DISCUSSION PAPER

by

Paolo Soleri
President,
Cosanti Foundation
Scottsdale, Arizona

on

Kiyonori Kikutake's

UTOPIAN PARADIGMS OF MARINE METROPOLIS

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Draft Discussion of Architect Kiyonori Kikutake Draft
"Utopian Paradigms Of Marine Metropolis"

Paolo Soleri 8/19/84

The draft by architect Kiyonori Kikutake, K.K. for the sake of brevity, refreshed my memory about the fifties and the sixties when I did some thinking on seas communities. I let some tear sheet from "Arcology, The City In The Image Of Man (M.I.T. Books) do the talking.

Yes I am in quasi complete agreement with K.K. thinking (the little I can gather from his draft) on the future of humanity on the seas and the oceans.

The deceivingly modest tone of the paper makes the proposition about "centerpolis of the ocean space"(pg. 14) even more impressive and, also somehow terrifying, in his potential for pathology.

The question of life, via human specie, "returning" to the seas is critical. The order of magnitude of the impact on life itself of such move, might be akin to the invention of language (not quite so), the invention of shelter, the bridling of electricity, the invention of "artificial" intelligence (maybe not quite so). . . more-over the social and cultural transformations in store for life in a so radical urban evolution, are impervious to rationalization i.e. scientific anticipation. Only space colonization proposes even more prodigious events (see Exotic Seed). As often as not prodigious leaps entail the possibility of catastrophic break-ups.

An unintended hint of catastrophy is in the tone transpiring here and there (from K.K. Draft). It seems to surmise that good planning i.e., the rationalization of the future on the basis of a presumed knowledge of the present, will work wonders if not miracles for body and mind led along the tide of the organic clamoring for a place in the sun.

My pet metaphor that qualifies and put bounds to such proposition is that even assuming we know what makes a good instrument; the piano, the city, the music it will give out will depend on the worth of composers and performers, i.e. society. But the understanding of what makes a good instrument is dependent on what kind of music had been playing when the new instrument was invented, I am, for one, unhappy with such music, the present society, Therefore before engaging in instrument making, (tomorrows habitat), I must rewrite, hubris permitting, some of the present music. (See "Arcosanti: An Urban Laboratory" 63 topics, Avant Books).

The cities on the seas, the marine metropolis, are quite certainly new instruments which characteristics will be defined by what kind of sounds society is broadcasting right now.

Those new instruments are of massive sound capacity for both good and evil. Since the city of today is something of a dinosaurus, to reform the city is a necessity. But the guarantees against the cities of tomorrow being robotized monsters, are about nill. It is the classical case of being damned if I do and be damned if I don't, and yet it must be done. . .

The theory of the slow, i.e. the prudent, albeit ultraconservative metamorphosis for going from here to there, from the city of the present to the cities of tomorrow is probably as dated as it is the idea that new species are the slowly maturing fruit of a patient and prudent evolutionary drift. That is: Chances are that the "Cities of the future will be willed and not stumbled into". Willed are also the marine metropolis of K.K. The success for them will be in the balance of will and "spontaniety" (bottom of pg. 4 of his draft). The firm intent of remaining true to the goal (will) and the joy of getting there (spontaneity) must co-mingle because from such mix comes the magic of metamorphosis and revelation. Those are the sounds which makes for whatever is good in the music of the present and which hopefully sets the general parameters for the instruments of tomorrow, one being the marine metropolis.

Another of the paper's unstated but implied notion with which I not only agree, but for years have also expressed vocally and in writing, can be stated as follows:

Once all the ceremonial we choreograph in honor of "a mother natures", all the declarations of loyalty toward the organic nature of the organic (life), and all the delights and ecstasies of being natural (flower childrens) we unfailingly get down to the business of extracting from mother more milk of steel and hydrocarbuers, of cardboard and computers. That is, we move one step further toward that elusive kingdom that escapes nature, the relatively brand new kingdom of mind. Nature is after all peculiarly engaged in generating within itself that which is stranger to her, life. The emergence of life is violence ridden and life is bent on cannibalizing itself.

Life, as yet such a rare exception in reality is in the other hand and for apollonian aims literally geometrizing particles of such reality. It is "architecting" them so as to define more and more sophisticated niches for life itself (see complexity-mininaturization). It does so via mind, which is by the way, one of its own late-come prodigy.
The budding of geometry on and in the oceans are the legitimate manifestations of the noble effort mind puts up to foster its own demons: knowledge and creation, i.e. the metamorphosis of more matter into more mind.

I'll close this short discussion of K.K. paper with parts of the statement, Exotic Seed, I submitted in 1978 to the Governor Jerry Brown of California.

PAOLO SOLERI
Second Draft

COSANTI FOUNDATION
May, 1978

E X O T I C S E E D [1]

OPENING STATEMENT

I would strongly suggest that one of the most undemocratic aspects of society, western and non-western, is the self-deprivation of alternatives which exist or could be invented and developed. Specifically, we deprive common man of access to alternative urban landscapes, landscapes that are the foundation, the support, and the expression of the worth of a community.

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[1] Exotic: rare, having the appeal of the unknown. Not native to the place where it is found. (Webster's 3rd International Dictionary.)

As a society we may not be prepared for or interested in these two goals, but as people we must begin to consider the need for them. The Exotic Seed Concept proposes a procedure for moving in that direction. In the historical process there is the repeated appearance of rare, exotic, new things which soon become the norm. Think of the automobile as an example.

The Exotic Seed

> Recognizing that there is no integrated effort really concerned with the future, that is, with us and our offspring;
>
> Recognizing the imperative of pursuing that effort in order to keep open options for the future of life, ours included.
>
> Recognizing that the unfocused nature of the technological onslaught is steamrolling friends and foes;
>
> Recognizing the political impossibility of asking voters to endorse an effort which will bring massive dividends only after most of them are dead;

it appears that in spite of the existence of many strategies, another strategy must be developed: the declared, intentional, determined pursuit of exotic ideas which offer the opportunity of testing, verifying and assessing notions, systems and situations now which may well become run-of-the-mill in the next century, twenty years or so away.

