"Network Fever"
Mark Wigley

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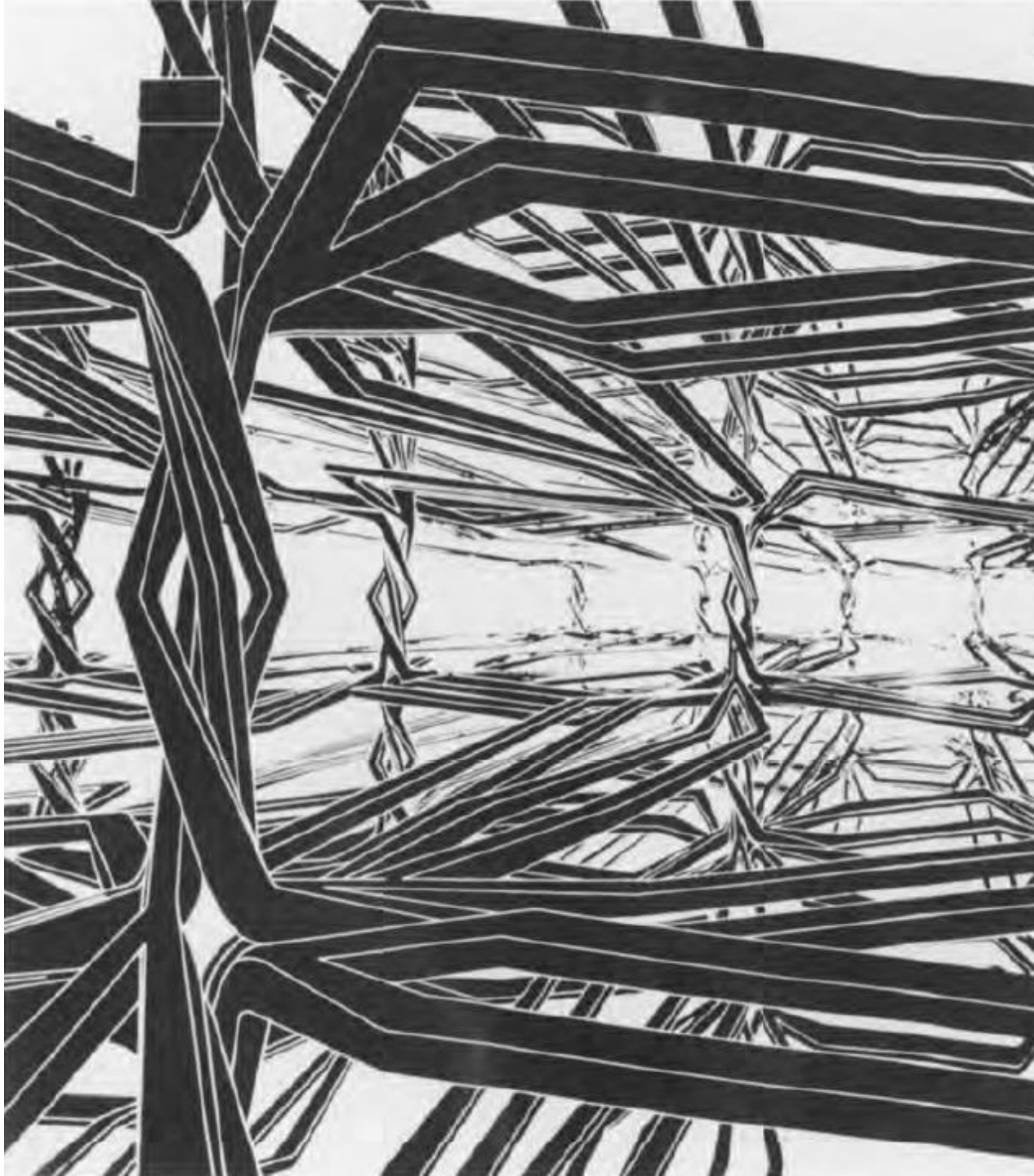Professor and Dean Emeritus at Columbia GSAPP.

Theory and practice of architecture

In 2005 he co-founded Volume magazine with Rem Koolhaas and Ole Bouman as a collaborative project by Archis (Amsterdam), AMO (Rotterdam), and C-lab (Columbia University).

"The message is clear.
Nowhere escapes the net. "(p.83)

"The message is clear. Nowhere escapes the net. " (p.83)

Konrad Wachsmann.
Experimental structural web,
1953. (detail)

Gurus:

Buckminster Fuller

Marshall McLuhan

Constantinos Apostolou Doxiadis

Mary Jaqueline "Jacky" Tyrwhitt

Buckminster Fuller

(July 12, 1895 – July 1, 1983)

American architect, systems theorist, author, designer, inventor, and futurist.

Published more than 30 books, coining or popularizing terms such as "Spaceship Earth", "Dymaxion" house/car, ephemeralization, synergetic, and "tensegrity".

Developed numerous inventions, mainly architectural designs, and popularized the widely known geodesic dome.
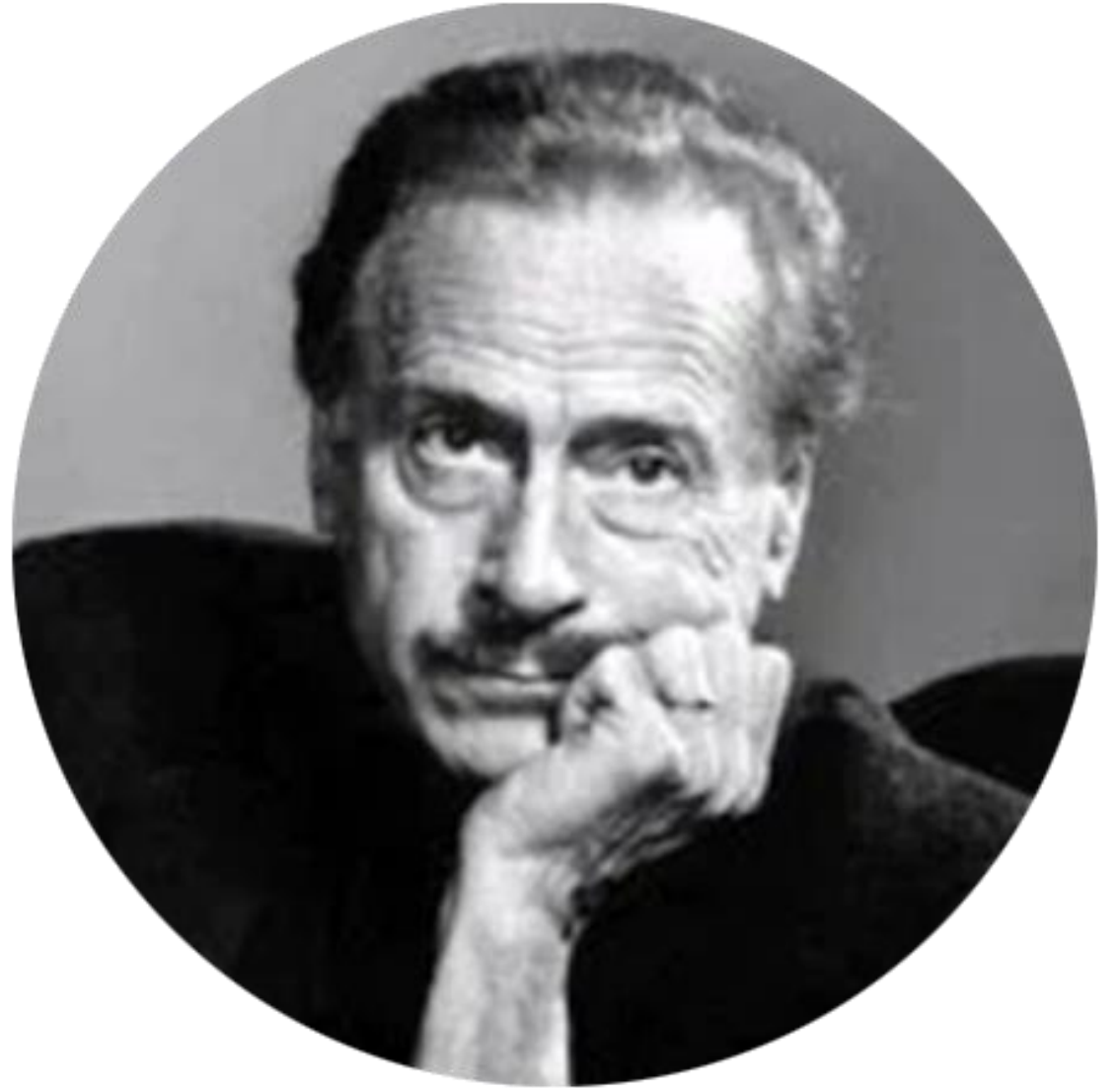
Marshall McLuhan

(July 21, 1911 – December 31, 1980)

Canadian philosopher.

