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On Christmas Day I went to a dance at Santa Ana Pueblo on the Jemez River. It is beautiful how the plaza where the dances are held opens up at the southeast corner to permit a view of the Sandia Mountains. The plaza not only frames the dances, it also frames (and defers to) the natural setting of which it is a part. How different an attitude this represents from that of nearby Albuquerque or Rio Rancho, which crisscross the desert with a bulldozed grid of roads anticipating decades of future development.

I think it is fair to say that the architecture of the Pueblos of New Mexico achieves a certain equipoise in relation to the surrounding natural setting. Whether this is inadvertently due to the limitations of their technology (they had no bulldozers, so they had to conform to the existing topography) or intentional is immaterial. They achieve a compelling balance in their architecture between the preconceived order of the ceremonies that their villages are planned to frame and the topographical circumstances and physical idiosyncrasies of the site. A tangible sense of place develops in their architecture because it is premised on such a powerful sense of belonging to a larger natural whole.

Vincent Scully (1975, 4), in his book *Pueblo: Mountain, Village, Dance*, points out the difference between "the vast majority of early civilizations—Mesopotamian, Egyptian, Meso-American and so on—[which] fairly obviously set out to imitate natural forms in their monumental buildings and to geometricize them at landscape scale, so creating conscious images of mountain, sun's rays, river, swamp and clouds" and the architecture of the ancient Greeks:

The Greek revolts from this calculated symbiosis. Because the landscape is sacred, it embodies its own divinity separate from man, who completes it—completes the structure of things as they are—by placing in it a house, a *naos*, as a shelter for his own image of the god of that place. Then he surrounds it with columns, like images of standing men, and later in his history he describes them verbally in such terms. But for the exterior body of the peripheral temple as a whole, the Greek seems to have had only two special imagistic words: *aetos*, "eagle," for that broad triangle which the Romans were later to call the pediment; and *ptera*, "wings," for the peripheral colonnades. So, while the *aetos* may seem to echo mountain shapes a little, that is apparently not how the Greek primarily saw it. His temples embody not the natural, but the man conceived divinity. They are heroic; they confront and balance the earth shapes but are not of them. They are the eagles of Zeus, wingspreading, through whom mankind bursts free (Scully 1975, 4).

Western civilization has been premised on this concept of freedom from nature ever since (Scully 1975, 7). It is a concept that is intrinsic to our Western world view and a concept that is fundamentally different from the world view represented by the Pueblo architecture of New Mexico, which conforms to the land in which it is built and becomes a part of it. Pueblo architecture provides a glimpse at a different premise upon which to base the fundamental relationship between man and nature.

