PAOLO SOLERI: Think. Draw. Build. Sustain. was organized by the NAU Art Museum in collaboration with the Cosanti Foundation.


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ENVISIONING:
Architecture and the Polity

It is fashionable to refer to Paolo Soleri as a visionary architect, but history tells us that all great architecture has been invested with symbolism, with transcendent values. Classical architecture in Greece and Rome grew out of the impulse to create worthy houses for the gods; the broad-shouldered churches of the Romanesque period reflected a desire to hunker down, to protect the faith and its material symbols. After the Gothic, with its soaring, ecstatic building forms, the West once again sought to articulate a different epoch, resuscitating classical forms to express the synthesis of faith and reason that shaped the Renaissance.

In the United States, Neoclassical architecture of the early republic embodied ideas of democratic governance, learning, and citizenship derived from the philosophes of the Enlightenment. In the nineteenth century, the spectacular scale and sensory presence of industrial environments, together with innovations in materials, brought us the towers and pavilions of international expositions; these led directly to the verticality of Louis Sullivan's buildings and, in the twentieth century, that most iconic of American forms, the skyscraper. In New York City, Cass Gilbert's Woolworth tower, the Chrysler Building, and the Empire State Building were all spoken of as temples of commerce, as great, towering organisms, and as machines of an epic scale. This language of technological progress and capitalist achievement echoed in the Fisher Building in Detroit; there, too Henry Ford's massive River Rouge automobile plant evoked the indomitable nature of the man himself—or on another day, breathless journalists might describe the River Rouge as a great, breathing, consuming creature engendered by our economic system.

Out on the prairie, Frank Lloyd Wright's houses for the wealthy expressed the expansive horizons of the Midwest as well as the architect's belief in the primal, instinctive drive of the cave and the hearth. The house must not be on the hill, it must be "of the hill."

The crisis in American culture wrought by twin disasters of the Dustbowl and the Depression led an entire generation of educators, architects, and modern philosophers to reinvent the scope and character of future communities. The pollution, crowding and dehumanizing imperatives of the modern city—now figured as a cancerous sore, a contagion in the body politic—were to be set aside in a more hygienic future of smaller, regionally adaptive communities where the balance of industry and agriculture, of production and consumption, might be restored. The cultural critic Lewis Mumford, the economist Stuart Chase, the literary critic Waldo Frank, all envisioned new environments in which the life of the spirit would be given as much weight as the health of the body. The Jersey Homesteads were created to give immigrants toiling in New York's factories a breath of fresh air and a bit of land to cultivate; Wright's conception of Broadacre City, developed from the interwar years and sustained into the 1950s, articulated many ideas held by his contemporaries, of communities reinvented to reflect a more human scale, tailored to the climatic and geographical characteristics of a particular region.

All of these visionaries recognized two inescapable realities in the American Century—that the gear and girder technology, the environmental and psychic impact of the "modern" city were unsustainable, and that, on the other hand, we could no longer imagine a limitless horizon of open land, there for the taking.

Much of Paolo Soleri's work in the second half of the twentieth century reflects this dilemma. His model communities—the "arcologies"—engage with such questions as...
Buckminster Fuller reminded us that, “On spaceship earth there are no passengers, only crew.” May the contents of this book and the exhibition it represents help to encourage each of us to become among the most contributing members of the crew.

There are many reasons to study and marvel at the life and work of Paolo Soleri. Most obvious among them would be to stand in awe of the extraordinary range of his drawings and models, all brought to life by the full scale, living environments of first Cosanti then Arcosanti. Earlier in his career, and far less well known, is the Solimene ceramics factory, which he designed in 1953. It is still in use in the Italian city of Vietri where it is operated by the original family for its original purpose. This building is remarkable in every aspect of architecture from its creative use of materials to the soaring spaces of its interiors.

Also less well-known but very different in scale from the Solimene factory is Soleri’s 1957 “Dome House” in Cave Creek, Arizona. This was his first work after coming to the United States to study with Frank Lloyd Wright at Taliesin West. Soleri’s design avoided the easy-to-copy mannerisms of Wright’s architecture as well as anything to do with the prevalent look of typical Phoenix residences at the time. Even at this early stage, it was clear that Soleri’s driving interest was to explore an appropriate architectural response to the Sonoran desert and most especially to explore humanity’s relationship to the gifts and lessons of nature. There is also a more specific influence that can be attributed to his Taliesin West experience. During the years of his apprenticeship, the Guggenheim Museum, although still on the drawing boards, was getting closer to becoming a reality. While different in form from the Guggenheim but remarkably alike in spirit, Soleri’s concept for his Solimene ceramics factory integrates all work spaces along the perimeter walls, leaving the center open to a unifying and grand multistory space. This idea can be seen again in his Dome House with its wall-hugging ramp and skylit roof. But I’m getting a bit ahead of myself.

I first heard Paolo Soleri’s poetic name during my teenage years with Frank Lloyd Wright at Taliesin West. While it had been eight years since Paolo had been at Taliesin there was a certain residual aura of this young man who had come from Italy, where he had already earned his doctorate in architecture. Frank Lloyd Wright was clearly impressed with his distinguished apprentice. On July 3, 1948 Wright sent a letter from his summer compound in Wisconsin in response to drawings he had received from the apprentices at Taliesin West. The letter included the following:

Paolo’s passionate rendering had a painter’s virtuosity and technique, I thought. The plateau he mounted his well-conceived building scheme upon was richly decorated by his buildings. But again they seemed to me all on the plateau, not of it. And there again even in scheme Paolo seemed more the brilliant painter than the Architect. But there are many roads to Architecture and he may find one of them if he is patient enough.

