, "flattened" cube (0, 0, 0 degrees) pays tribute to Greenberg and the sixties. Mohr's attention to the dynamics of the canvas reveals an updated sensibility; his images take us far into the future.

Much in the way artists of the '50s and the '60s compiled libraries of forms, cut-out pieces for random arrangement, Mohr has extended the approach onto a new plateau. He has created an orderly systematization that contributes to a much larger library of pieces: visual, conceptual and linguistic.

When questioned about his pioneering spirit, the number of artists accompanying him on this path and the idea of an Academy of Computer Arts, Mohr mentions the highly sophisticated CAD and CAM[6] systems available, pointing out that what had started as perhaps a thousand serious computer artists has dwindled to a mere handful. The new artists seem, to a large degree, more tantalized with the "menu" than the meal. In the early days, it seemed that the possibilities for a new intellectual plateau were incumbent, but now, for now at least, a dispersion of ideas and directions preponderates. A manual-amplifier role rather than an intellectual one is currently the trend, but as Mohr's work and the demand for it are rapidly increasing, he has no regrets in a pioneer role and little doubt about the lasting quality of his contribution. As more efficient computers are developed and become accessible to artists for in-depth research and production, Mohr's early desire for an "intellectual calm in art", a period when technology allows man more leisure to investigate higher and presently remote issues, may still occur.

In conclusion

By overcoming their hesitation toward high-tech, some artists, frequently tool-oriented ones, have bridged from the haptic-visual mode to that of the computer. There are certain areas, figure painting for instance, where it seems unlikely that the machine can achieve appropriate values and relations: from Rembrandt to Manet, the bond between the sensual and luminous quality of oil paint, applied with brush in hand and the lustre of real flesh, is immutable. (The media creation, Jessica Rabbit, half human, half "toon", seems the happiest figure resolution by computer thus far). Abstraction, and specifically constructivist-based abstraction, is best extended by computer because of its inner structural systems; forms, forces, and signs that can be explored and extrapolated endlessly. In addition, visualization and artistic presentation programs are many.

New areas of perception are revealing themselves but, at the same time, are not old and valuable ones being erased? As the symposium ended and some of the panelists lunched together, a conversation touched on this. Snelson's incredulity at the seemingly endless span of time it had taken for man to reach his present state of technology was answered by Ron Coleman: referring to the ancient Egyptians' strengths in this area, he agreed that the know-how, that which we have today, had always been available and added that we have lost a great deal of the earlier knowledge through ensuing and intermediate technologies.

So, not only is the mythic at stake, but also the logic matrix. Watches that relay and erase that which was once cyclic, typing machines that perfunctorily correct spelling errors, calculators that add, subtract, multiply and divide for us; this digital dependance threatens to lead to a vagueness of mind, once separated from individual purpose. In a more extreme scenario, the secrets of self-healing have been irradicated by the indifference of a surgical tool. Globally, the century bears witness to the devastation that a haphazard approach to technology can bring about.

The Philadelphia Museum of Art has a room in the oriental wing with 13th to 16th century Ming Dynasty rosewood furnishings. As minimal as the best creations of Donald Judd or Robert Morris, these tables and benches are rich in color and reference. Their long, low polished tops lift graciously at each end like flat valleys coming to the foothills. Similar details at the foot of the legs pull the eye back with an inward motion, centering below the table. A cultural attitude reflecting human and natural values is deeply imbued. These seem centuries distant, in a meaningful direction, from the computer's general accomplishments in the area of the arts thus far.

Arguably, one of the greatest revolutions afoot in our pluralistic, post- or neo-modern society is that of self-discovery. Eclipsing technology's many "miracles", the individual is beginning to emerge totally self-respecting and whole. If the machine can contribute in this direction, assisting through its objectivity and efficiency, it will indeed play a leading role in the formation of a new and more human being.

1. Paraphrased by author
2. Atari Explorer (Jan/ Feb '89) Pixel to Torch: Forging the Sculpture of Tomorrow by Jon Fordyce.
3. Computer. Digital. PDP 11-23. Plotter. Alphamerics. Alpha Plot II.
4. Fractured Symmetry. Algorithmic works 1967-1987, Wilhelm-Hack Museum, Lud Wigshafen Am Rhein, Germany.
5. My note.
6. CAD – Computer Aided Design. CAM – Computer Aided Mechanics.

Manfred Mohr, *P-379D*, 1984-87. Acrylic/Canvas. 130 x 130cm Sammlung Rolf Dettling, Pforzhgim.