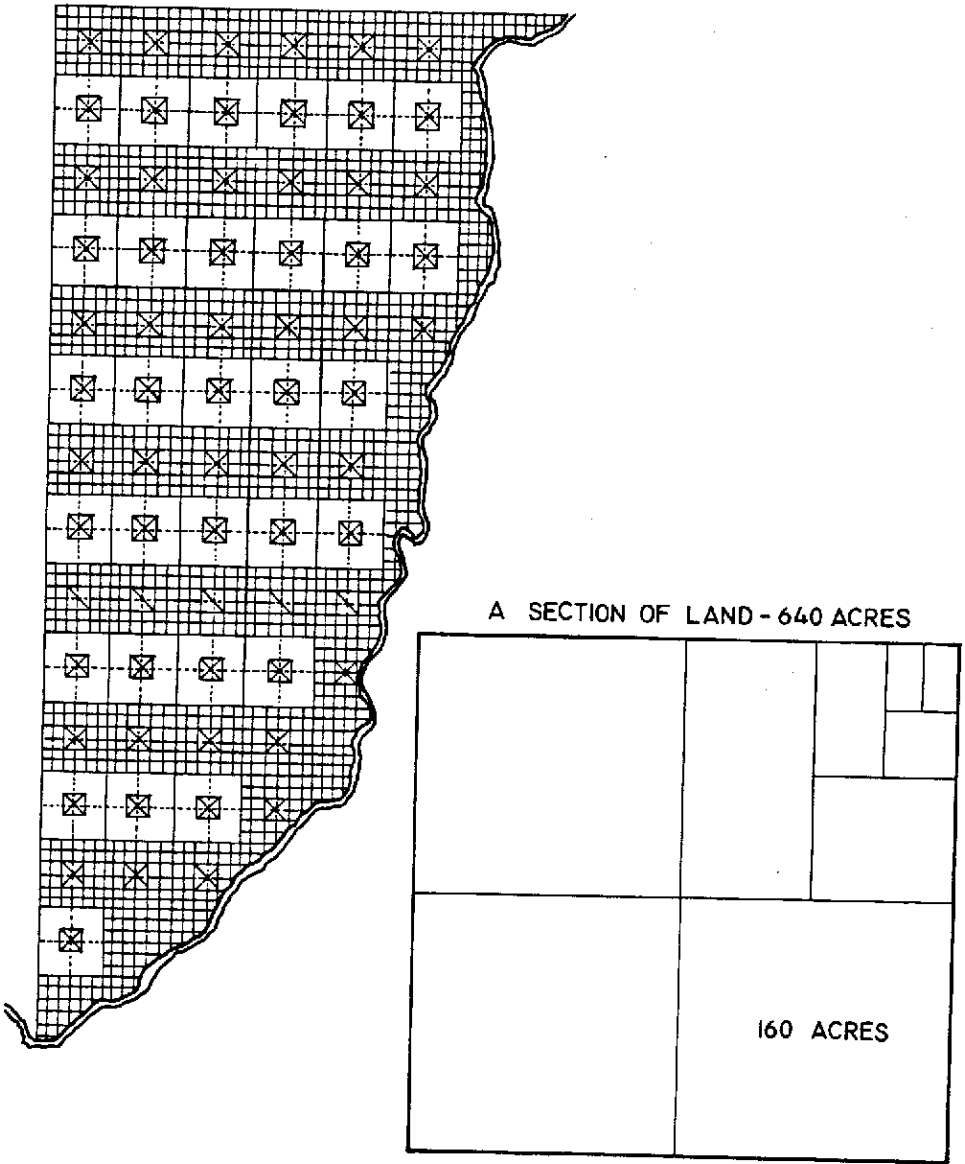
I do not intend to promote the myth that the Pueblos lived in complete harmony with nature. The story of the Pueblos and their ancestors' 700-year occupation of the Mesa Verde and its eventual abandonment testifies differently. According to Mesa Verde National Park archaeologist Dr. Jack Smith (1985), that story is "the story of a people trying to make a living in an arid land—at first as hunter-gatherers by dealing with the circumstances of the land and then as farmers by planting the circumstances of their livelihood as they simultaneously disrupted the balance of their own existence." Indeed, the sequence of development at Mesa Verde consists of four identifiable cultural periods in which an increase in food-producing capability led to an increase in the population and consequently the need for more food as the Anasazi struggled and eventually failed to maintain a balance and equilibrium with the land. The very act of cultivating corn is a human intervention in the landscape. But it is an intervention premised on a different reality. The farmer who carefully recycles last year's manure for next year's harvest is aware of the fact that by not doing so he jeopardizes his livelihood. It does not take long to deplete the soil in his fields. For him the logic intrinsic to such impartial considerations of long-term interests is self-evident. It may be less obvious for us who have lost even the Greek's constant awareness that nature indubitably exists (Scully, 1975, 7). For the Anasazi, man's relationship to nature was profound. For the Greek it was tragic. For us it is trivial: we buy our corn from the supermarket prepackaged in plastic wrap.

How can we begin to understand and truly integrate the architecture of the Pueblo Indians of New Mexico, who have such an entirely different view of man and nature from the one advanced by the modern European tradition of which we are a part? According to Alfonso Ortiz (1984, 136–7):

A world view provides a people with a structure of reality; it defines, classifies and orders the "really real" in the universe, in their world and in their society. . . . But what would be some of the constituent parts or categories of a world view? Space and time are, of course, the obvious initial candidates, if only for the reason that phenomenologists—including anthropologists, philosophers, and historians of religion—have compiled an impressive record of evidence that space and time do provide man with his primary level of orientation to reality. This is true enough if we add the caveat that none of the Pueblos, to the best of my knowledge, has abstract terms for space and time; space is only meaningful as the distance between two points, and time cannot be understood apart from the forces and changes in nature which give it relevance and meaning. It is precisely when time becomes cut up into arbitrarily abstract units (weeks, hours, minutes, seconds) that tribal peoples lose all similarity in their time-reckoning customs with those of Western peoples. And these smaller units of time reckoning are precisely the ones which concern Western minds the most.

In the same way we reckon time by cutting it into arbitrarily abstract units, we organize our spatial world by subdividing it into square-mile sections. A bird's-eye view of the United States reveals a giant grid imposed on the natural landscape by the early surveyors carrying out the mandate of the Continental Congress. In 1785 a land ordinance was passed to survey the entire area of the United States into townships of six square miles. The townships were further subdivided into blocks of thirty-six sections of 1 square mile (640 acres) each (fig. 4-1). The relationship of this grid to the landscape is as arbitrary as it is egalitarian: the boundary requirements of cities, villages, farms, and open land were considered to be all the same. Nevertheless, it provided the matrix for a scientific order that has influenced our society ever since.