From the beginning, Soleri easily attracted media attention. An example of this occurred at Taliesin West where he was introduced to Elizabeth Mock, a guest of Mr. Wright who was writing The Architecture of Bridges, a book to be published by the Museum of Modern Art. It was in this setting that the author became aware of Paolo’s bridge design, called “The Beast,” which she decided to include in her book. While this was obviously good national exposure for Paolo, it was greeted with a less than generous spirit on the part of his Taliesin colleagues. There is no point in trying to be clinical about the feelings of Taliesin staff at the time of Paolo’s departure other than to say that when I arrived eight years later, without ever having met him, I inherited a less-than-favorable notion of what he was all about. By way of my subsequent visits to both Cosanti and Arcosanti, including many wonderful conversations with Paolo, any negativity relating to his departure from Taliesin gradually disappeared. However what remained was a philosophic gap that seemed very nearly unbridgeable.

Wright’s philosophy of urban form, to which he dedicated four of his books, was Broadacre City, the decentralized city that would be “everywhere and nowhere.” Broadacre City was a key component in Wright’s belief that our country’s youthful experiment, based on “the sovereignty of the individual,” deserved an architecture of its own. This was to be an architecture without imitation, related to the land and with as many individual expressions as the proper use of materials, the artfulness of...
architecture, and the lessons of nature, could inspire and permit. Wright’s thesis held that for all of human history, the dominant impact of technology favored and fostered centralized controls over decentralizing freedoms of the individual. For Wright, Corbusier’s concept of “the house as a machine for living” ended where the idea of architecture began. There would be no more “pig piling,” no more “trampling of the herd.” Wright’s new architecture would address the space-loving quest of “his majesty, the American citizen.”

Paolo’s focus on the sculptural form and community aspects of his arcologies, rather than on the place of the individual, was once important to me but over time began to fade into the background. What interested me more was a true appreciation for the enduring commitment to his richly varied explorations, all carried out on his unique terms.

The first of Soleri’s contributions is evident in his earliest writings, which both predate and extend far beyond the reach of what the architectural profession of today celebrates in far less comprehensive terms as being smart, green, and sustainable. That notion of sustainability, which a growing collection of organizations both promote and measure is mainly limited to technology. This piecemeal, often product-centered focus may provide for greater awareness than simply defining success by initial cost/value relationships but it does not have an exit strategy. Always have an exit strategy.

And when it comes to thinking about the timeless values of nature, how about this one: Whatever else you’re trying to do, always remember that success is all a matter of the velocity of sales and your margin of profit.

For a detailed account of our current failings, I recommend reading The Dismal Science: How Thinking Like an Economist Undermines Community, by Harvard economist, Stephen A. Marglin. Here we come to another of Soleri’s remarkable achievements. Given the obvious inactivity to align his work and philosophy with the developmental constraints just mentioned, most everything Soleri has accomplished has been funded by the magnetism of his work and strictly on his own terms. This work includes the design and casting of his treasured windbells, the sale of his writings, and the attraction of grants and fees associated with the visits and use of both Cosanti and Arcosanti. The result is in his ninetieth year, he remains as committed and focused as ever. Add to this that his latest concept and publication of the Arterial Arcology: Lean Linear City may rank among his finest and most detailed work.

Neither Frank Lloyd Wright nor Paolo Soleri would enjoy comparisons. I bring this up simply as a result of questions I’ve been asked.
ly others, starting all the way back to my years at Taliesin. In these early days, I was not an expert on Wright and knew nothing about Soleri. While I’ve now had more than a half century of insights and experiences, I have come to discourage comparisons, mainly because they do little but blur important distinctions while suggesting ways of thinking that aren’t helpful. Having said this, I continue to be asked relevant questions for which I offer these wandering thoughts:

Frank Lloyd Wright has long been called the World’s Greatest Architect and more recently, our first green architect and our first ecological architect. As an artist/architect, he was the New World’s most integrative designer. From his designing of cars, clothing, his manner of speech and daily life, to his conceptions for brilliantly modest homes, the complexity of the Guggenheim Museum and everything in between, his work was richly varied, while Wright nonetheless imposed selective limits on prevailing thoughts of his time as he was, an extremely rare. They both lived with no separation between life and work, and did so within environments entirely of their own designs, built by and shared with their apprentices. Ralph Waldo Emerson advocated that a person must be so inner-directed as to be indifferent to certain circumstances of the day. There are individuals who enjoy a somewhat diminished version of what Emerson had in mind simply by virtue of their financial status, but by the regenerative joy and pursuit of ideas. There was no such thing for Wright and Soleri. Emerson looked much more to broke the boundaries of his interests but also based on the largely ignored idea, which he called "the nature of materials." All this is to get back to a difference between our two subjects. While Wright married both technology and architecture, Soleri’s views were shaped more by a time in which there was an increasing focus on biology, especially when applied to the design of human habitats. Wright gave both national and architectural expression to Thomas Jefferson’s infamous proclamation of the sovereignty of the individual. Soleri looked much more to design as a kind of death. As for the idea of independence, Soleri says simply, “there is no such thing as self-sufficiency—It doesn’t exist.” Yet, because he has not engaged the existing community as part of his work, it would seem that he has pursued his own sense of being self-sufficient.