The Exotic Seed is seen as a tri-pod[1] organism: Pod 1 is an urban system for land; Pod 2 is an urban system in the seas; Pod 3 is an urban system in space. In developing the technology and know-how for space, it becomes more and more evident that the simulation of space-colonization falls short in the most vital area: humanness, where simulation is ineffective. It is, therefore, imperative to actually experience, as nearly as possible, environmental conditions which may be telling about the critical context of space. The Land Pod could offer such environmental conditions. The Sea Pod is located somewhere between the Land Pod and the Space Pod, closer to the former inasmuch as the aquatic environment is still terrestrial. All of the Pods, however, have one most significant element in common: they are urban organisms, and if what follows makes sense, they are also the backbone of evolution.

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[1] Pod: protective envelope, clustering of life. (Webster's 3rd International Dictionary).

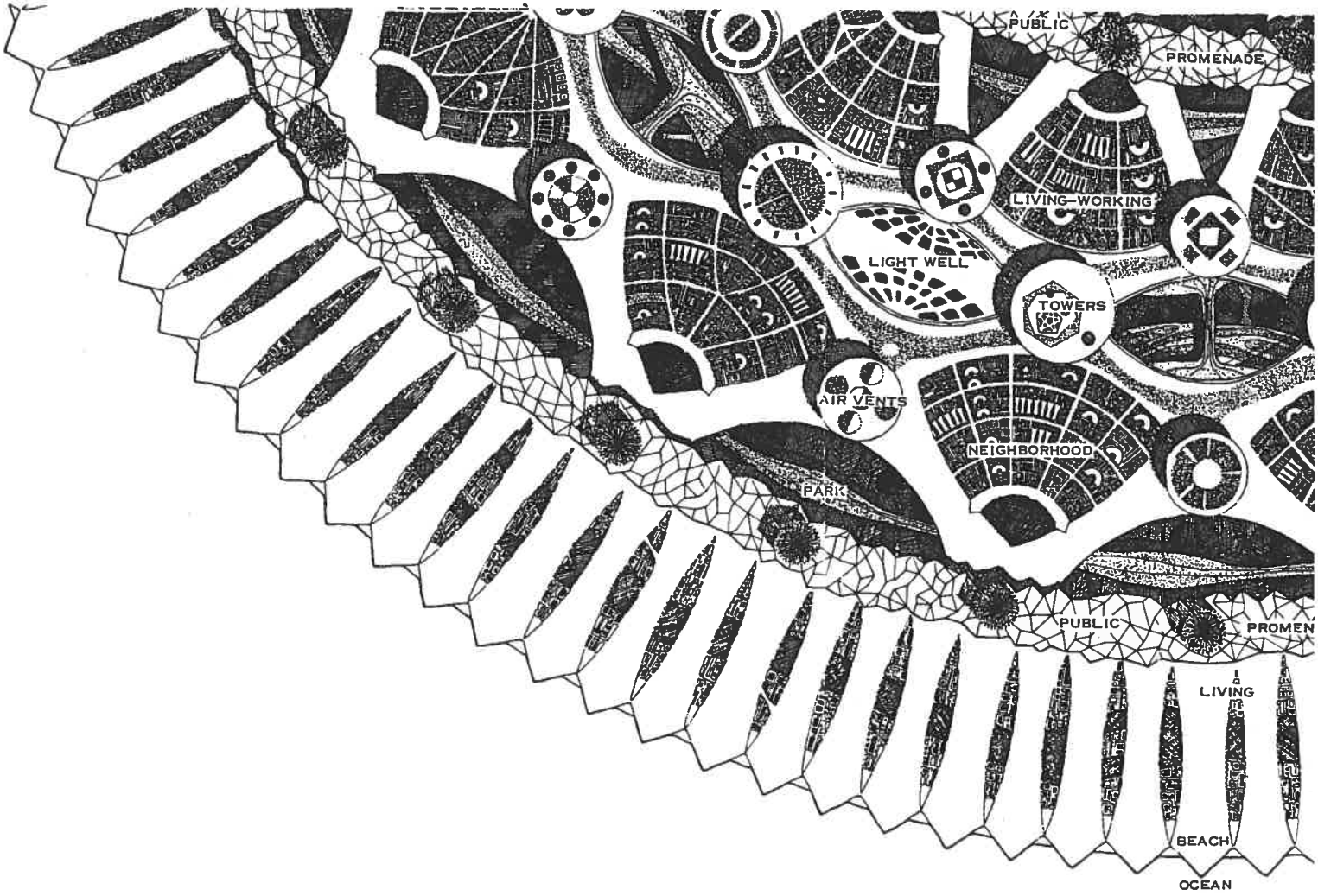
The Urban Effect

To put it briefly and not unscientifically, human habitat demands the coexistence and cooperative interaction or synergy of physical reality, physiological reality, and transphysiological reality (social, cultural, and religious factors). In this three-pronged reality, that which works as the indispensable medium, the physical, also works as an unavoidable obstacle. Therefore, while consciousness and knowledge develop through the medium of physical reality, consciousness and knowledge are in turn victimized by its coarseness. In other words, the physical supplies the means to develop consciousness and knowledge while at the same time being "noise" which impedes their growth. Thus, in an evolutionary process seeing the emergence of consciousness and knowledge, the space and time parameters are destined to "optimize" their participation through progressive effacement, minimization, and miniaturization, consuming themselves and in so doing, favoring transcendence into the trans-physical. This process is the flowering and the triumph of complexity. See it in physiological evolution, see it groping now within the technological progression.

A paradigm can be articulated: in any given system the most alive quantum (a city, for instance) is also the most complex. In any given system, the most complex quantum (a city, for instance) is also the most miniaturized.