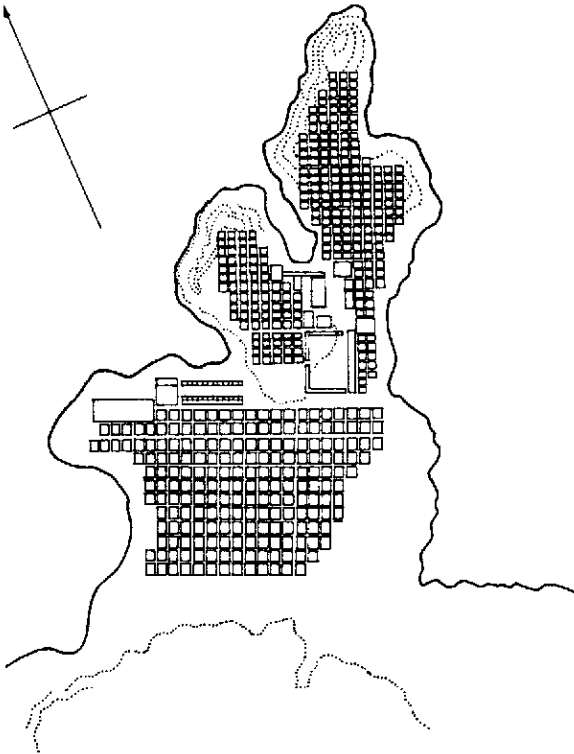
This matrix has its roots in ancient Greece during the time of Plato when Western man began conceptualizing what divine order should look like. Hippodamus of Mileletus (fig. 4-2) initiated the:



4-1 Map of the first townships surveyed in Ohio according to the land ordinance passed by Congress in 1785. (Sibyl Moholy-Nagy, *Matrix of Man*, 1968, New York: Frederick A. Praeger. Reprinted with permission.)

practice of the mathematical "plat" based not on a topographical reality but on numerical configurations, whether cosmological or demographic. The Milelutus plan is a Pythagorean theorem, based on ideal Pythagorean proportions of geometric relationships: $a : b = b : c$ (Moholy-Nagy 1968, 175).

Hence, when the founding fathers were considering how to settle our nation in ways that would be consistent with their vision of the world as advanced by their design for government, they chose to organize the landscape much differently than the Pueblos did.



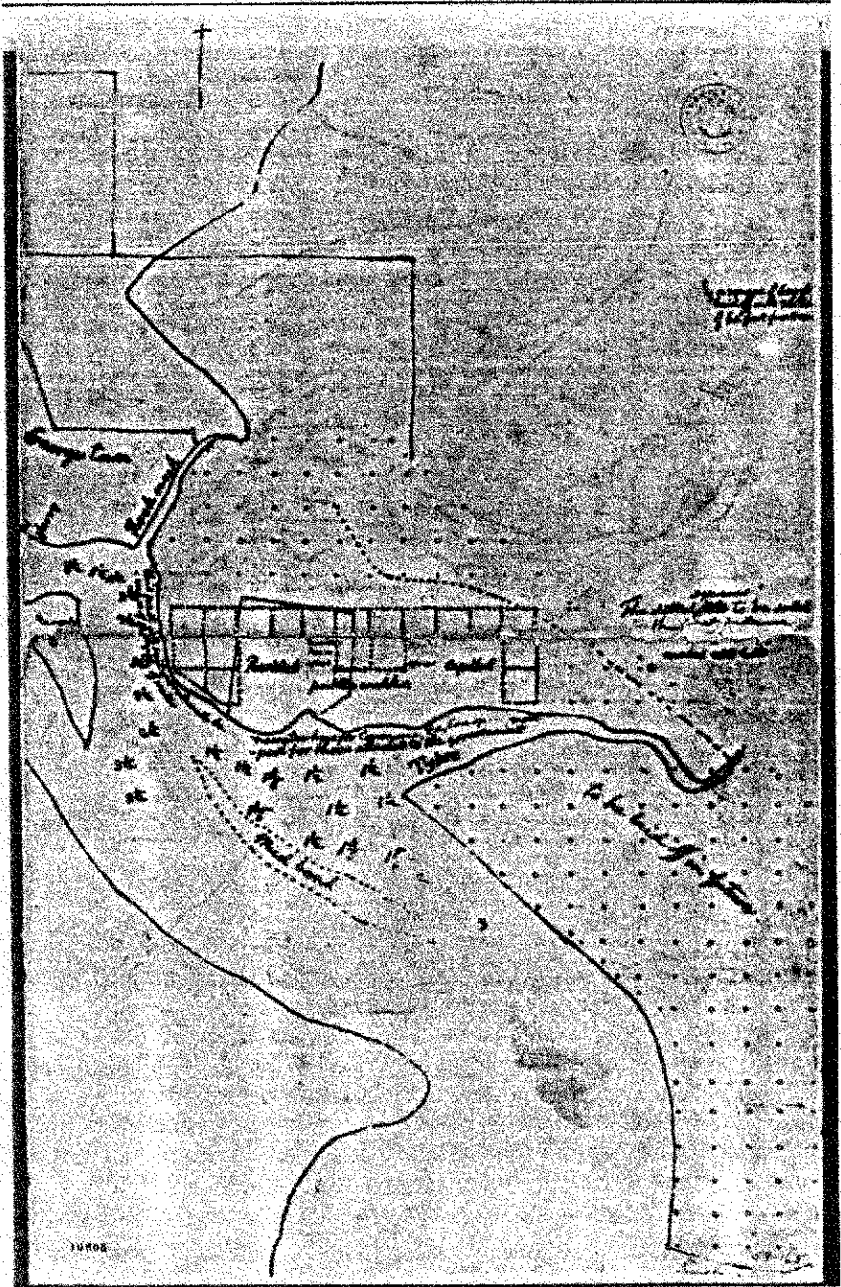
4-2 The plan of Miletus in Ionia, ca. 470 B.C. as reconstructed by A. von Gerkan. (Sibyl Moholy-Nagy, *Matrix of Man*, 1968, Reprinted with permission.)