Among Paolo Soleri’s achievements is his use of metabolic understanding to discuss and inform how we must ultimately learn to live and build, and no one can deny that he has practiced what he believes. To further understand Soleri, the philosopher architect, consider Buckminster Fuller’s insistence that, “Unity is at a minimum two, and that this duality always and only coexists.” Nowhere is an understanding of this truth more needed than in the array of disciplines that constitute the work of the architect. Concerning the two worlds of architectural experience, that which is most obvious is governed by the metrics of laws, codes, economics, and the prevailing appetites of the day. It is a world where much of life is monetized, far more attention is focused on the transactions of selling and
leasing than anything to do with creating a sustainable vibrancy of place and community.

Our other world is less easy to conceive because it exists outside the short-term thinking of what we easily know how to measure, buy, and sell. This second world consists of our personal and shared need to understand our complex relationships with nature and each other. No one has stirred the pot between these two worlds more than Paolo Soleri. He doesn’t just speak and write, he mentors, builds, and lives each day with an artfully integrated sense of life purpose. This notion of living in two worlds deserves to be taken a bit further, perhaps even into troubled waters.

Before starting down that road, let’s return to Frank Lloyd Wright’s 1948 observation that Paolo seemed “more the brilliant painter than the architect.” By now the world knows he is both and to this we can add his brilliance as a sculptor, but there is still something instructive about Wright’s reference to the painter that aligns with the body of Soleri’s work.

Unlike the art of architecture, the greatest of paintings can be conceived and fully completed, whether or not anyone but the painter has seen or appreciates the work. This allows for paintings that had been ignored during the artist’s lifetime to become like that of the great painters whose recognition had to wait for human sensibilities to catch up with their genius along with the later promotional methods of marketing.

Painter or architect, Soleri speaks with his own, sometimes puzzling language of the visionary. He is as the New York Times asserted in 1970, “The Prophet in the Desert,” and to an extent the article’s tag line, “we have not been listening” remains true as well.

I’ve raised this supposed “two-worlds” background as a way towards a few philosophic questions. To what extent, and why, would the ideas and ideals of Arcosanti be more or less convincing, if instead of its present state, including its promised later realities, it was fully completed in the here and now? Given that its completion would take place within today’s economic and market conditions, how might we consider the varied issues to be confronted in pursuit of the anticipated level of full occupancy in order to function as intended? As for everything outside its own boundaries of control, what might we envision concerning Arcosanti’s impact on the surrounding lands and infrastructure controlled by others?

A final question relates to the philosophic basis that lies behind all the arcologies that have been designed and modeled thus far. Could the spirit and goals they represent be approached in more incremental ways? Is there any philosophical latitude between the clarity of these proposals and the ideas of others that Paolo Soleri has dismissed as being nothing but “a better way of wrongness?”

These questions are made all the more important given the significance that has been attributed to the idea of the arcologies. The same November 15, 1970 New York Times featured an article referring to Soleri as an archiologist who provides “an alternative to the end of the Earth.” It would be difficult to think of a more sweeping claim of significance than a one man alternative to the destruction of all that exists. At the very least, this flattering pronouncement would assume an ability to replace our present economic system based on the short-term transactions exemplified by Wall Street’s algorithmic investing with one more able to address the long-term complexities of human values.

Opened also to new thinking would be the many behavioral changes and marketing techniques required to reduce our wants down to the level sustainable by a single planet rather than the four or more planets required if the consumption of the world’s people increased to the current level of the United States.

While much of Paolo’s writing remains difficult for some readers to understand, no person has ever put so many significant variables into a single frame of reference, both in his books and by way of the living examples of his philosophy. For all these reasons, it matters little if and when Arcosanti will be finished. It is already serving its purpose as an urban laboratory. Soleri always puts a question mark after the words “urban laboratory.” As an experiential teaching tool, let it be under construction forever! In this sense it has been achieving its purpose since day one.

Considering the many tributes paid to Paolo Soleri, they will all pale when that day comes that must come for all of us. Because of his more than fifty years of design and stewardship, he will leave his work in the hands and minds of the uncountable number of souls resulting from the global outreach of those he has mentioned and influenced.

Frank Lloyd Wright was frequently asked how it felt to be so far ahead of his time? Neither liking nor accepting the question, he would answer saying, “The time for an idea to happen is as soon as someone has it.”

Few, if any, have done more to illustrate and share their ideas with the world than Paolo Soleri. As already expressed, this sharing include his writing, speaking, the dramatic diversity, scale, and complexity of his drawings and models, and most compellingly of all, the dynamic demonstrations of his life and work at Cosanti and Arcosanti.

What’s missing?

Without trying to oversimplify the vast complexity of human motivation, consider three categories of behavior: By far the largest group consists of those who, either by circumstance or because whatever seems most normal works so well for them, just go along with the dominant beliefs, behaviors, and economics of their time. From the extremely impoverished to the extremely wealthy, what distinguishes the behaviors in this group is that, within their realms, they all look so normal. A very different, much smaller group is both more motivated and compelled by their own insights and interests than by anything to do with the prevailing circumstances of their time. A third group consists of those who serve
ever new realities something of the purpose by the visionary are now able to manifest in having been trained, nurtured and empowered

category includes the bridge-builders who second category. The all important third

Paolo Soleri, the inspiring visionary, is in the for the exploration and germination of ideas.