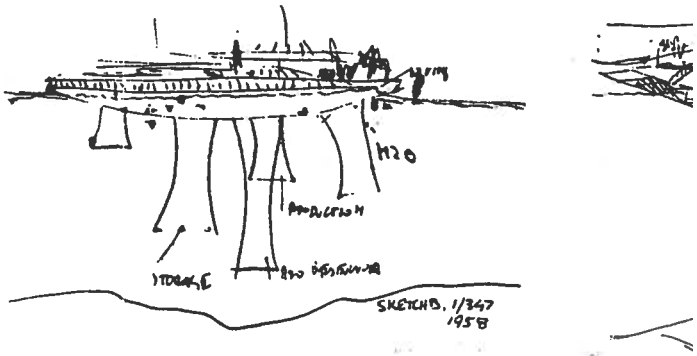
The paradigm disposes of the irreconcilability of substance and essence, matter-spirit, body-soul, since the second is generated from the first without being shipwrecked in the steady state of a fatal, unchangeable, solid, unknowable reality. Instead, what makes reality is the dynamic of a progressive vivification, of matter becoming spirit, the urbanization of the mass-energy, space-time original medium.

The Exotic Seed is one among a myriad of urbanizations but it is driven with a slightly more determined and clear notion of direction of where to go now when resources (land, water, air, minerals, fossil fuels, top soil, etc.) are becoming scarce, when alienation and remoteness are poisoning the mind and making the soul opaque, when egos are bribed into self-destruction by the pathology of consumerism.



1.Novanoah I

	Novanoah I (Continental shelf or open sea)	
	Population	400,000
	Density	148/hectare; 60/acre
	Height	1,000 meters
	Surface covered	2,750 hectares; 6,800 acres
1.	Half of top view: scale	1:10,000
	Comparative Arcologies	
	Stonebow	
	Population	200,000
2.	Partial top view: scale	1:10,000
	Babel IIA	
3.	Population	300,000
	Partial top view: scale	1:10,000



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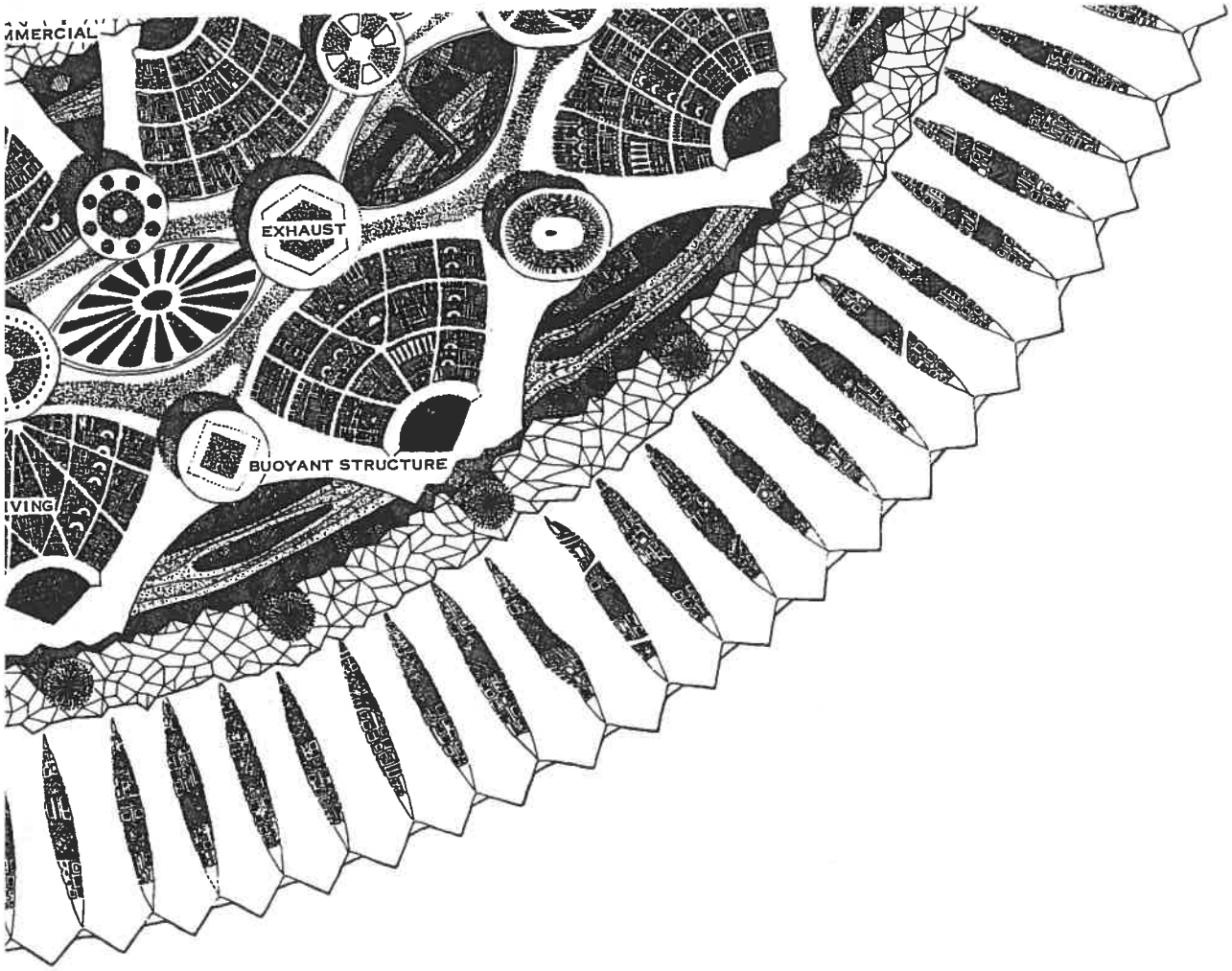
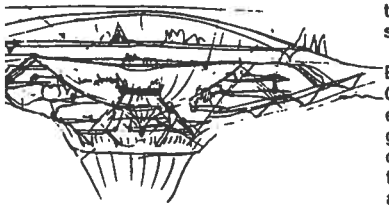
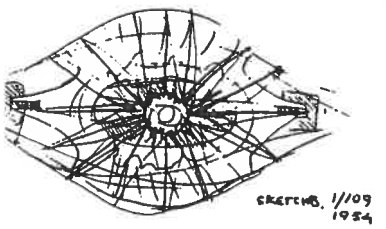