Thomas Jefferson's plan for Washington, D.C., appears as a checkerboard of square blocks, eleven blocks east and west and three blocks north and south (fig. 4-3) (Reps 1967, 10). Albuquerque is divided into quadrants by Central Avenue—old Route 66—and the tracks of the Santa Fe Railroad (fig. 4-4). Look at a map of the western United States, and you see a rectilinear grid superimposed on the landscape. The boundaries of states such as Colorado, New Mexico, Arizona, and Utah reflect this rectilinearity. So do the town plans for Albuquerque or Rio Rancho.

The Pueblos organize the same landscape and their place within it much differently:

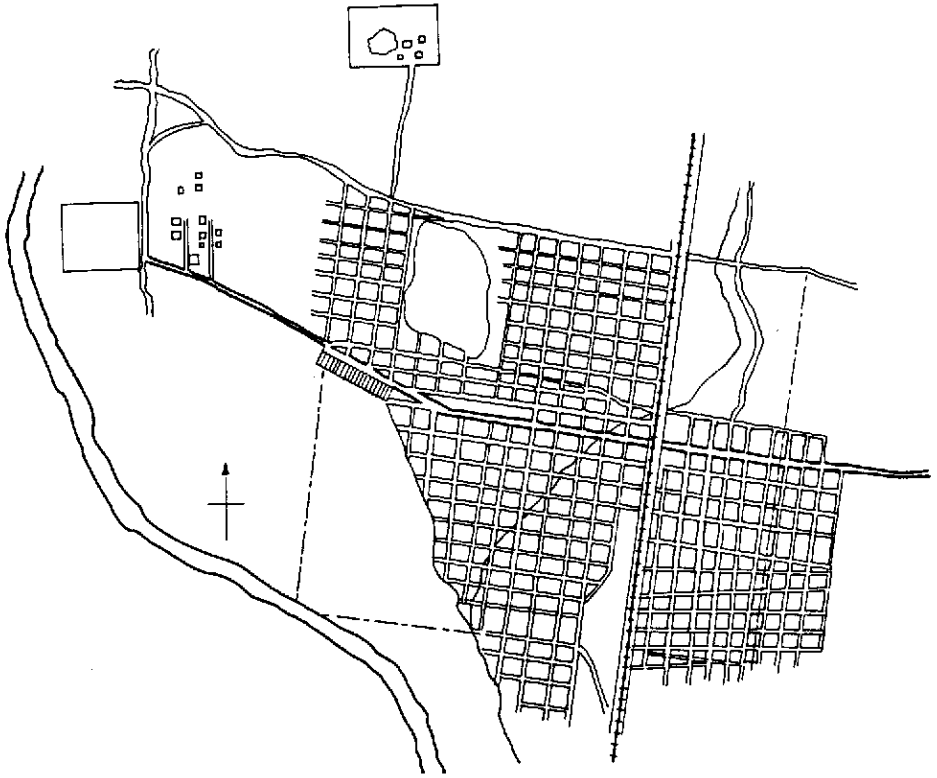
The first generalization that can be made about the Pueblos is that they all set careful limits to the boundaries of their world and order everything within it. These boundaries are not the same but, more important, the principles of setting boundaries are since all use phenomena in the four cardinal directions, either mountains or bodies of water, usually both, to set them. . . . All peoples try to bring their definitions of group space somehow in line with their cosmologies, but the Pueblos are unusually precise about it (Ortiz 1984, 142).

Just how precise the Pueblos are at organizing their architecture to reflect their cosmology is best exemplified by Taos Pueblo. There the great plaza is arranged around a view to Taos Mountain, from which flows the sacred creek that physically bisects the pueblo into northern and southern apartment blocks that correspond respectively to the winter and summer moieties that organize Taos society (fig. 4-5).



4-3 Thomas Jefferson's plan for Washington, D.C.: 1791. (John W. Reps, *The Making of Urban America*, 1965, Princeton: Princeton University Press. Courtesy of the Library of Congress.)

Nestled within the peaks and ridges of the mountain is Blue Lake, which, according to the Taos creation myth, is the great source through which all mankind emerged from the underworld. All Pueblos share this creation myth and symbolize it in the floor of their ceremonial kivas with a round, centrally located, earth navel notch called a *sipapu* (Ortiz 1984).