McLuhan coined the expression "the medium is the message" and the term global village, and predicted the World Wide Web almost 30 years before it was invented.

Fuller and McLuhan
On board the New Hellas
in the Aegean, July 1963.

- 8 day boat trip around the Greek Islands

- 34 leading intellectuals from 14 countries

- "symposion" - informal but intense every day discussions
onboard about "the evolution of human settlements"

McLuhan: "…electronics is actually biological, an organic system with particular effects. The evolution of technology is the evolution of the human body. Networks of communication, like any technology, are prosthetic extensions of the body…" (p.86)

"…the latest technologies have expanded the body so far that they have shrunk the planet to the size of a village, creating a "tremendous opportunity" for planners…" (p.86)

Fuller: "…technology as an extension of the body ever since his first, but not well known, book, Nine Chains to the Moon of 1938, and had been insisting that traditional architecture had to give way to a "world wide dwelling services network" modeled on the telephone network." (p.86)

Constantinos Apostolou Doxiadis

(14 May 1913 – 28 June 1975)

Greek architect and town planner.

Lead architect of Islamabad, the new capital of Pakistan, and later as the father of ekistics.

"…he always thought at the scale of the planet. To say the least, he was a global architect." (p.87)

Animate Nets

"…cities were expanding out of control…" -> "…keep up with the spread of buildings by using aerial photography."

"…launched the field of "Ekistics" in the mid-fifties and founded the Athens Technological Institute in 1958 as a research center and architecture school based on the idea of global statistics."

"The idea was to think at the largest possible scale by domesticating vast amounts of global information. If the data could be controlled, cities could be controlled. Courses in statistical analysis became "indispensable" for architectural training."

"… a settlement is a continually evolving "organism," at once biological and technological, a technology with a biology…" (p. 87)

Animate Nets

"…city as a body with nerves, arteries, and heart and uses the growth and multiplication of organic cells as a model-presenting images from biology textbooks to clarify the behavior of urban form…" (p 87)

OR "…sequences of "electromagnetic maps" and computerized "carto-graphatrons" showing shifting patterns and hidden force fields through time…" (p. 87)

"… real dimension of cities is not space, but time. What counts is a city's trajectory of development rather than its form…" (p. 88)
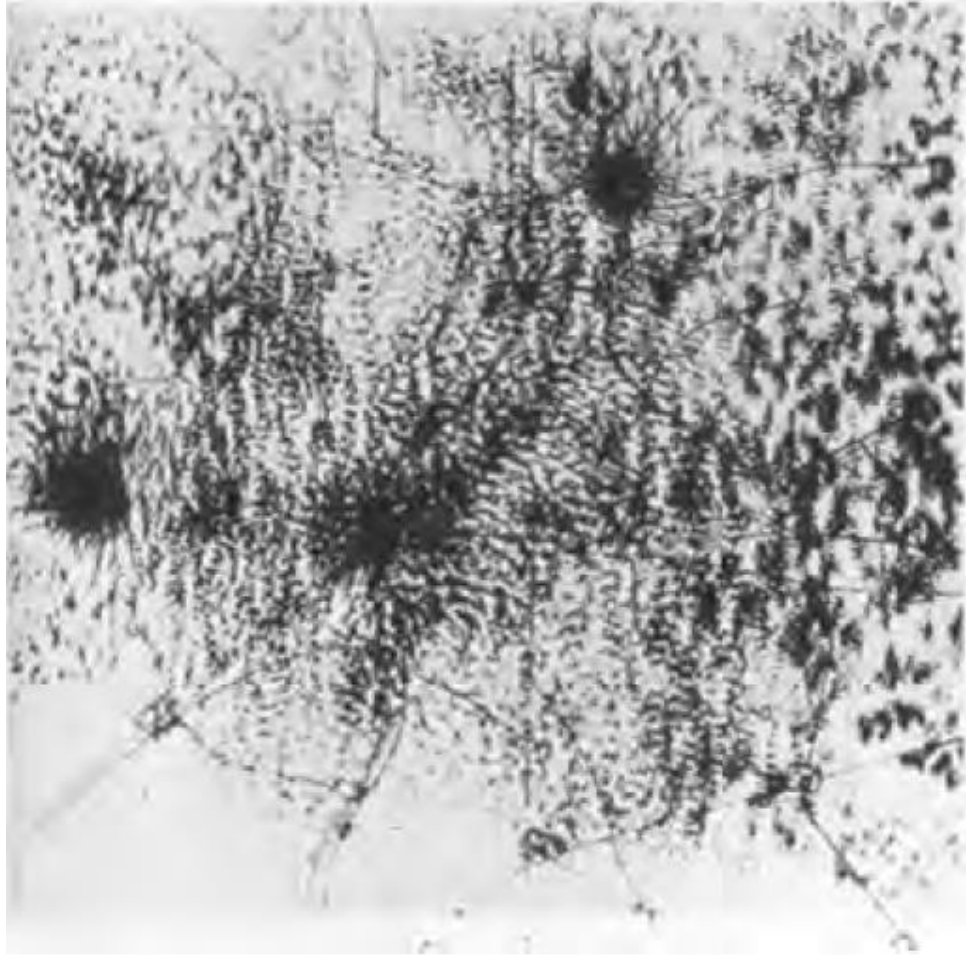
Doxiadis. Electromagnetic maps of city growth, 1962
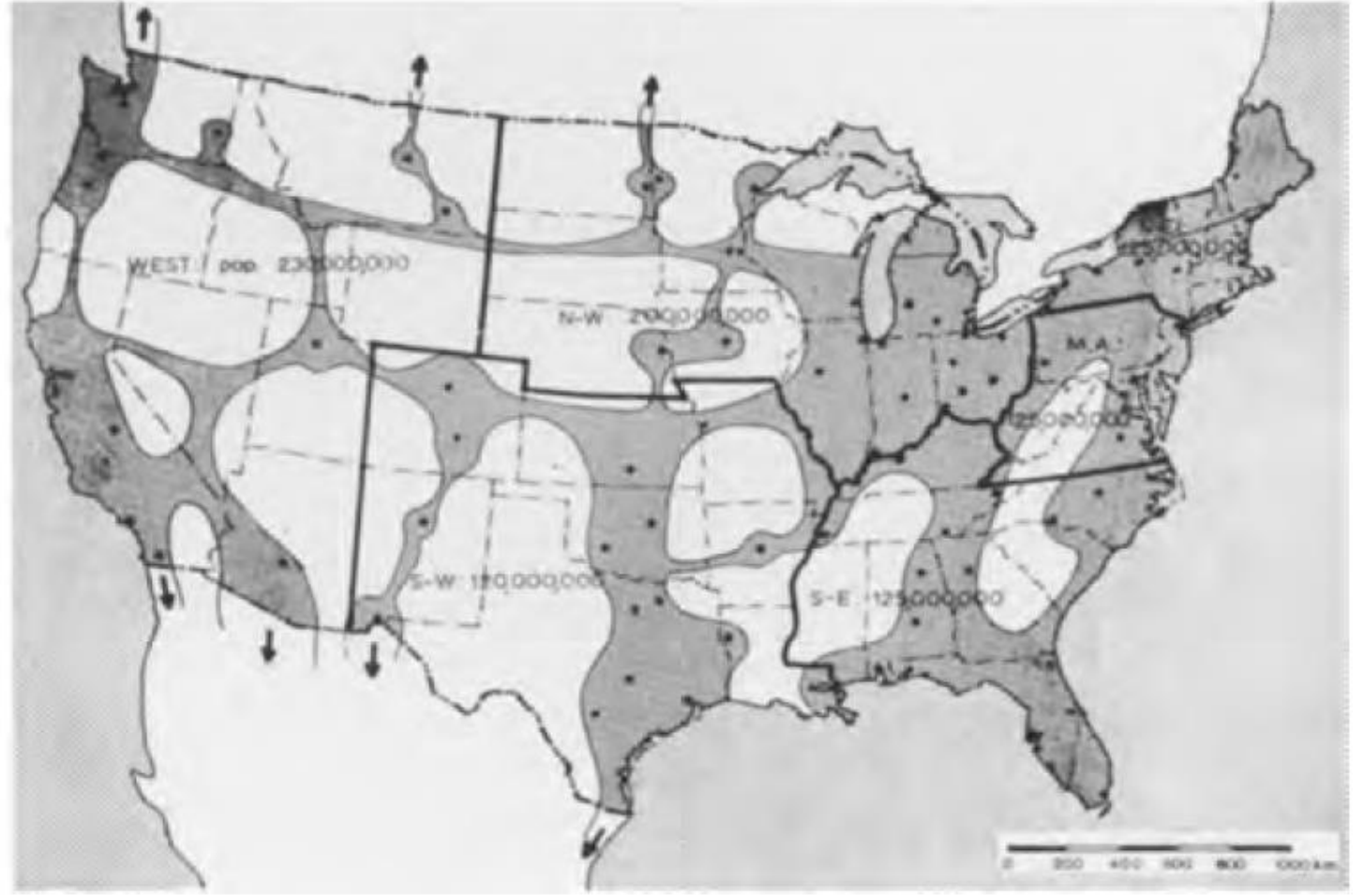
Doxiadis. USA as single city, 1963