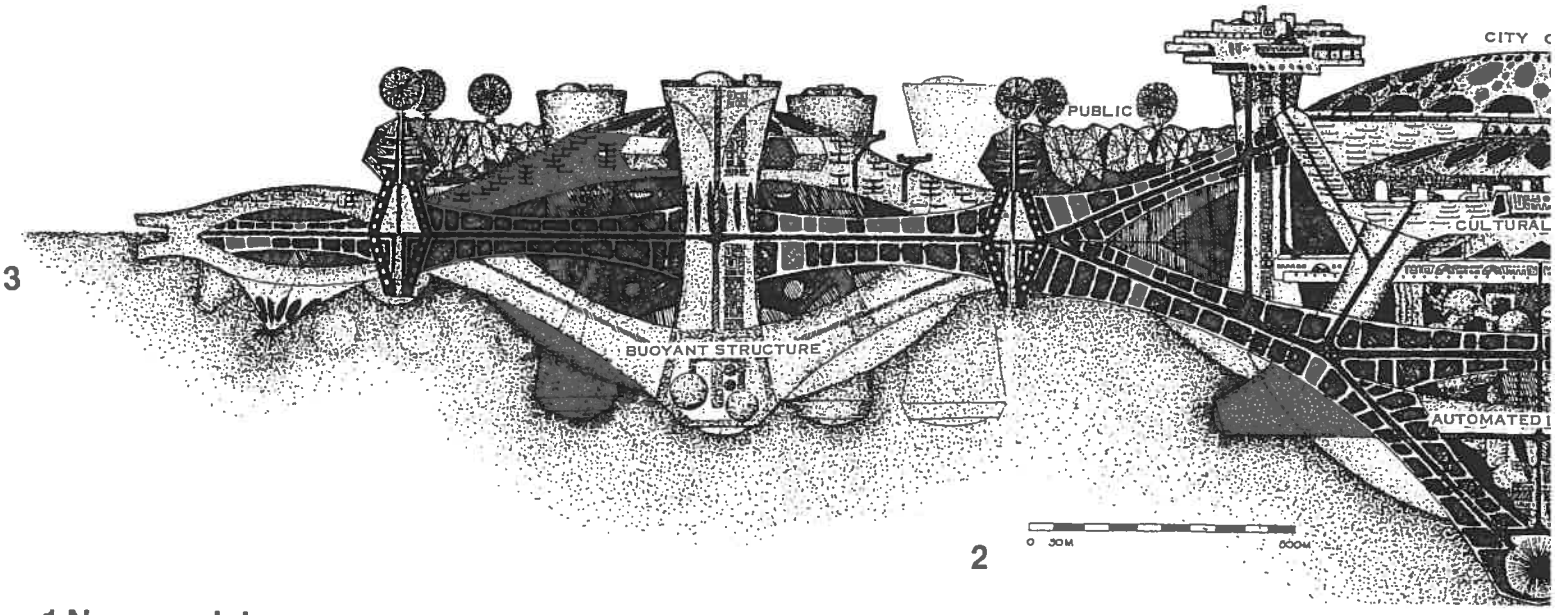
Life came out of the sea when the time was ripe for a next step toward complexity. Then the ecological flood came to cleanse the earth and let the "elected" few re-engage in the homogenesis of the earth. The biological flood invested in the human species is now edging man toward the same seas that eons ago saw the exodus of some of his creatures.

Ecologically the seas behave as a many-layered medium. One could almost say that the earth has one layer of ecologies and the seas have a whole thickness of ecologies wrapped one around the other. It could also be observed that it is the element itself, water, that makes the biological "thickness" of the seas possible and that is also the cause of their great homogeneity, stability, balance, and diffusion. These elements of relative homogeneity, stability, balance, and diffusion are the characteristics that, combined with fluidity, make sea arcology relevant.

Physically, one may say that the sea (water) performs for man the tasks of (1) mining, (2) transporting, and even part of (3) the processing of the stuffs the seas are rich in. Biologically, one may say that of the five, (1) farming husbandry, (2) transporting, (3) distributing, (4) eating, (5) assimilating, the sea itself would perform at least part of the first four and leave to society the fundamental and conclusive assimilation, in the sense that the fluid mass itself can be seen as a global metabolic system willing to sustain the biosphere.

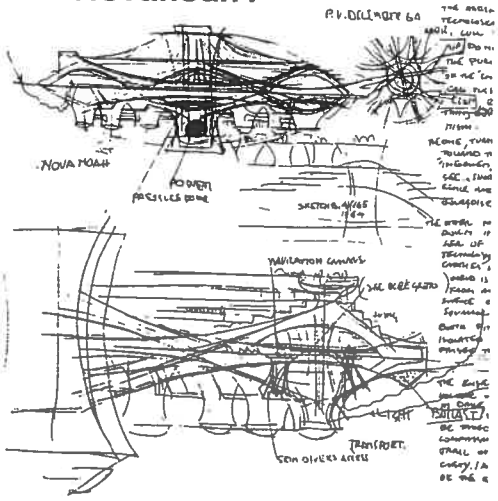
Approached globally then, the harvesting of the seas is not only pertinent to man's precarious condition (predictions of widespread famine come from different and supposedly informed sources) but indispensable to his survival. Will we make of this harvesting another purely instrumental process, denying it of a larger connotation and depriving man himself of the superinstrumental treasures it offers for the taking? Will we, in other words, have a mechanistic sea civilization indifferent to humaneness, taking the food without the substance? Or will we pursue in the civilizations of the seas an all-new and fantastic culture, adding new folds to the human condition?