4-4 Plan: Albuquerque 1898. (Kenneth C. Balcomb, *A Boy's Albuquerque, 1898-1912, 1980, Albuquerque: University of New Mexico Press. Reprinted with permission.*)

At Sandia Pueblo, not far from Albuquerque, the plan of the town is inflected off the east-west axis to orient the plaza toward the dominant landscape focus on the horizon: the central horns of Sandia Mountain (fig. 4-6).

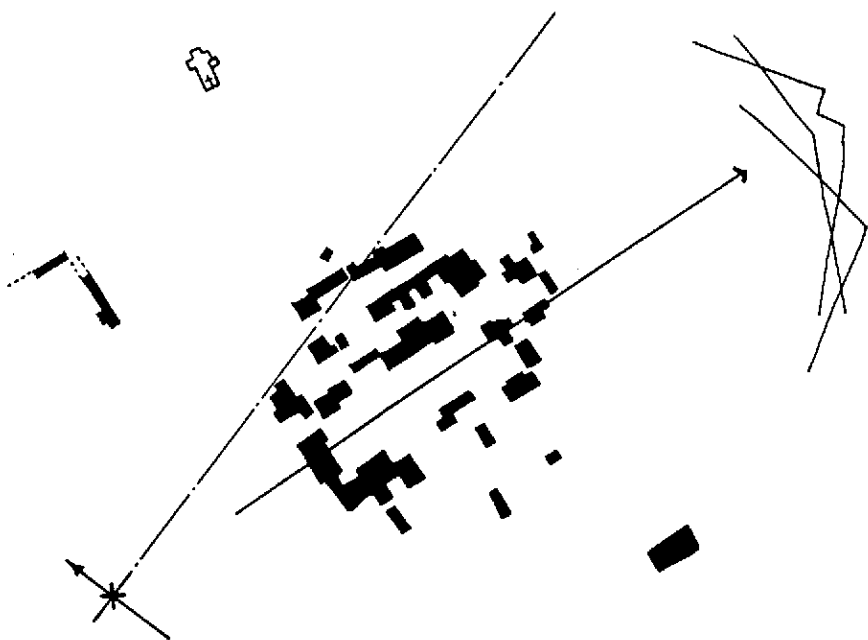
Santa Ana Pueblo maintains the principal east-west axis of the pueblo to maximize the southern exposure on the long dimension of the housing units. Here the significant landscape focus to Sandia Mountain is accommodated not in plan, as a nearby Sandia Pueblo, but in section: at the southeast corner of the plaza the land slopes down, permitting a view to the mountain over the rooftops of the single-story houses that otherwise would be in the way (fig. 4-7).

At Tesuque, the main gap in the plaza leads the eye directly to Lake Peak, which is Tesuque's sacred mountain to the east (fig. 4-8) (Scully 1975, 157). At Taos, Sandia, Santa Ana, and Tesuque, the precise architectural representation of the Pueblo world view is completed by the natural mountain and the man-made building *together*. The perception of the natural setting engages the human construction: both are considered part of the same whole. Compare this sense of town planning with that of Albuquerque or Rio Rancho, which adhere to preconceived and arbitrary orthogonal grids for their infrastructure.

Another characteristic of Pueblo planning is to reserve the center of the town for a communal open space. This space is what receives the Pueblo's primary design attention; the domestic dwellings are arranged around this center so as to define the configuration of the plaza. Unlike European plazas, which read as complete forms with consistently defined edges, the Pueblo plazas read in plan as incomplete figures. What



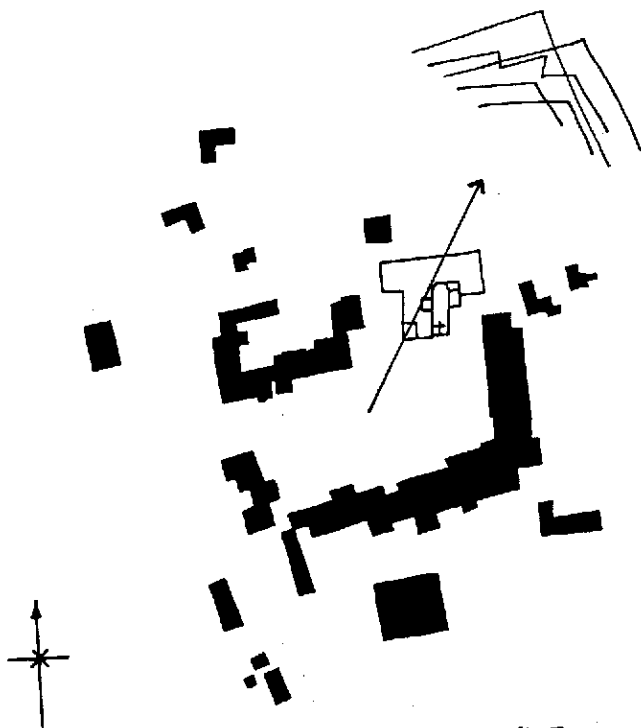
4-5 Plan: Taos 1950. (Adapted from *Bird's-Eye View of the Pueblos*, by Stanley A. Stubbs. Copyright 1950, University of Oklahoma Press.)