Doxiadis: "…architects must be as networked as the spaces they produce. " (p.88)

Delos Declaration

"…Doxiadis …networking a wide range of disciplines rather than just architects."

"…Other speakers added the idea of social networks to the physical ones, arguing that there had to be an "interface" between them, and Doxiadis agreed that "every non-physical network requires a physical network for its delivery."(p.91)

"By the tenth Delos in 1972, networks had become the central focus of all urban design, with the final report insisting that their configuration determines the growth patterns of cities."(p.91)

"…Doxiadis argued that cities are simply the product of networks used to minimize effort to maximize contacts, yet typically it is only the shells that are designed. ."(p.91)
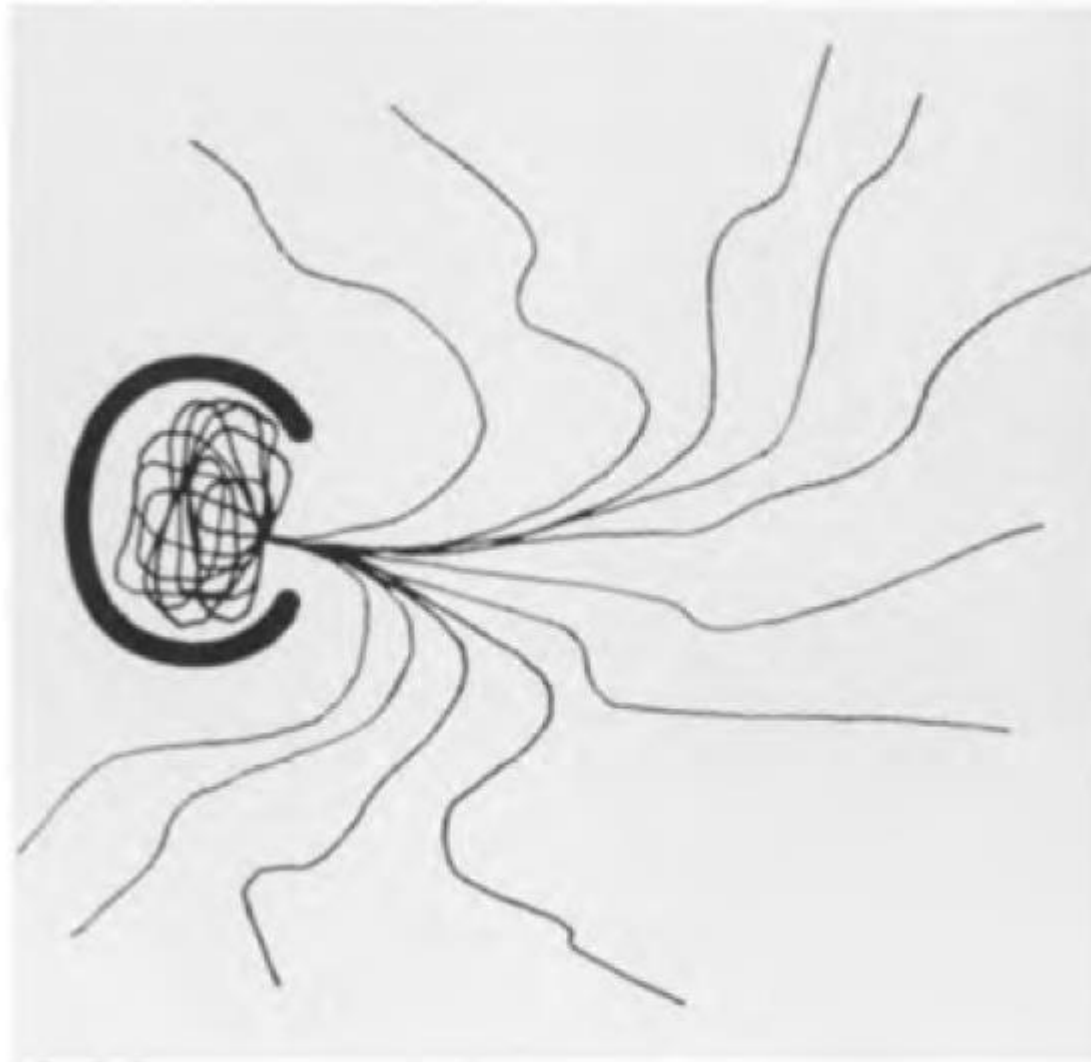
Doxiadis
Diagram of basic shell, inhabited and extended by functions
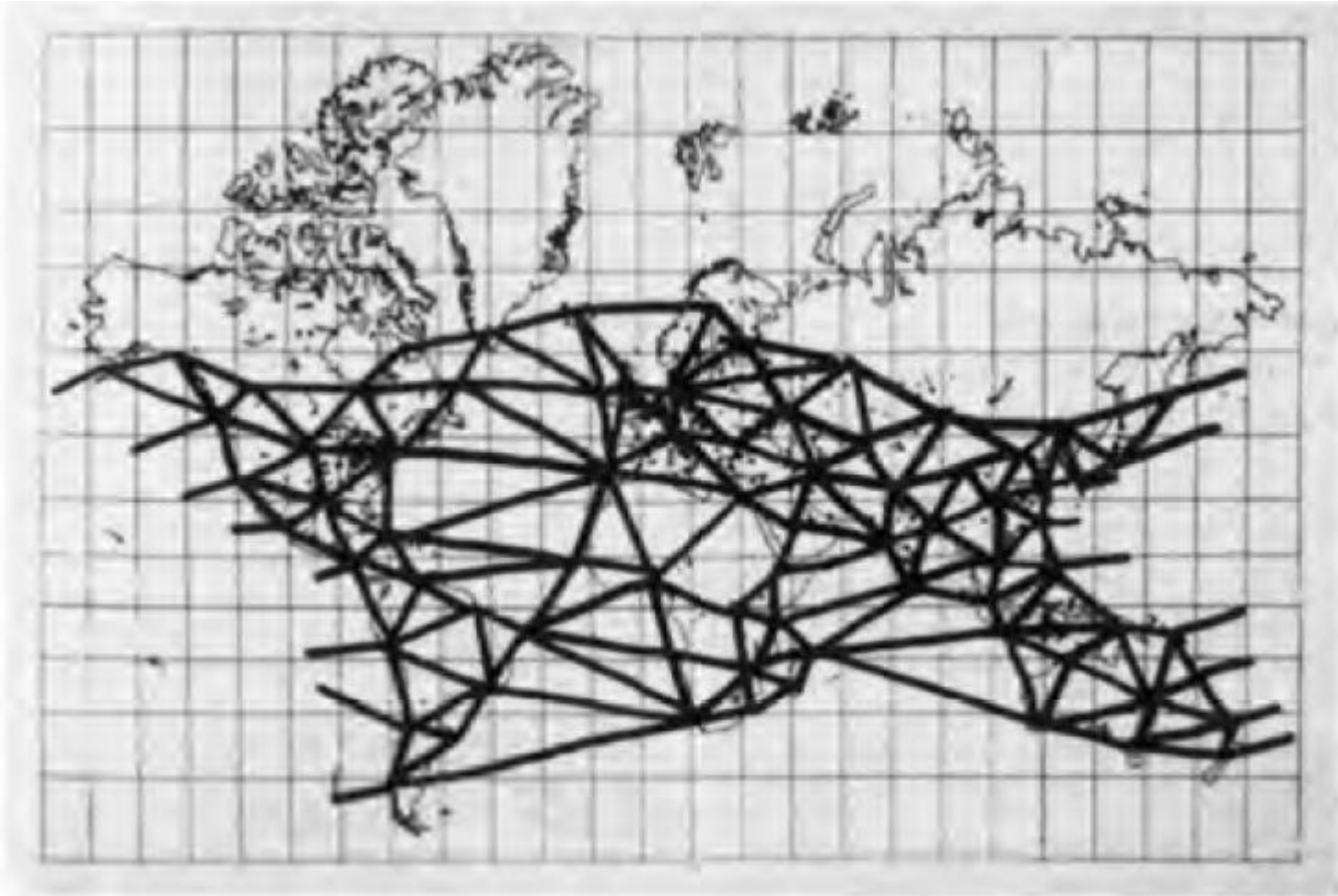
Doxiadis. Airline" Network of the future," 1963