3



2

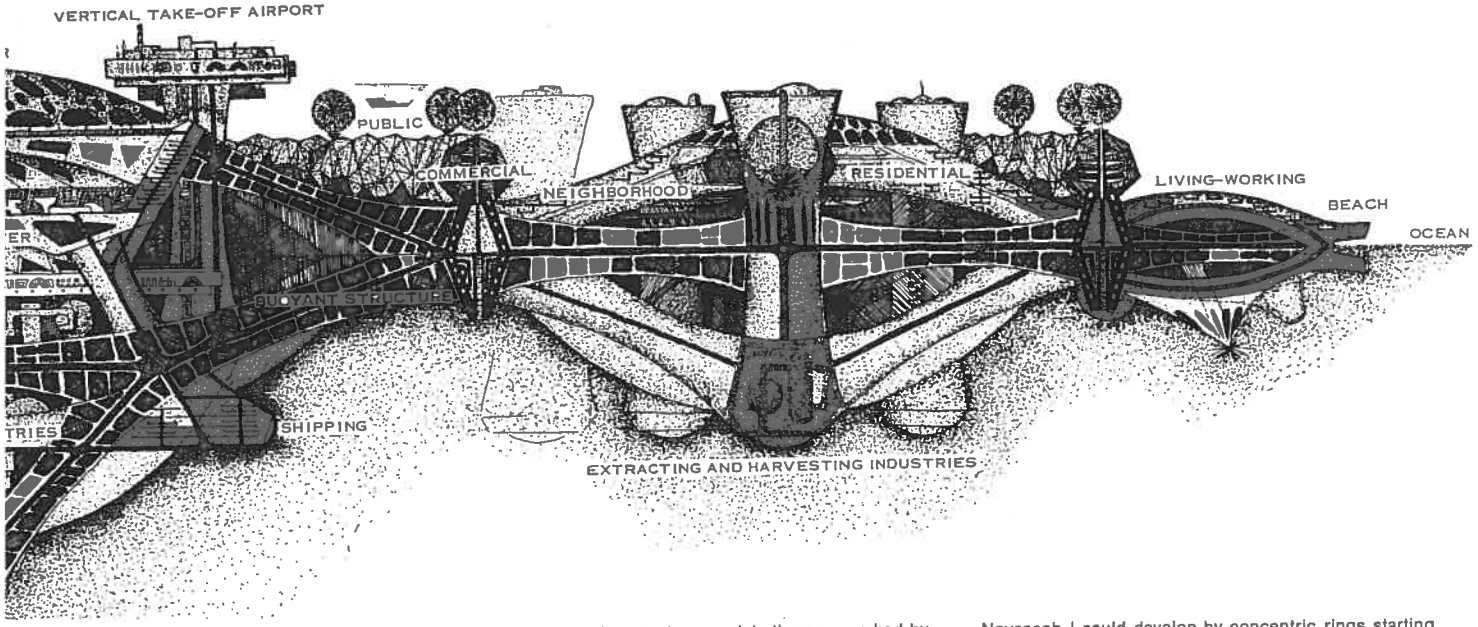
1.Novanoah I



	Novanoah I	
	Population	400,000
	Density	148/hectare; 60/acre
	Height	1,000 meters
	Surface covered	2,750 hectares; 6,800 acres
1.	Elevation: scale	1:10,000
2.	Section: scale	1:10,000
	Comparative Arcologies	
	Arcoforte	
	Population	10,000
3.	Elevation: scale	1:10,000
	Stonebow	
	Population	200,000
4.	Elevation: scale	1:10,000
	Theology	
	Population	13,000
5.	Elevation: scale	1:10,000
	Arcanyon	
	Population	40,000/kilometer
6.	Elevation: scale	1:10,000

Directly dependent on the productive processes would be many specialized laboratories for investigating new potentials arising from growing knowledge, and there would be facilities for a vast undertaking in general research. Link by link the chain of a full cultural organism would establish itself so that the society developing in the arcology would be a rounded microcosmos and not a thin pancake of rationales and techniques. Floating on, and immersion in, the water would be a morphological determinant of culture, as the functionality naturally occurring in the resources of the sea is its instrumental determinant.

Better feeding will be instrumental to a wealth uniquely fused with the ecologies of the seas. Wholeness or segregation, as always and ever, is the crucial test of lastingness or obsolescence. The sea arcologies are viewed as an integral system for satisfaction of needs and purposefulness. That is to say that, though man moves into the seas in his quest for food and material, he does it with open eyes, and in his exploitation he carries those same elements that exploitation feeds and perpetuates.



ther words, he does not just exploit the new environ-
ıt, he works and lives in it, by it, with it. This is not
rder to make the sea a more "humane" element,
ıgh this may be very fundamental in the long run, but
ause a new world opens to him who is by nature a
ld-maker. In this new environment, not only enormous
also very dense in its fluid layers, the arcology must
pen its structure, reaching thus, as by a cross section
ıe ecological mass, to all the variants of which it is
ıposed and by which it is enriched.

arcology, like an enormous digestive system, would
ɜst the mass of water, extract from it the elements
ignated by the function of the diverse plants, and
ıinate the used water in an uninterrupted cycle. The
ɜrent materials—vegetable and animal, chemical and
ıeral—once trapped, would be processed and/or
ʼed, then in part consumed, in part exported as food,
ilizer, and so on, or used as material for production
ɟoods.