4-6 Plan: Sandia 1950. (Adapted from *Bird's-Eye View of the Pueblos*, by Stanley A. Stubbs. Copyright 1950, University of Oklahoma Press.)



4-7 Plan: Santa Ana 1950. (Adapted from Bird's-Eye View of the Pueblos, by Stanley A. Stubbs. Copyright 1950, University of Oklahoma Press.)



4-8 Plan: Tesuque 1950. (Adapted from Bird's-Eye View of the Pueblos, by Stanley A. Stubbs. Copyright 1950, University of Oklahoma Press.)

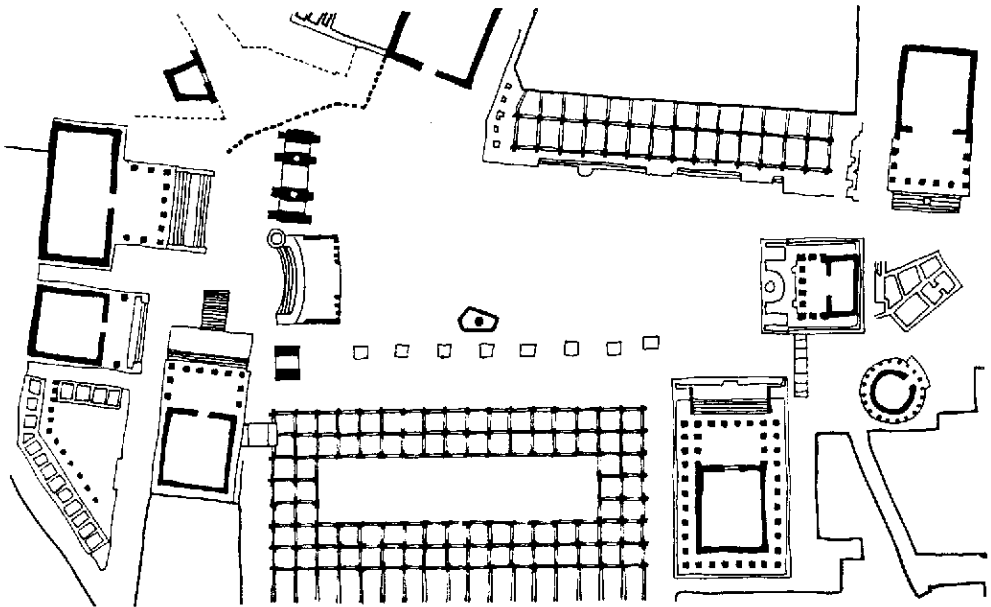
completes them are the views to the landscape their irregularities allow to become a part of the central space. The plaza at Taos Pueblo is completed by a view to Taos Mountain; the plaza at Tesuque is closed by a view to Lake Peak; both Sandia and Santa Ana incorporate Sandia Mountain as a fundamental part of their world view by bringing it into their plazas.

In contrast, the European plaza is a complete enclosure (fig. 4-9); it creates a social focus by protecting itself from what happens around it. Vitruvius (ca. 27 B.C.) identifies the forum—the prototypical European plaza—with a space that is defined by being closed all around by architecture:

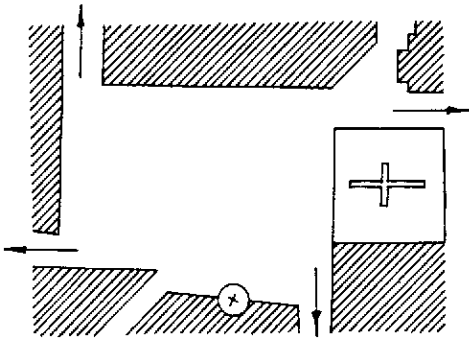
The Greeks lay out their forums in the form of a square surrounded by very spacious double colonnades, adorn them with columns set rather closely together, and with entablatures of stone or marble, and construct walks above in the upper story. But in the cities of Italy the same method cannot be followed, for the reason that it is a custom handed down from our ancestors that gladiatorial shows should be given in the forum. Therefore, let the intercolumnations round the show be pretty wide; round about in the colonnades put the bankers' offices; and have balconies on the upper floor properly arranged so as to be convenient; and bring in some public revenue (Vitruvius ca. 27 B.C.).