Using Arcosanti to illustrate the point, the first group including the doubters and critics, many of whom unwittingly live in ways that lie at the core of the problem. Bridge-builders are the energizing force of the future. Their commitment, in this case, is to support Soleri’s ongoing work, including questions that no one else is asking. Among their goals is to come up with questions to empower and further guide the original vision. I offer the following only to suggest examples of what those questions might be and what they would be designed to accomplish.

We all know how impressive Arcosanti is by virtue of the number of individuals it attracts to participate in its work/study program, along and power of his work. Those who have nothing to offer the future are to be found in the first group. What kinds of interests would be most likely to want to make it their home? What could the opportunities be for employment and what would be the jobs/ housing balance?

How would today’s patterns of core cities surrounded by suburban sprawl be influenced by the very much living example of Arcosanti’s completion? What impact would its presence have on the vast surroundings of undeveloped land? On a regional basis, where might other future arcologies be located? Given the nature of its construction, would housing costs be less or more than other alternatives? The same question would apply to the on-going costs of operation.

There may be far better, more appropriate questions, but the point to be made is that the right questions can lead to a form of psychological currency. The bridge-builder’s job is two-fold—to navigate ideas through time while helping to focus and increase the interest and involvement of all others. Given this background, what caring person, with the resources to respond, could resist the truth and power of these words from Paolo Soleri:

Our technology, if not our conscience, will not allow us to take half-measures in response to our problems for much longer...

Architecture is city planning, as it is ecology. Architecture cannot remain an atomistic phenomenon. It must go beyond human needs and provide more than just the simple pleasure of things to come.

If the bridge-builders do their job well, the widespread response will not have to await the completion of Arcosanti. Just as a string quartet is no less awful than grand opera, I find Cosanti no less significant than Arcosanti. In some respects, Cosanti may be the more amazing work. On a single, tiny suburban lot, Paolo Soleri has demonstrated a most significant array of spatial forms, incorporating an equally amazing array of functions. To walk up and down and in and around its narrow pathways is to experience a miniature version of a most stimulating village of the future. When viewed from the air Cosanti reads like a three-dimensional weaving between man and nature, but on the ground it is all the more personal.

Because Paolo Soleri’s structures are so dramatic, it is not surprising that they attract our attention, but the more personal pattern of his long life has much to teach as well. Wendell Berry is arguably one of our most compelling writers concerning the stewardship of nature. Like William Blake and Frank Lloyd Wright before him, Berry finds his own way to associate our right response to creation as the most-often violated, but nonetheless core message of the great prophets. Regrettably, today’s modern professional societies have trivialized this timeless message into a trivialized list of dos and don’ts for being smart, green and sustainable.

Paolo Soleri has not only designed, built and mentored with an uncommon sense of stewardship for creation, this commitment has been at the very core of his every act and deed. While he has an uncommonly rich history, it is in the future where the example of his life and work will shine all the brighter.
Following his apprenticeship with Frank Lloyd Wright at Taliesin, Soleri remained in the desert, camping in Paradise Valley and collaborating with Mark Mills. They camped for eight months on the side of Camelback Mountain near Scottsdale, Arizona. Soleri and Mills were living about a third of the way up Camelback on a developer’s land, a privilege earned in exchange for services, with only their bicycles for transportation. They were caretakers for the man who owned the property, who would lend them a cabana in which to take showers and his truck to go into town to buy groceries once a week.

Soleri completed this portfolio, which features 9 domes for habitation in different sizes and shapes, using extensive stenciling without lines. One of the designs in the portfolio, Dome House, was commissioned by Leonora Woods in 1949 to be built in Cave Creek, Arizona. A transparent dome came to life on a low stone-concrete wall. It was designed to contend with the difficult local climate, and it opened to the sky and the sun in order to receive their beneficial effects. Two spaces of contrasting character—a sleeping area carved deep into the hill and a living room, under cover of a glass cap that provides warmth to the nighttime space at sunset—infused one another positively. The main filter from the outside, the cap, used a T-beam bent and welded to form ribs. It served as a membrane to protect the space without isolating it.

It is this transparent building envelope that characterizes the building by maximizing its symbolic potential and encouraging a dialogue between architecture and nature. The sphere consists of two movable halves, each of which can be turned by the inhabitants using a metal device. This creates a conversation between the inhabitants and the sun. The original model of Dome House is now in the permanent collection of the Museum of Modern Art in New York. A collective housing design called Basket Makers, also in the same
2. Basket Makers, 1948, colored ink on vellum, 22" x 13.5"

Inspired by the basket makers who lived on the Hopi mesa, this collective housing example explores a modern approach to designing a Native American community.

3. Basket Makers, 1948, colored ink on vellum, 22" x 13.5"

A half-toroidal-shaped, translucent dome covers a common area, provides abundant sunlight in the winter, and reclaims rainwater for the vegetation around the habitat.

4. Conventional B, View 1948, colored ink on vellum, 24.5" x 15"

As opposed to the circular/spherical nature of most of the designs included in the Arizonian portfolio, this design features ‘square’ modules as a series of units that comprise its collective living arrangements.