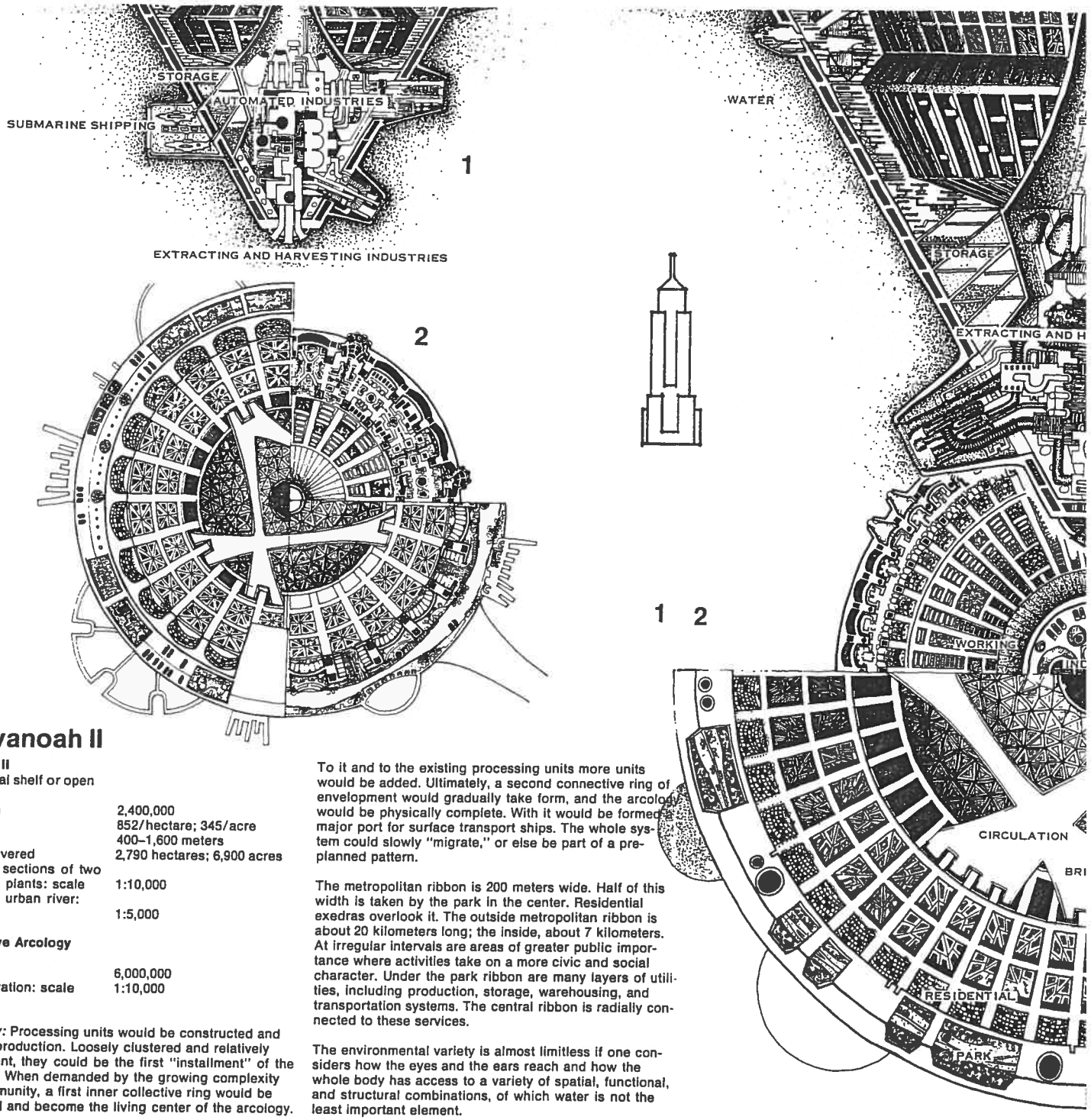
The necessity for man to move into the sea, pushed by the biological flood rising 'within' him and the riches contained in the seas themselves, suggests the genesis of a floating civilization with nodular centers constructed within floating arcologies. The buoyant section of these would furnish frames and spaces for the automated processing plants of (1) food stuff, animal and vegetal, (2) water, and (3) minerals and chemicals. Oceanographic labs and labs for underwater-life development would also find ideal facilities and pertinent environment.

The upper structures would be for living, learning, and working. There would be vertical transportation systems, as in Babel II and horizontal transportation systems on and under water freed from the slavery of "roads." Novanoah could drift with the currents or be slowly "propelled" on short or long journeys according to seasons, seas, harvests, fishing opportunities, or vacation cruises. Such arcologies would appeal strongly to overcrowded countries, sun-starved countries, sea labor unions hard pressed by automation, steel and aluminum corporations, chemical corporations, shipbuilders. . . .

Novanoah I could develop by concentric rings starting from the central canister. While Novanoah II is a water city with open-air, surface navigation, Novanoah I has interiorized waterways as it has interiorized gardens. The structural system, a hollow tubular space frame, indicates and carries the transportation and transfer systems. The productive and storing programs are developed in the lower parts of the system.

It might be worth noticing that with the concepts of miniaturization, congruence, and tridimensionality derived from the structural and functional investigations conducted while defining the arcologies, the Novanoahs are still defined by a restricted concept of the power vested in the vertical dimension. The rules of buoyancy naturally have their part in this timidity. (See Noahbabel.)

4



2.Novanoah II

Novanoah II
(Continental shelf or open sea)

Population	2,400,000
Density	852/hectare; 345/acre
Height	400–1,600 meters
Surface covered	2,790 hectares; 6,900 acres
1,2. Plans and sections of two production plants: scale	1:10,000
3. Section on urban river: scale	1:5,000