In *City Planning According to Artistic Principles*, a classic in city-planning literature, Camillo Sitte (1889, 32) discusses the close kinship between the ancient forum and the development of the European plaza:

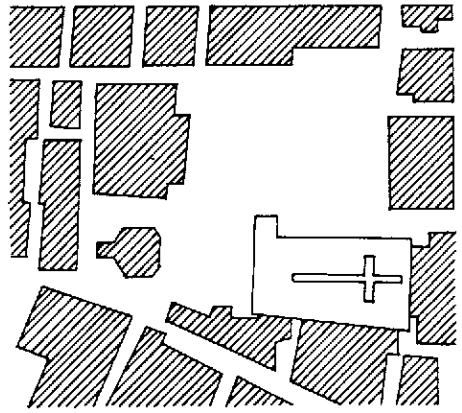
[T]he way in which churches and palaces used to form part of building complexes calls our attention once more to the nature of the ancient forum, which was so rigorously closed off from the outside. If one surveys Medieval



4-9 Rome: The Forum Romanum. (George R. Collins and Christiane Crasehann Collins, Camillo Sitte: *The Birth of Modern City Planning*, 1986, Rizzoli International Publications, Inc.)



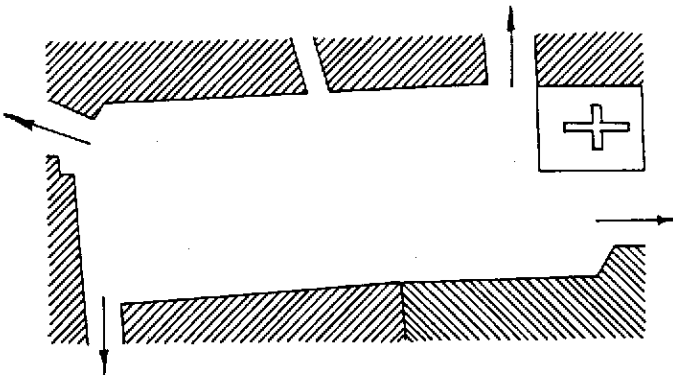
4-10 *Ravenna: Piazza del Duomo.*
(George R. Collins and Christiane Crasehann Collins, Camillo Sitte: *The Birth of Modern City Planning, 1986, Rizzoli International Publications, Inc.*)



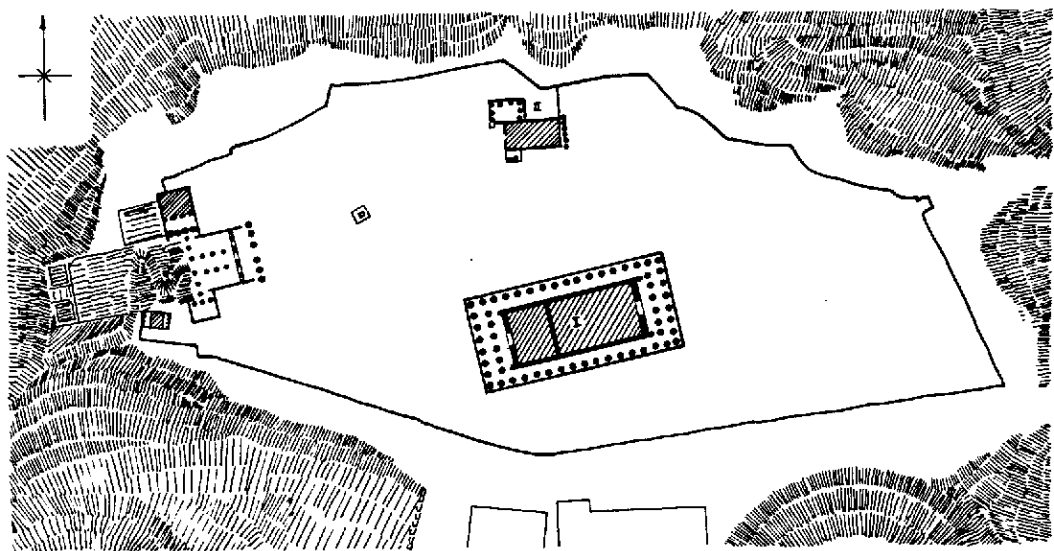
4-11 *Pistoia: Piazza del Duomo.*
(George R. Collins and Christiane Crasehann Collins, Camillo Sitte: *The Birth of Modern City Planning, 1986, Rizzoli International Publications, Inc.*)

and Renaissance plazas, especially those of Italy, with regard to this particular characteristic, one becomes aware that tradition persisted a long time in this respect and that it is largely this feature which makes for a harmonious total effect (Sitte 1889, 32).

The Piazza del Duomo in Ravenna (fig. 4-10) maintains this enclosure by becoming the hub of a pinwheel circulation system that rotates around the plaza. According to Sitte (1889, 32), "from any point within the plaza no more than one single view out of it is possible at a time, hence there is only a single interruption in the enclosure of the whole." This remarkable feature occurs so often, and with such a range of variations, that according to Sitte (1889, 32) "it must be considered to be one of the major conscious or subconscious principles of old city planning." Other examples include the Piazza del Duomo in Pistoia and the Piazza San Pietro in Mantua (figs. 4-11 and 4-12).