Doxiadis drawing for Margaret Mead, Lord Liewelyn Davis, Sir Robert Matthew, Delos 2, 1964

Everyone was treated as a kind of architect-or, rather, the whole group tried to act as a single architect. The boat was a collaborative design studio. Following Doxiadis's lead, the Delos events were all about making a certain kind of drawing, trying to visualize the invisible by conjuring up a coherent picture of an unseen order.

Ekistics journal

"…major vehicle for disseminating these new kinds of pictures of invisible architecture was Ekistics, the journal that Doxiadis started toward the end of 1955…"

Ekistics is itself a networking instrument. Indeed, it explicitly exaggerates the networking operations of all magazines. It only publishes abstracts of already published texts, repackaging and rebroadcasting existing data. The magazine is a scanning device, constantly monitoring information flow in other magazines.
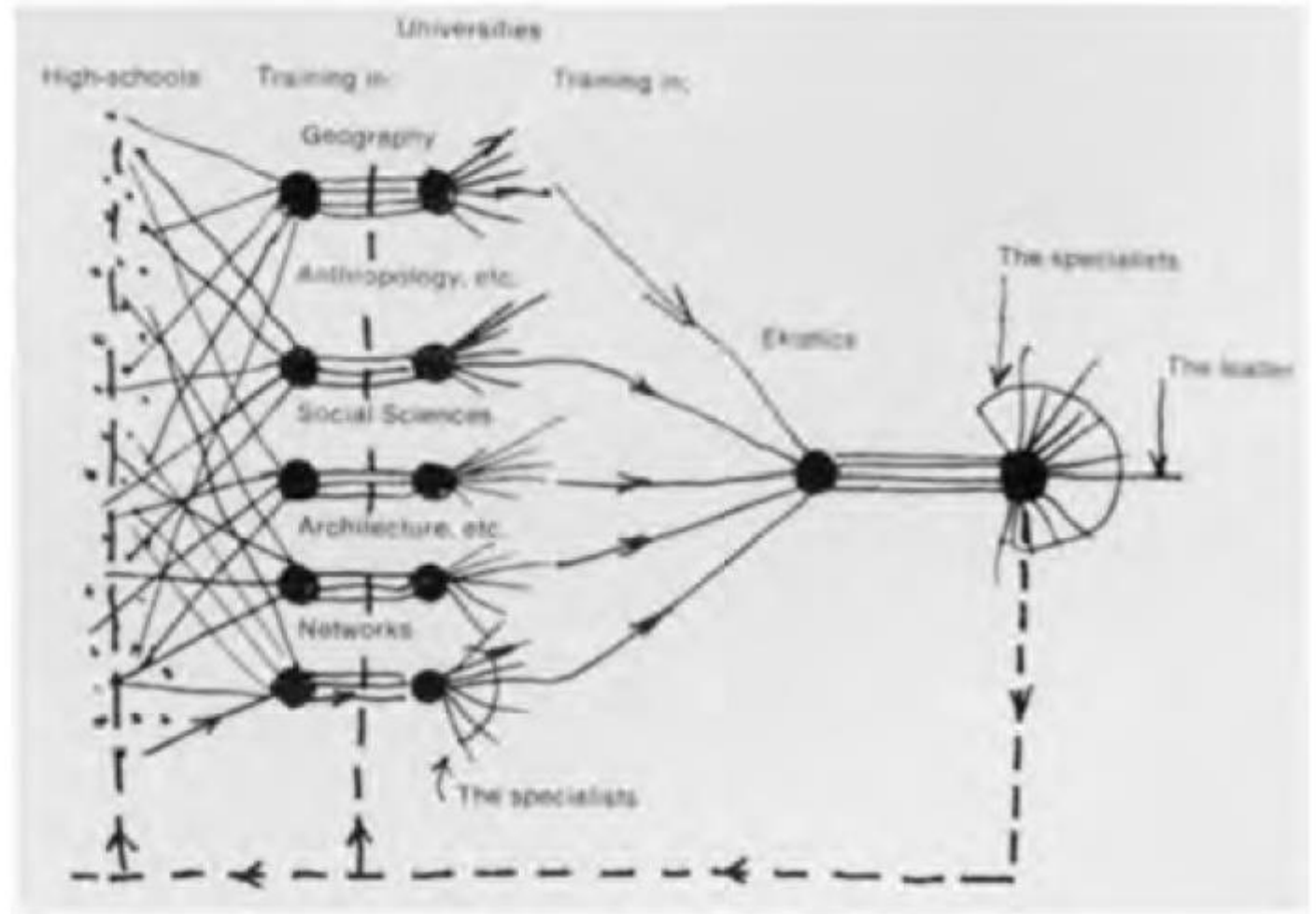
First Ekistics Grid, January 1965
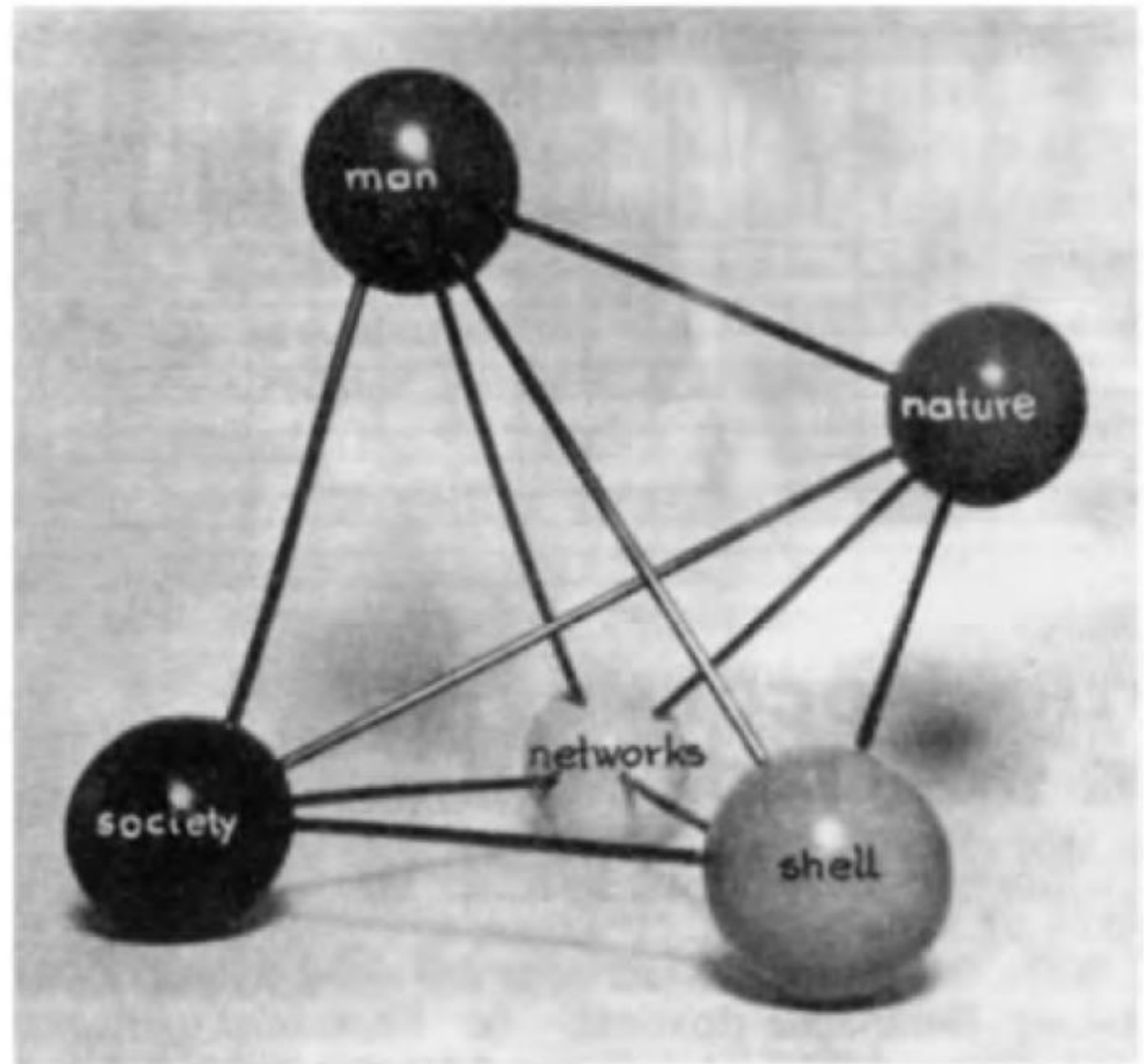
Network of Ekistics elements, 1966.
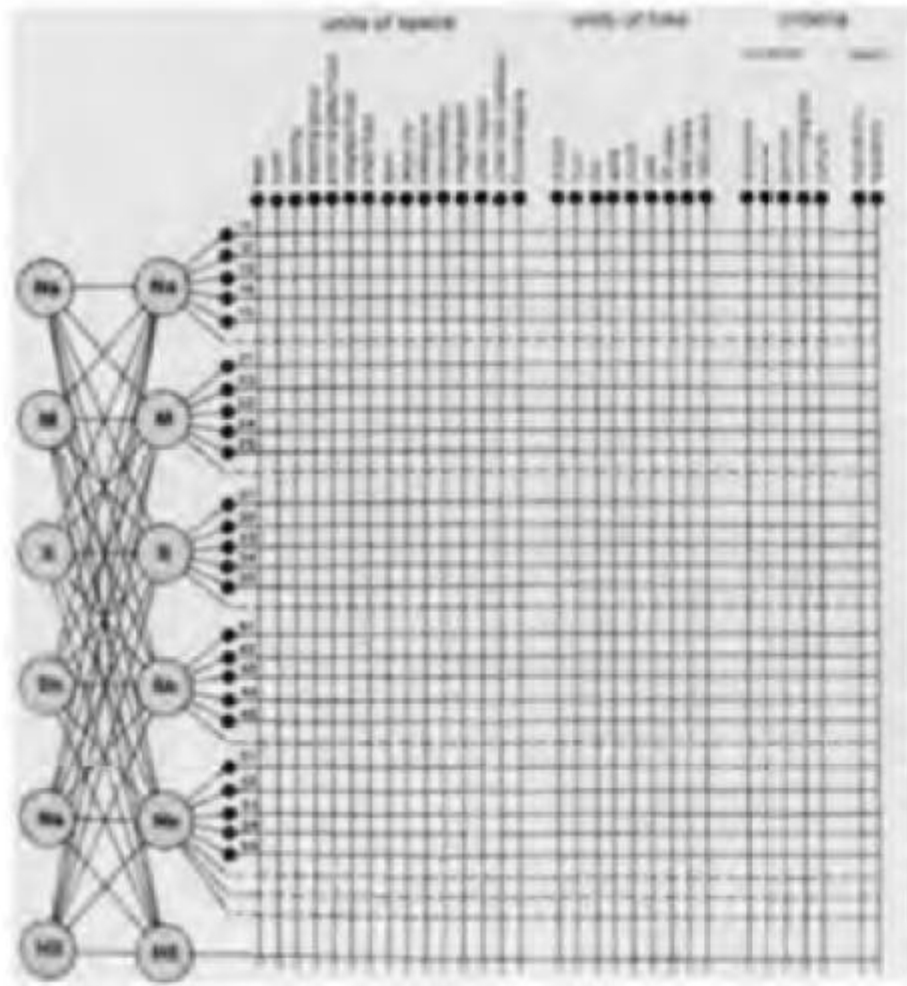
Networked Ekistics Grid, 1971.

Ekistics itself as a network, 1971

"the chaos of networks"

Designing networks has become a biological necessity.

These associations are classical. The ancient forms of the word "network" were applied at once to the work of humans and that of animals-as in fishing nets and spiders' webs. In the eighteenth century, it was common to use the word to describe the inside of the body itself, as in the organization of veins, muscle bundles, etc., and in the nineteenth century it was a standard label for systems of rivers, canals, railways, cables, electricity, sewers, etc.