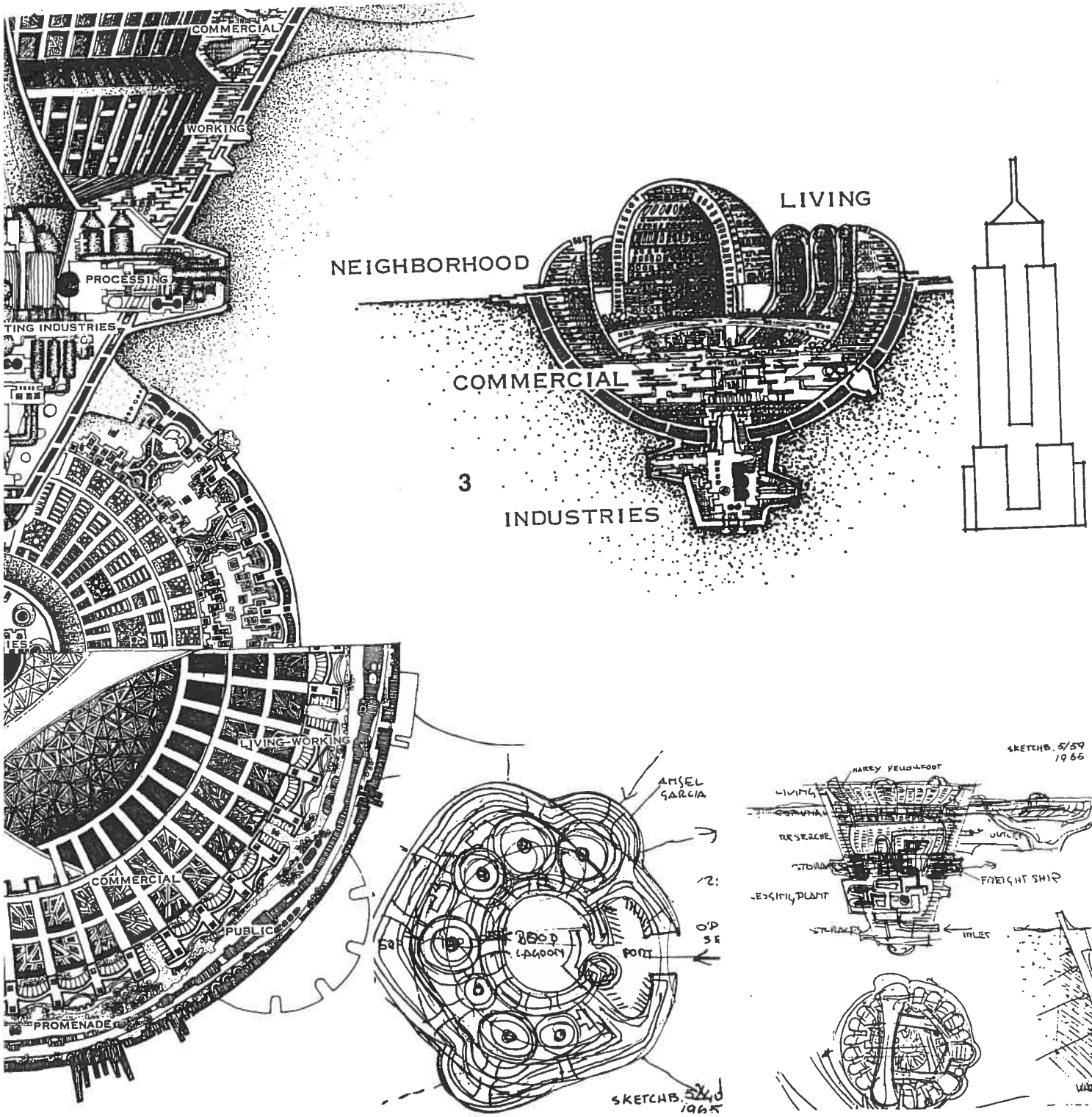
Comparative Arcology
Babelnoah

Population	6,000,000
4. Partial elevation: scale	1:10,000

Chronology: Processing units would be constructed and enter into production. Loosely clustered and relatively self-sufficient, they could be the first "installment" of the collectivity. When demanded by the growing complexity of the community, a first inner collective ring would be constructed and become the living center of the arcology. To it and to the existing processing units more units would be added. Ultimately, a second connective ring of envelopment would gradually take form, and the arcology would be physically complete. With it would be formed a major port for surface transport ships. The whole system could slowly "migrate," or else be part of a preplanned pattern.

The metropolitan ribbon is 200 meters wide. Half of this width is taken by the park in the center. Residential exedras overlook it. The outside metropolitan ribbon is about 20 kilometers long; the inside, about 7 kilometers. At irregular intervals are areas of greater public importance where activities take on a more civic and social character. Under the park ribbon are many layers of utilities, including production, storage, warehousing, and transportation systems. The central ribbon is radially connected to these services.

The environmental variety is almost limitless if one considers how the eyes and the ears reach and how the whole body has access to a variety of spatial, functional, and structural combinations, of which water is not the least important element.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PUBLIC
PROMENADE
AMSEL GARCIA
2800
LAGOON
PORT
SKETCHB. 5/40
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HARRY YELLOWFOOT
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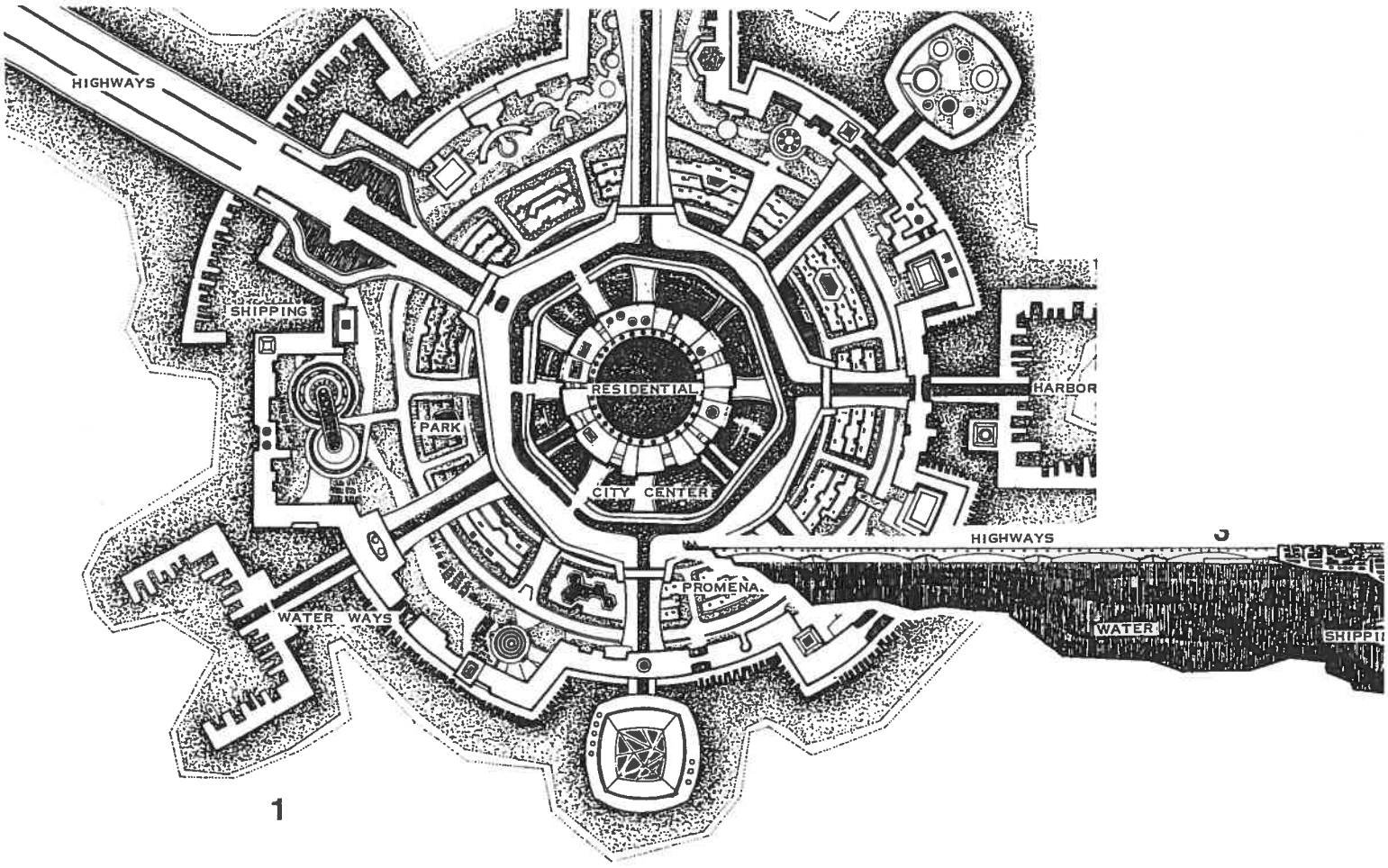
RESEARCH
FREIGHT SHIP
DESIGN PLANT
TILES