5. Conventional B, 1948, colored ink on vellum, 22" x 13.5"

Along with the architectural floor plan nestled in the natural boulder formation, this drawing features an early version of the ‘Cosanti’ logo. The logo subsequently came to represent the artistry of the Soleri studios, where the creative activities of the architect and his associates

6. Solar Radiation, 1950, ink on tissue paper, 23.75" x 14"

A parabolic dish that collects solar radiation, transforms it into a concentrated form of usable energy, and also integrates a human habitat into a single structure, representing Soleri’s idea of a Cosmic Potential.

7. Solar Radiation, Bow, 1950, ink on tissue paper, 23.75" x 14"

A widened bow-shaped dish reflects solar radiation onto an energy absorbing rod placed in the focal point in the single structure that also features spaces for human activities.

8. P. Solare, 1950, ink on tissue paper, 23.75" x 14"

A flat roof at the top of the funnel structure works as a solar panel to collect heat which induces the air movement inside upward, therefore the moving air turns the turbine located at the bottle neck.
9. Energy Cone, 1950, ink on tissue paper, 23.75" x 14"
A tower containing a habitat features wings of solar collectors spread open. The collected air is distributed throughout the structure.

10. V-Shaped Bridge, 1950, ink on tissue paper, 23.75" x 14"
This is the very first Soleri sketch featuring a cantilever bridge, a concept further explored in many variations in later years.

11. Viaggio Bridge, 1950, ink on tissue paper, 23.75" x 14"
A series of Double Cantilever bridges form a larger spanned logistical corridor, opening up many possibilities for its applicability.

Ceramica Artistica Solimene, Vietri sul Mare, Italy, 1951-53

"The building, which is both a work of art and a place for production, defies classification. With his design, Soleri came up with a wholly new idea that assimilated and reinterpreted the ancient custom of creating a courtyard to serve as a central space, a laboratory for daily life that linked the inside and the outside.”
Antonietta Iolanda Lima, Soleri: Architecture as Human Ecology, 2000

A spiraling ascent brings the Solimene Ceramics Factory’s various levels indoors. This is architecture that allows for both movement and rest, arranged continuously from ground to roof, in which each space corresponds with what is produced. Three of the floors are involved in the production cycle, starting at the third level and descending to the ground level, where the finished products arrive ready for direct sale or for loading onto trucks that enter on a road specially built for this purpose.

A terrace garden covering the top of the whole building was conceived as a public exhibition space between sky and landscape. To reach it, the visitor ascends the indoor spiral ramp and, in moving upward, experiences all phases of production, thus entering the complex man-made dialectic. The climb from bottom to top highlights the decreasing width of the cantilevered floors in the large interior space while also providing a continuous view of the work of transforming the clay. This structure provides an extraordinary promenade built on complex networks. It banishes the loneliness and monotony of the traditional factory and reveals the individual processes, expressing the rhythms of the various phases of ceramic production. Located five floors above ground level, a residential home opens up to marvelous views towards the sea on one side and the mountains on the other. The exterior walls of the house have been decorated with red and green ceramic cones, replicating the pattern on the front façade of the factory.
13. Campanula Bridge, 1958, silkscreen, 45.25" x 12"

This Luxembourg bridge competition entry served as the original design template for several Double Cantilever bridges designed later in the 1960s.

14. Levitation Bridge, 1958, silkscreen, 45" x 16.5"

Assuming the bridge materials used for this design are extremely light, the structural integrity of the bridge demands two strong footings on both sides.

15. Double Cantilever Bridge, 1958, silkscreen, 41.9" x 21"

Balanced in the middle, the Double Cantilever bridge features elegant arms extended to each side of the structural pylons firmly anchored in the ground.

Bridges, 1949-2012

"Of all things that are man-made, bridges are... the most 'structural,' single-minded, and imposing. As connectors at a breaking point, they have a heroic force that is aided by a challenging structuralism... To bridge is a symbol of confidence and trust. It is a communications medium as much as a connector." Paolo Soleri

Paolo Soleri's interest in bridges began in 1948 when he was asked by Elizabeth Mock to design a bridge for the book The Architecture of Bridges (New York: MOMA, 1949). Known as The Beast, the design received critical acclaim for its elegant form and structure. Since then, Soleri has designed dozens of bridges, including seven schemes for the Luxembourg Bridge Competition (1958), and several bridges for the Mesa City master plan (1960). He has also designed Pulse Bridges (1989), long span structures that respond directly to the forces of nature, and most recently the Scottsdale Pedestrian Bridge (2012), originally conceived in 1992 and now a reality in Scottsdale, Arizona.

In many of the bridge designs, Soleri tries to integrate functional spaces into the structural elements of the bridge. The bridge becomes more than just an instrument that links places together—it is itself a habitable space where people gather and live. Soleri’s bridges are functional objects of art and engineering that do not need a context to be understood or appreciated. For Soleri, the bridge represents “an ideal subject for the imaginative mind if the mind accepts the discipline that gravity and matter impose.”
17. Double Cantilever Bridge, 1957, ink, pencil, and colored pencil on vellum, 43.5" x 8"

Anchored on each side of the firm canyon walls, two cantilevered bridges meet in mid-air to complete a bridge connection. This original pencil drawing shows the master’s touch.