Finally, it gets applied to organizations of immaterial things like property and groups of people.
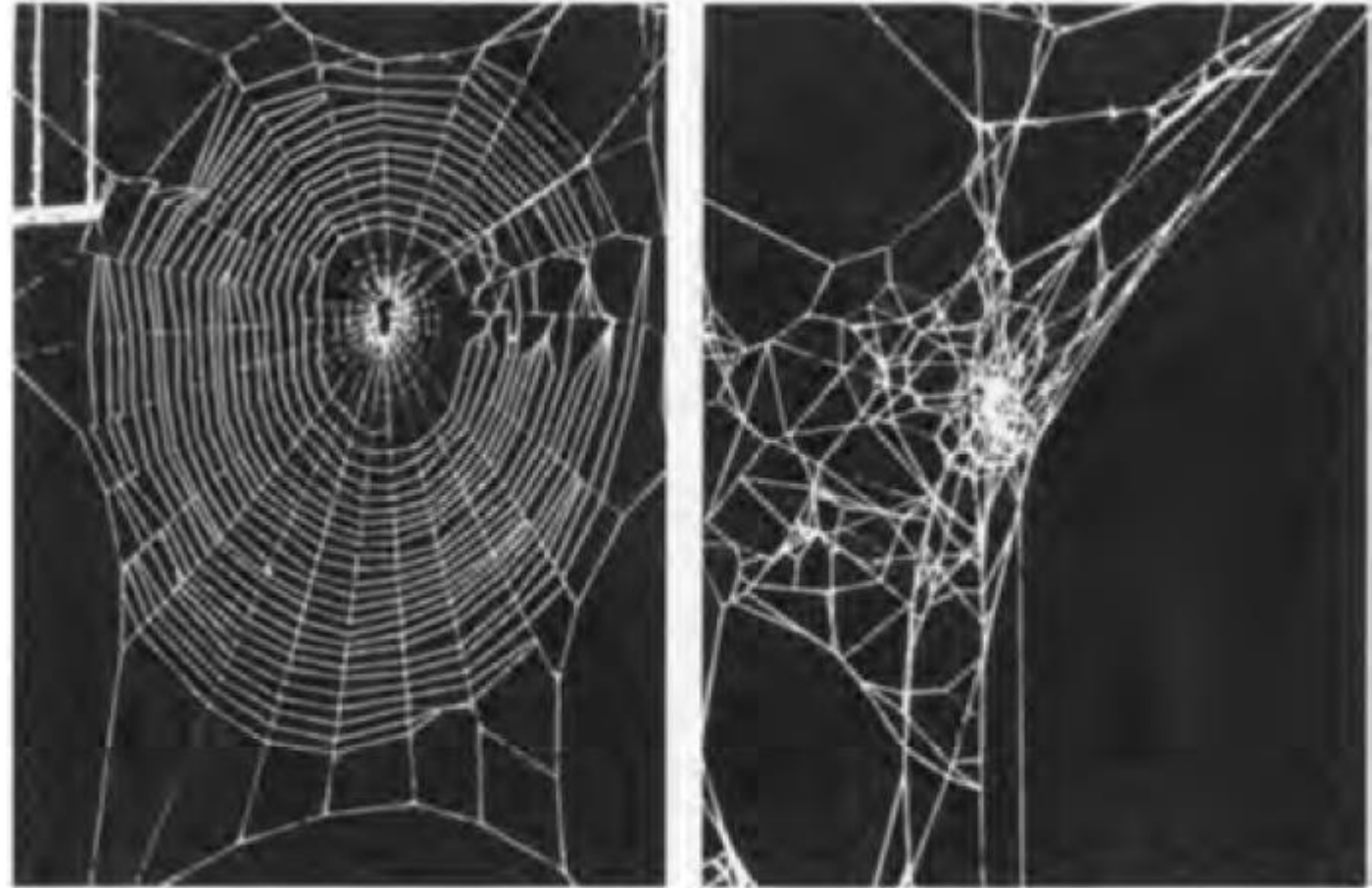
Spider's Web, pre- and post-Amphetamine

Chaos of Networks: Urban Detroit, 1972.

Increased role of networks

At the first congress in 1928, the key functions of cities were identified as "Dwelling," "Working," and "Recreation." CIAM 4 added "Traffic" (circuler-circulation) and gave it a special coordinating relationship to the first three: "The fourth, that of traffic, should have only one objective: to bring the other three into effective communication with one another." (p.95)

Mary Jaqueline "Jacky" Tyrwhitt

(25 May 1905 – 21 February 1983)

British town planner, journalist, editor and educator.

She was at the center of the transnational network of theoreticians and practitioners who shaped the post-war Modern Movement in decentralized community design, residential architecture and social reform.

Jacqueline Tyrwhitt taking notes while Edward Mason
talks and P. Psomopoulos listens, Delos 5, 1967

The key figure in this escalation of network thinking was the urban planner Jacqueline Tyrwhitt, the editor of Ekistics since its first issue and a member of the planning committee of all the Delos meetings

Giedion, Le Corbusier, Jos Luis Sert, Walter Gropius, and Tyrwhitt constituted the "committee of five" at the heart of CIAM.

Digital Traffic

McLuhan : "…that this post-Euclidean city will have to be assembled by computer in the same way that airports use computers to coordinate flights." (p.97)

"The Delos meetings would turn the CIAM idea of settlements held together by transportation networks into the idea of inhabitable information networks. "(p.97)

"…fourth Delos of 1966 that the whole meeting accepts the basic point of Fuller, McLuhan, and Mead that communication networks have produced a single planetary society-that it is no longer possible to research the city without discussing electronics. "

Architecture and the Computer

1964 "…Ekistics featured a special issue on "Architecture and the Computer," discussing computer design of buildings, computer conferencing, and so on. The journal itself was soon computerized, with ever more detailed indexes becoming computer printouts, and in 1969 a special issue was needed on "Computers in the Service of Ekistics." (p.98)

"Traffic was conceived as information flow. Symptomatically, drawings of cities, continents, disciplines, and computers tended to be the same." (p.100)
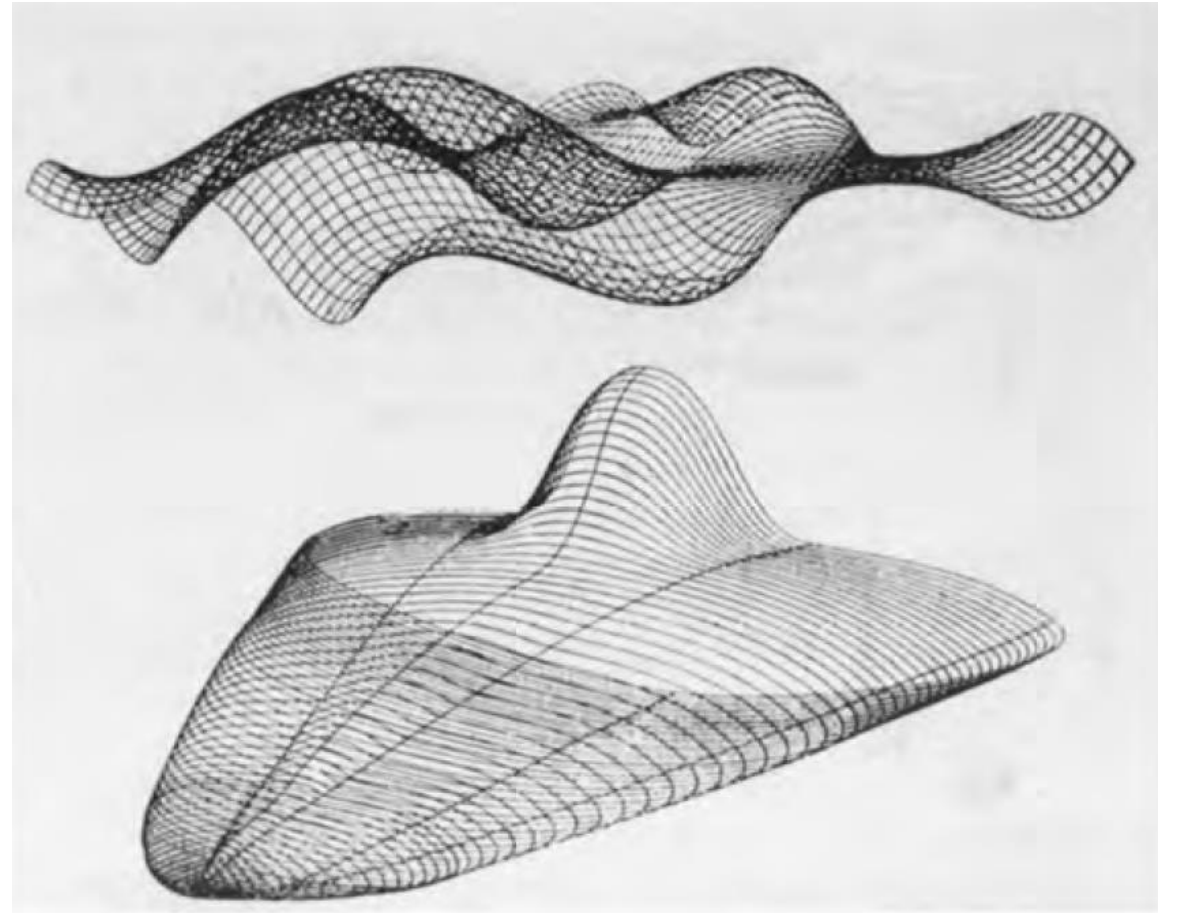
Computer generated forms from Aerospace Division of Boeing, Ekistics 1965

The Biology of Information

A blurring of biology and information occurred throughout the Delos meetings.

"As animals become more complex they develop increasingly differentiated limbs and organs and a highly efficient communications center. Should we move towards a newly constructed type of organization with highly differentiated centers tied together by a complex communications network, each center having special functions and a special location?"