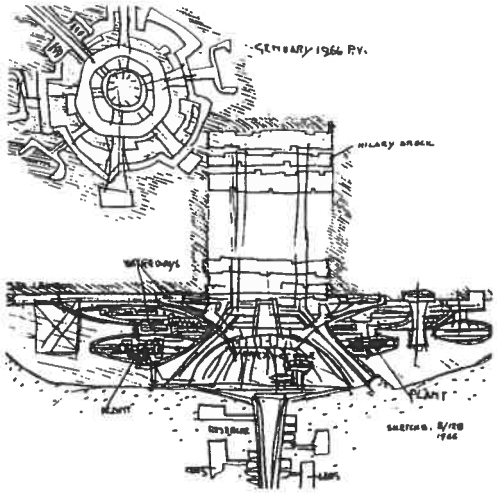
1

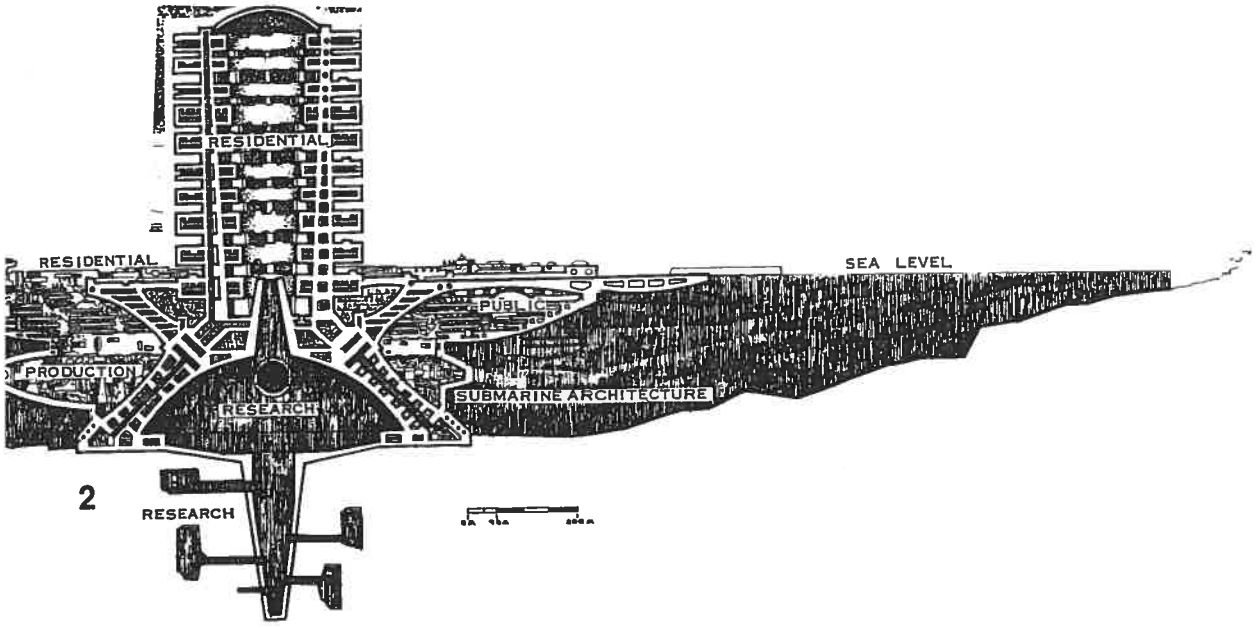
Noahbabel
(Coastal waters)

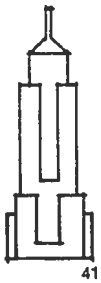
Population	90,000
Density	575/hectare; 233/acre
Height	800 meters
Surface covered	154 hectares; 380 acres
1. Plan: scale	1:10,000
2. Section: scale	1:10,000

Comparative Arcologies

Hexahedron	
Population	170,000
3. Elevation: scale	1:10,000
Babel IIA	
Population	300,000
4. Elevation: scale	1:10,000
Arcoforte	
Population	20,000
5. Section: scale	1:10,000







hbabel is not a floating system, but buoyancy is an gral part of its structural configuration.

ıe expanse of the bowl are residential and public es. Its lower part is for production and storage. The ıral structure is subdivided into neighborhoods and is ıntially residential. Located in the proximity of the re line, systems such as this would have two direct cts: (1) relieve the population pressure (Japan), and stablish integrated productive plants that are eco- ılically self-sustaining.

ıg rigidly anchored, the organism could make use of differentials for the production of electric power. The ge benefits could be immeasurable in research, tour- , aquanautics, and a novelty of experiences, con- ıtual vision, and self-reliance.

The definition of submarine architecture would be one of the important phenomena developing from the water arcologies. The "modified gravity" in such environments would in time cause a whole redimensioning and reordering of spaces and performances: ceilings and floors would be rather inconsequential, walls would serve for separation more than support, and so forth. A person's field of action would move from circular and flat territoriality to the spherical, centered on the emergency device.