18. Omega Bridge, 1958, ink, pencil, and colored pencil on linen, 43.5" x 10"

The pencil drawing details the skeletal structures revealed on the surface of this bow-shaped bridge.

19. Stonebow Arcology, 1968, black ink on paper, 59.75" x 27.9"

This city-sized ponte vecchio (an enclosed bridge with shops) is an enveloped ecology, filled with cultural activities and logistical amenities. The drawing was featured in Soleri’s seminal work Arcology: City in the Image of Man, published by M.I.T. Press in 1969.

20. Tubular Bridge, 1962, charcoal on paper, 56" x 29.5"

This light frame bridge hinges on both ends, almost floating in the air. An interesting stencil drawing technique leaves no trace of an ink line drawn on paper. This sculpted, as oppose to geometrical, bridge offers architectural spaces and logistical corridors to achieve multi-functionality within the structure.

21. H-Frame Bridge, 1962, ink on vellum, 50" x 24"

This long frame bridge hinges on both ends, almost floating in the air. An interesting stencil drawing technique leaves no trace of an ink line drawn on paper.

22. Tubular Mesh Bridge, 1962, ink on vellum, 54" x 28"

This bridge looks almost stretched by two walls, playing a game of tug-of-war, and resulting in a three-dimensional stability that the structure needs. The stencil drawing shows no line, but dark and light brush strokes.
23. Beast Bridge Model, 1947, photograph, 60” x 33”

The Beast Bridge was made into a scale model for the Atlas Cement Company, which was interested in the applicability of concrete as a plastic medium, as suggested by Soleri in designing this curved linear structure.

24. Beast Bridge, Lin Analysis, 1948, black ink on vellum, 23” x 14”

The Beast Bridge is the first published work by Soleri, appearing in *The Architecture of Bridges*, published by the Museum of Modern Art (MoMA) in 1949. The book’s editor, Elizabeth Mock, was a fellow architectural apprentice with Soleri at Frank Lloyd Wright’s Taliesin.

25 & 26. Gli Angeli-Pedestrian Bridge, 1953, pencil and china ink on paper, 24” x 14.5”

While Soleri was working on the ceramics factory in Vietri, he produced the Vietri portfolio that recorded many suggested designs for local hotels, restaurants, studios, housing complexes, and this pedestrian bridge.

The bridge was proposed to alleviate conflicts between pedestrians and automobiles on the main road on Amalfi Coast. The structure also integrated a bus terminal and other functions to make it much more than

27. New York Pulse Bridge, 1988, colored pencil on paper, 33” x 29”

The New York Pulse Bridge is a part of the Pulse Bridge series developed for various settings in the 1980s. They are all suspension structures, the pylons supporting the horizontal planks with cables.

This New York bridge pulsates with the rhythm of the city, detecting the traffic load of the bridge, pumping water from the river, and creating waterfalls visible from the shores.

28. New York Pulse Bridge, date unknown, airbrush, 59” x 39”
Of all things that are man-made, bridges are, with dams, the most "structural," single-minded, and imposing. As connectors at a breaking point, they have a heroic force that is aided by a challenging structuralism. As a strand of continuity in a non-continuum, the bridge is full of implied meanings.

29. (right) Tubular Bridge Model, 1976, bronze and aluminum, 48" x 12" x 12"

This sculpted, as opposed to geometrical, bridge offers architectural spaces and logistical corridors to achieve multi-functionality within the structure. The bronze and aluminum model was cast at the Cosanti metal studio.

30. (below) Double Cantilever Bridge Model, 1960s, silt-cast plaster and gesso, 63.5" x 12" x 10"

Of all things that are man-made, bridges are, with dams, the most "structural," single-minded, and imposing. As connectors at a breaking point, they have a heroic force that is aided by a challenging structuralism. As a strand of continuity in a non-continuum, the bridge is full of implied meanings.
Mesa City, 1960-62

The Mesa City project was designed for a population of two million people living in an area the size of Manhattan island. It is the outline of a regional development in the American West or any similar region. The land is internationalized under world government authority. Thus the sheltering of man is based on his worth, not on his clan. By dedicating a parcel of its land for this purpose, any developing country would see a radical transformation of its social, economic, and cultural life.

The plan includes:

1. On a plateau, a city of about two million.
2. Towns and villages of rural character, producing and processing foodstuffs and their derivatives.
3. Industrial complexes downstream of water reservoirs.
4. Special structures intended as multipurpose social facilities, living and working. Their form is such as to capture and make use of cosmic energy — solar radiation, winds, and water.
5. A linear city developing along a man-made waterway.
6. A connective network of roads, railroads, and bridges.
7. An ecological organization of nature within the new balance demanded by large communities.

The city is set on a semi-arid plateau or mesa surrounded by areas dedicated to agriculture, grazing, and land preservation. The region provides the city with foodstuffs and their by-products. The regional ecology is closely governed by a complex of works including controlled watersheds, canals, and reservoirs. Multipurpose dams feed both industry and the region with water and power. Heavy industries are developed in adjacent canyons.