"…read evolution in cybernetic terms. The growth of electronic systems of communication is biological in exactly the same terms that biological growth is itself an evolution of systems of communication." (p.100)

City of the Future project

"…connecting this model to architectural form from Richard Meier, who had published A Communication Theory of Urban Growth in 1962, a cybernetic account of the city as a living organism and information system to be analyzed in biological terms." (p.100-101)

" Tyrwhitt's journal relentlessly pursued this more radical view of prosthetics, embracing engineering psychologist J. C. R. Licklider's theory of future "symbiosis" of human and computer and his drawings of the possible interface between the two organisms, with the human network entangled with the electronic." (p.102)
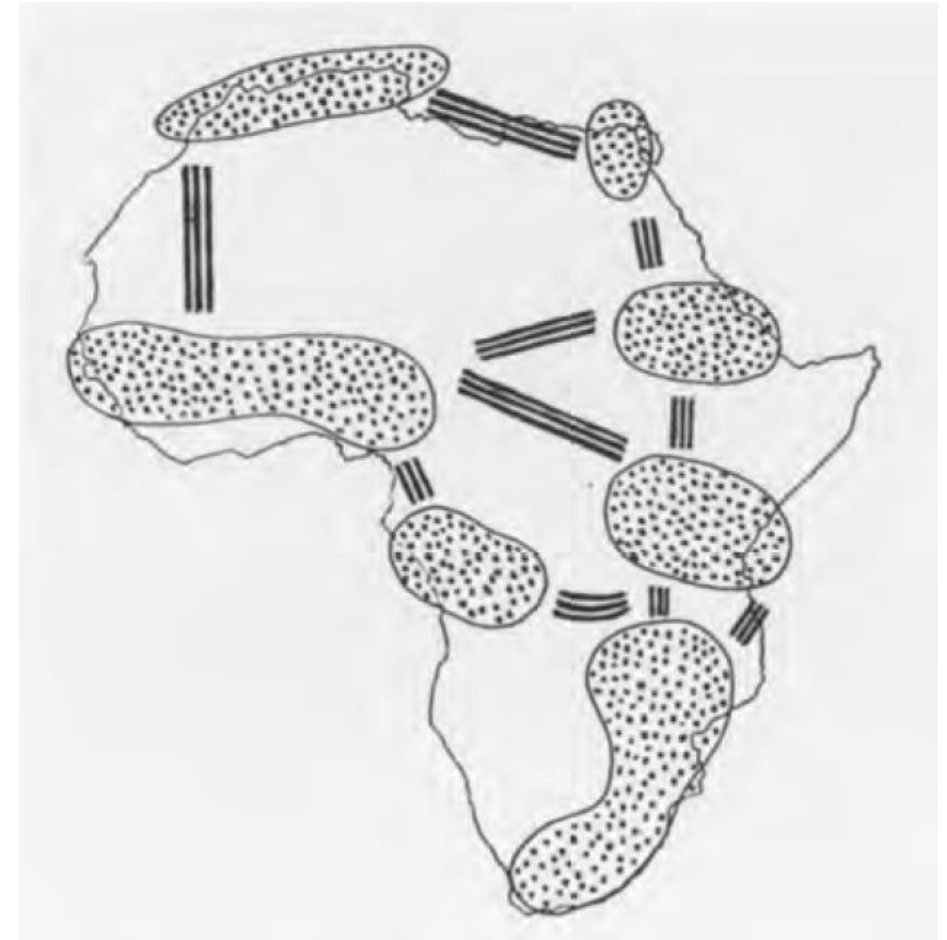
Doxiadis. Transportation network for Africa, 1964.

Nerve Design

A major accelerant of the fever was **Kenzo Tange:**

"… Japan can only maintain its "organic life" by eventually turning into a single colossal city through the linkup of physical, social, and information networks into a single "central nervous system."(p.104)

Alison and Peter Smithson: Team 10

"…the street and the network of streets has to be seen as the arena in which social relationships were played out" rather than a mode of efficient connection.(105)

Aldo van Eyk:

"…role of the architect to provide a "network of crevices." …net-work-both in terms of physical form, social structure, communication system, and analytical concept-was precisely what differentiated the young group from CIAM and led to their separation from it and the subsequent dissolution of the old organization."

Louis Kahn and Anne Tyng's: 1953 traffic scheme for Philadelphia, which dematerializes the physical form of the city in favor of pure flow, like an electrical circuit.

**Arata Isosaki, Kisho Kurokawa, and Sadao Watanabe:** part of the group setting up the **Metabolist movement**
"…manifesto with images of organic cell development. The group would write extensively on biology, symbiosis, cyborgs, cybernetics, and prosthetics throughout the sixties. Their projects were drawn as delicate systems of intersecting fibers-architecture as biological circuitry." (p.106) "Metabolists emphasized the biological side of the biotechnological equation…"(p.107)

The Biology of Information

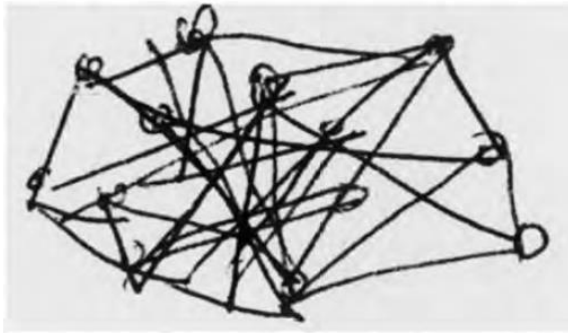J.C. R. licklider Drawing of man/ computer symbiosis, 1965.
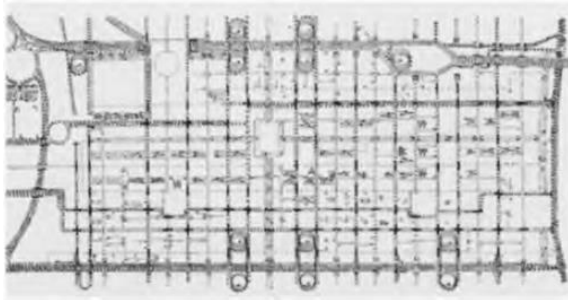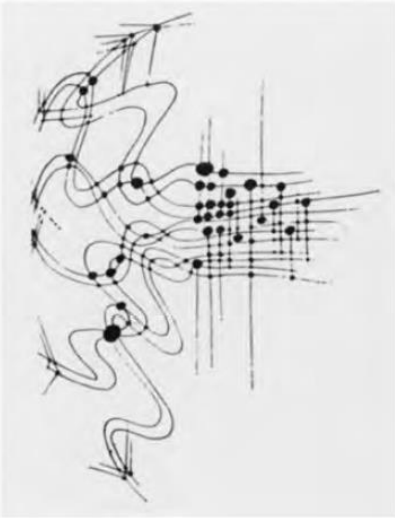
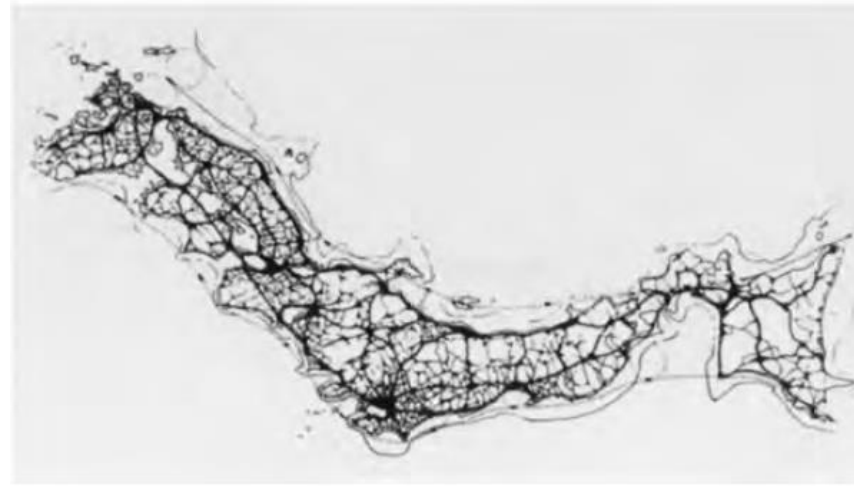Louis Kahn Philadelphia Traffic Study, 1953.
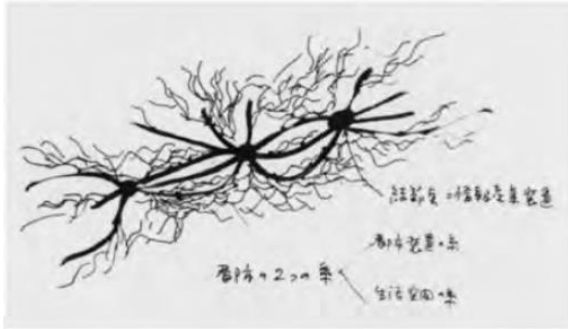
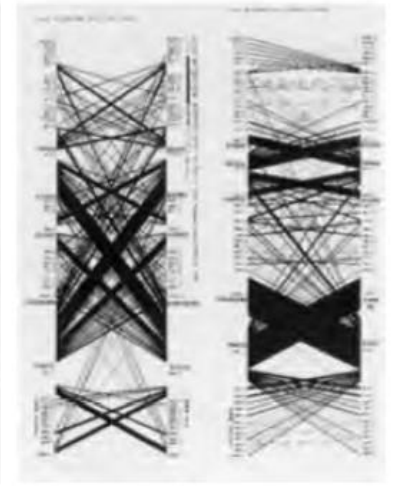Koichi Tonuma. Flow of Telex and Telephone messages between capital cities in Japan, 1969.