The city develops north-south in a band about 10 kilometers wide and about 35 kilometers long. At the south end of the main axis is the center for advanced study, encircled by secondary schools and dormitories. Directly north of this complex is a man-made park (150 to 200 meters wide, 15 kilometers long), widening into a system of dikes and lakes, the edges irregularly settled by villages whose main activities are arts and crafts. Uphill, five kilometers north of these villages, stands the theological complex: facing east is the theological university, a library-museum is in the center, and monastic orders are on the west side. The center for advanced study, the man-made park, and the theological complex constitute the backbone of the city.

Beginning again from the south end around the school complex is a band of villages and civic centers averaging 2.5 kilometers in width. Thirty-four villages of about 3,000 people each are grouped around civic and shopping centers in clusters of five. Each village is on a ground 1,000 meters in diameter; a garden 200 to 400 meters in diameter is in the center. The village structure is about 500 meters in diameter. There is an outside farming ground 200 to 400 meters in depth for orchards and vegetable gardens. This whole band is crisscrossed by pedestrian and bicycle paths; there is no private car traffic of any kind. Each village is tied directly to the speedway through underground parking and repair-refueling shop facilities. High-density dwellings are developed on the east and west side of the man-made park on sloping grounds, allowing for a terraced plan. Porched piazzas with civic and public utilities are placed among the dwelling rows and the bordering public gardens.

At the foothill of the theological complex is a series of “indigenous villages.” Ethnic, cultural, and racial differences are maintained and emphasized through the material and human structure of each village for comparative studies and for the identification of man’s uniqueness in the face of what we erroneously call “discrimination.” Discrimination is really the process by which life is selectively etherealized, that is to say, becomes more human.

31. Mesa City, Axial Park IV, 1969, charcoal, pencil, pastel, and crayon on paper, 191 x 35"
Macro-Cosanti 1963

Macro-Cosanti was developed after Mesa City and is an intermediate phase between the two-dimensional sprawl of Mesa City, in which some three-dimensional nodules already appear, and the uncompromising three-dimensional unity of the arcologies, Arcosanti included.

The land is a parcel of about one square mile, of which two-thirds is in the Prescott National Forest. The forest surrounds it on the east, south, and west as a natural barrier to the encroachment of “civilization.” The elevation of about 4,100 feet puts the land within the Arizona highland prairie belt. The spare grass is green after the winter and summer rains. The rest of the year it is a most beautiful, even tone of pale gold.

This specific plan results from the encounter of an idea and a described site that responds broadly to its demands. This encounter had to be consumed within a “heavenly” determinant: if the cosmography governing the land were square, that is, if a square sun rising vertically on the straight horizon should describe a square orbit in the cubical sky, the scheme of the structure and its parts would be square. For our spherical (elliptical) cosmography the structural form, parts and all, is spherical (curved).

The reason for this dependence is not far-fetched: in the Foundation most of the activities are to be developed in sheltered but open spaces. To succeed in this, the main problem is to tame the sun by selecting those radiations that are “kind” and rejecting those that are “unkind.” Its curve trajectory demands curved “traps.”

The long, hot, horizontal, east and west intrusions of the sun, the midday blasting verticality of the summer, and the shorter and inclined warmth of the winter influenced the choice of the two schemes adopted. One, a microstructure sheltering individual or small group activities, is repetitively used. The other, a macrostructure sheltering similar activities, this time compactly grouped, is used in three variations.

Very generally the microstructures are “vertically efficient” while the macrostructures are horizontally efficient: The first is like a hand sheltering a lighted match and the other, is like a bowl formed from two hands catching falling water — but in this case, falling sunlight. The psychological similitude stops there, all structures being inscribed in elemental geometric configurations.

The microstructure is an apse, trapping most of the winter sunshine projecting onto it (if open to the south), slowly releasing it through the spring, cutting it out almost totally during the summer months, and gradually recapturing it again with the fall.

The macrostructure also produces a microclimate zone, but more extensively than intensively. In this case the climatic zones are indeed multiple but broadly divided into two groups: under the bowl is a shaded volume where vegetation and water can contribute to coolness. This volume is of the ground environment, crisscrossed by breezes and winds. It is rain sheltered. The winter sun will cut deep into it on the east, south, and west sides.
Arcology is a concept of cities that embody the fusion of architecture with ecology. In his book, Arcology: The City in Image of Man (1969), Paolo Soleri proposes a highly integrated and compact three-dimensional urban form that is the opposite of urban sprawl with its inherently wasteful consumption of land, energy resources, and time, and tendency to isolate people from each other and the community. Miniaturization creates the Urban Effect, the complex interaction between diverse entities and individuals, which marks healthy systems both in the natural world and in every successful and culturally significant city in history.

Pollution is a direct function of wastefulness, not efficiency. In a three-dimensional city energy and resources are used more efficiently than in a conventional modern city. Suburban sprawl mandates a hyper-production-consumption cycle and creates mountains of waste and pollutants. An arcology’s direct proximity to uninhabited wilderness would provide the city dweller with constant immediate and low-impact access to rural space as well as allowing agriculture to be situated near the city, maximizing the efficiency of a local food distribution system.

Designed on a curve-square plan of about 1 kilometer per side, Babel Canyon is like a series of skyscrapers perforating three pyramidal and multifunctional configurations. The lower one covers the servicing entrails of the city. The other two are the containers of residential and public functions. As for many of the arcologies there is a very large light-and-air well running on the vertical axis. The sloping configurations produce a variety of spatial systems of inward or outward character. The environmental characters would be very diverse, with almost opposite rhythms of space, light, and dimension.

Population: 250,000
Density: 2,341/hectare; 948/acre
Height: 800 meters
Side: 1,100 meters
Surface covered: 100 hectares; 247 acres

35. Babel Canyon Model, 1969, plexiglass, 48” x 48” x 48”
Cities energized by the sun are the main theme of the Two Suns Arcology. This scroll shows the way Soleri develops his design continuously in this open-ended canvas format.

37. *Babel Canyon IID Arcology*, 1977, ink on paper, 11" x 8.5"

An example of a vase-shaped Arcology, this conically shaped hyper-tower structure is enveloped by a double membrane that provides a controlled environment within.

38. *Arcology Sketch*, 1977, ink on paper, 7.5" x 8.5"

This drawing features a variation of a stilted Arcology, whose suggested application is often on marsh, water, or uneven terrain. This Arcology on pillars also implies a possible platform for a linear city.

39. *Macro Towers Sketch*, 1977, ink on paper, 7.5" x 8.5"

A major horizontal architectural element in the air connects the multiple towers rising from the ground; this design may be used in varied topographical conditions.

40. *Stonebow Arcology Sketch*, 1977, ink on paper, 7.5" x 8.5"

This drawing shows a cross section of the Stonebow “bridge habitat” that contains multifunctional amenities required for a robust community.
41. *Babelnola Arcoey*, 1977, ink on paper, 7.5” x 8.5”

This continuous city sits on stilts amidst a marshy ground, providing elevated terra functioning as an arterial network for the city.

42. *Arcosanti*, 1977, ink on paper; 9.25” x 7.25”

This sketch echoes many elements of early Arcosanti designs. Soleri subsequently made radical design changes on the project, which is currently under construction in Arizona.

43. *Logistical Arcoey Sketch*, 1977, ink on paper; 8.5” x 7.5”

Modeled after an earlier Airport Arcology that featured a series of air terminals in the outer edge, this arcology is actually placed on a body of water to provide harbors and docks.

44. *Dam Sketch*, 1977, ink on paper; 7.5” x 8.5”

A dam that features a bridge element to reinforce the structure, counteracting the water pressure and horizontal movements at the top.

45. *Dam Arcology*, 1977, ink on paper; 9.25” x 7.25”

As a part of the Cosmic Potentials that take advantage of renewable energy, Soleri turned a hydroelectric dam into a habitable space.
The Nudging Space Arcology is a variation of Soleri's earlier designed Two Suns Arcology [see catalogue entry no. 34]. The important design element here is the "Apsedra" which combines two architectural forms, the "Apse" and the "Excedra." One way to visualize this is to picture a halved artichoke whose upper third has been sliced off and its choke removed. Its blades are separated but still remain attached to the lower center. The "Apsedra" is solar garment architecture with two principal garments. The warm garment is loose and provides shade, while the cold season garment is tight and transparent, allowing the sun’s rays to enter and trap the warm air. The form of the multi-exedra is generated by the intent of putting the sun to work in producing large volumes of space that are tamed versions of the open space. They are tamed in terms of temperature and air movement, and light, thus the physical-climatic side of the Apsedra. The psychosomatic side is revealed by the influence the curved space has on our relationship with things and people. The Apsedra encourages conviviality by offering a focusing convergence—a center of centers—where awareness and communication are enhanced. This then becomes three dimensional in the apse side of the Apsedra. The semi-spherical curvature of it is a reminder of a very large parasol. This means that the embracing of the Excedra is reinforced by the sheltering of the apse.

Living Space (50%): 20,000,000 square meters (200,000,000 sq.ft.)
Commercial/Public Space (25%): 10,000,000 square meters (100,000,000 sq.ft.)
Public/Circulation/Services (25%): 10,000,000 square meters (100,000,000 sq.ft.)

Total Floor Space (100%): 40,000,000 square meters (400,000,000 sq.ft.)

City towers are connected horizontally at the ground and roof levels to provide macro urban mobility. The idea was originally introduced in Soleri's seminal book Arcology: City in the Image of Man, published by M.I.T. Press in 1969.

Soleri referred to Babel Canyon as an Apollonian Arcology due to its geometrical and symmetrical characteristics that tend to transcend the site-specific building parameters.
50. West Crescent, Arcosanti, 2002, acrylic and wax on paper, 18” x 13”

The West Crescent Complex, proposed right behind the Ceramics Studio Apse at Arcosanti, provides hosting facilities for a multitude of educational and cultural activities.

51. Stilted Bowl Arcology, 2002, acrylic and wax on paper, 18” x 13”

The stadium-like form, due to the bowl-shaped structure, gives the central activity of the community more focus—people are facing on another—while the stilted structure provides the residences on the outer surface some privacy with radiant (outward) views.

52. Seven-Column Arcology, 2002, acrylic and wax on paper, 12.75” x 13.5”

While the building design may be scalable to a larger community, this compact structure features a large skylight with an open-air pavilion/gallery below.

53. Arcosanti Masterplan, 2005, cardboard, 43” x 43” x 20”

The Arcosanti project has gone through numerous design changes since its initial conception in the 1960s. The current master plan, Arcosanti 5000, features layers of super-structures soaring over the existing site, with facilities to support a population of 5,000. The darkened gray portion of the model is that which has already been built.
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