Koichi Tonuma Japan as single network city, 1969.

Peter Smithson." Ideogram of net of human relations: undated.

Kenzo Tange. Tokyo Bay Plan, 1960.

Invisible Pictures

Archigram emphasized the technological side of biotechnological equation. Architecture became indistinguishable from communication. Warren Chalk and Ron Herron's City Interchange project of 1963 is just a "net" of intersecting forms of traffic, including invisible traffic: "electronic data transmission, traffic control and administration, radio-telephone tower, communication and news service relay station, inter-commercial closed circuit television hook ups, public television and telstar rediffusion center.

What counts in Ron Herron's Walking City, Peter Cook's Plug-in City, and Warren Chalk's Underwater City is movement in a diagonal net. In Walking City, it is the usually overlooked network of diagonal links between the huge mobile animals that makes the system possible. Plug-in City is likewise a "giant network- structure ... With diagonals of lifts making up the grid," and in Underwater City, to leave the diagonal structure/movement system is of course to drown. In each project, the diagonal weave becomes the main event. Activity occurs within the net itself.
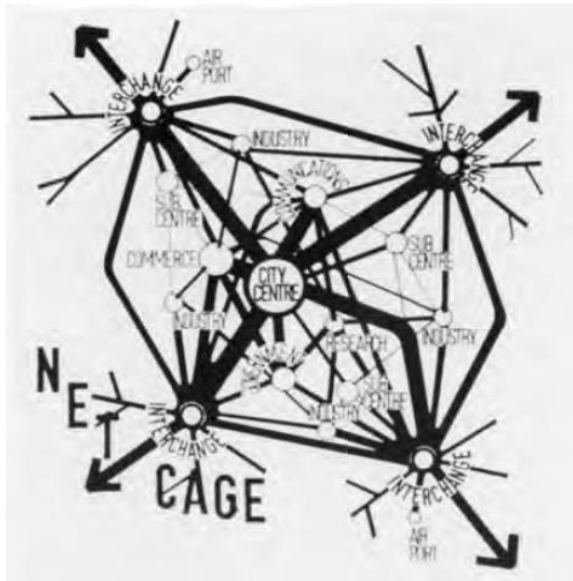
Warren Chalk and Ron Herron.
City Interchange project, 1963.
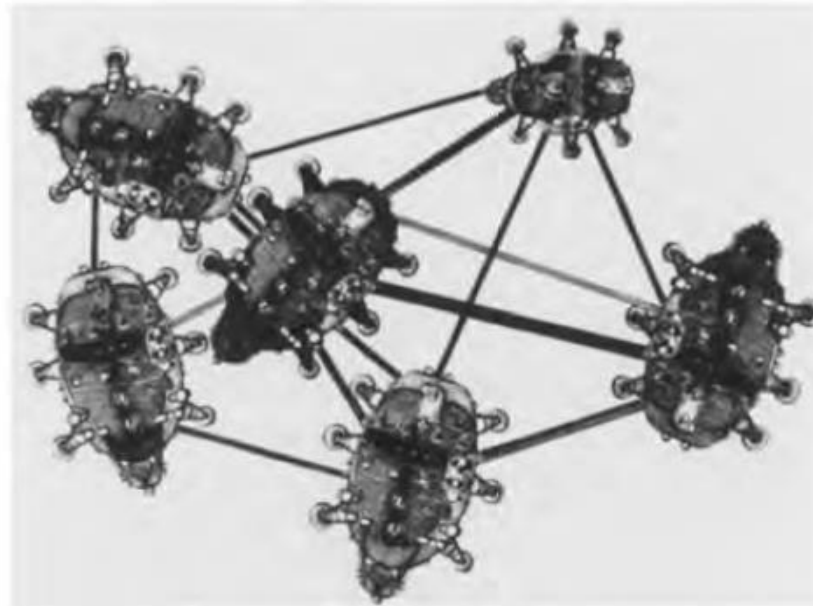
Ron Herron Walking City project,1964.
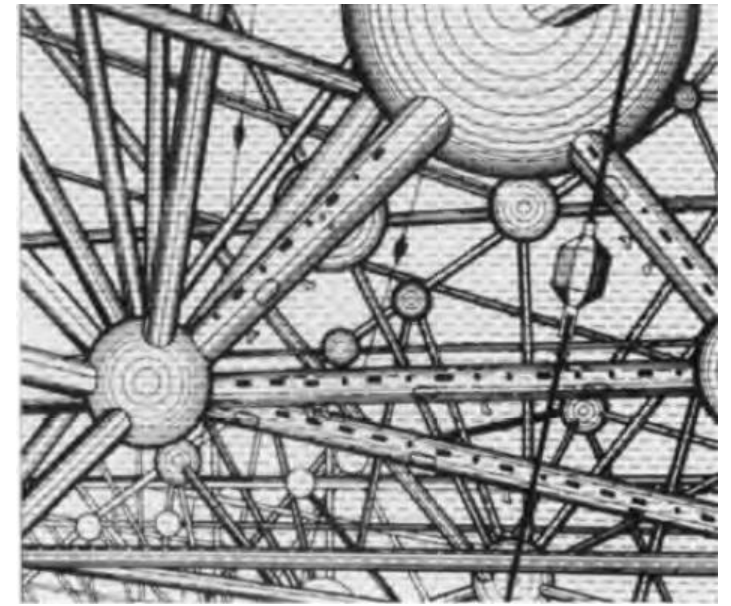
Warren Chalk Underwater City project, 1964.

Unsettlement

"**McLuhan's** work begins as a kind of rethinking of architecture." (p.112)

"As the key link between the twenties and the Internet, **Fuller** played a crucial role. His work was first monitored by Ekistics in 1957, but his Dymaxion Map showing the planet as a single network was on every cover from the beginning until mid-1959 and occasionally reappeared."

"…**Fuller** was saying that the idea of permanent settlements and neighborhoods is obsolete in the contemporary hyper-mobile age. The very idea of settlement so treasured by Ekistics is challenged in a time characterized by "stirring up rather than settling down.""

"**Fuller** rejected physical infrastructure, no matter how flexible, preferring atomized nomadic systems. For him, the capacity to disconnect from a system was as important as the capacity to connect."

Questions

1. Please explain concept of "Global village", how does it intersect with Fuller's ideas?

2. What were the reasons for branching? How is Metabolism movements are connected to the network ideas?

3. Why ideas of Archigram did not continue nowadays somewhere in Africa or in any suitable place?