4-12 *Mantua: Piazza S. Pietro.* (George R. Collins and Christiane Crasehann Collins, Camillo Sitte: *The Birth of Modern City Planning, 1986, Rizzoli International Publications, Inc.*)



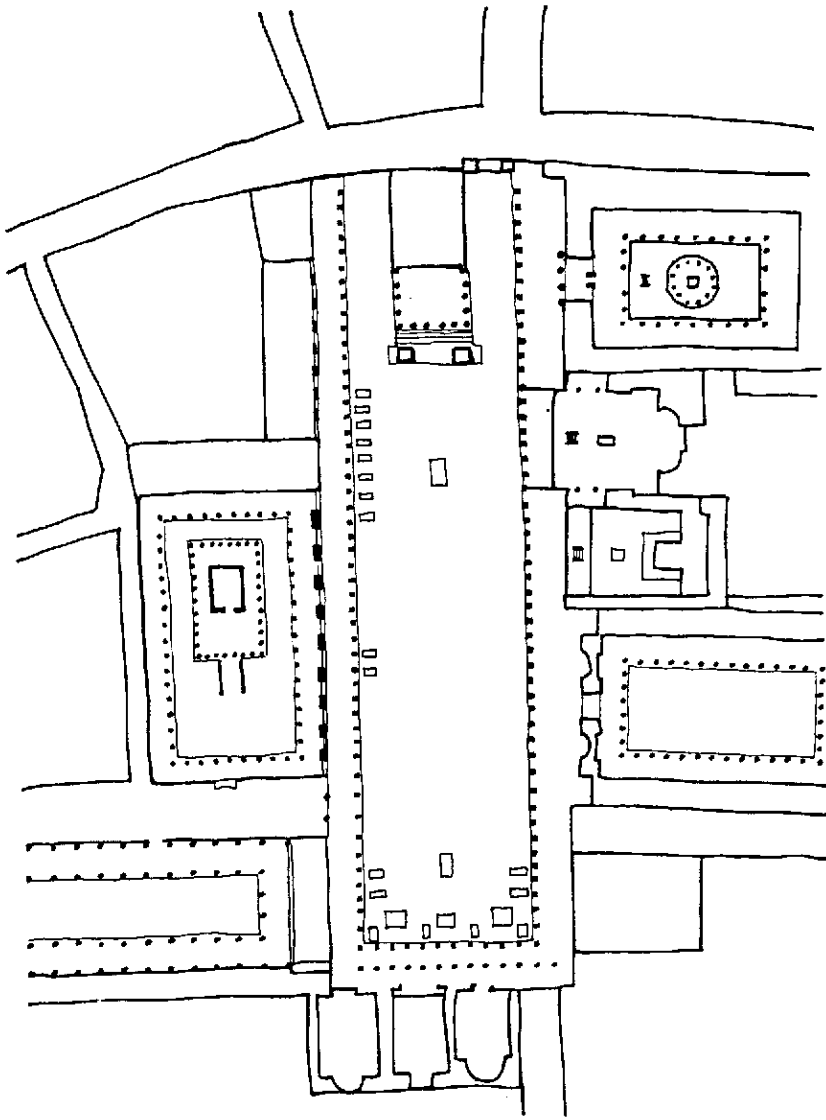
4-13 Athens: The Acropolis. (George R. Collins and Christiane Crasehann Collins, Camillo Sitte: *The Birth of Modern City Planning*, 1986, Rizzoli International Publications, Inc.)

The European notion of the plaza implies that the dominant spatial orientation as well as that of motion is centrifugal or outward. Man is conceived to be at the center of a pinwheel circulation system that rotates about him and the conceptualized universe of his religion. The Parthenon is an idealized architectural object-in-space placed in the center of the Acropolis (fig. 4-13). The forum at Pompeii (fig. 4-14) is completely enclosed by the temples of Jupiter, Vespasian, and Apollo as well as a basilica and various other public buildings. The plaza of St. Peter's in Rome (fig. 4-15) is calculated to frame the cathedral—the Catholic conception of ideal order.

The Pueblo plaza is much different: it is the point of intersection of views to sacred mountains. The landscape is intentionally brought into the plaza, not excluded from it. The Pueblos do not deny the principle of closure in the construction of their plazas; rather, they incorporate the natural landscape as part of the *perceptual* enclosure rather than excluding it, as the Greeks and Romans did, to preserve the man-made *conceptual* order. The Pueblo notion of the plaza reflects a completely different world view: man is not at the center of the Pueblo world view. The center is a void connoting the mystery of spirit. Only during the days of ritual is that void filled; only when they dance is the plaza transformed into a place of worship. Even then what is worshiped is not man himself—although he is perceived to be a part of it—but rather the sanctity of man's place within nature. The dances of the Pueblos ritualize the most important concern of Pueblo society: self-perpetuation. As agriculturists, they are preoccupied by fertility. The dances not only intend to bring about that fertility in specific ways (rain dance, corn dance, buffalo dance) but also more generally. In the act of making dances in the hollow spaces of their centralized plazas is symbolized, in a beautifully subtle way, the act of procreation. Man and Earth become one to the rhythmic drumbeat of deerskin stretched over cottonwood.

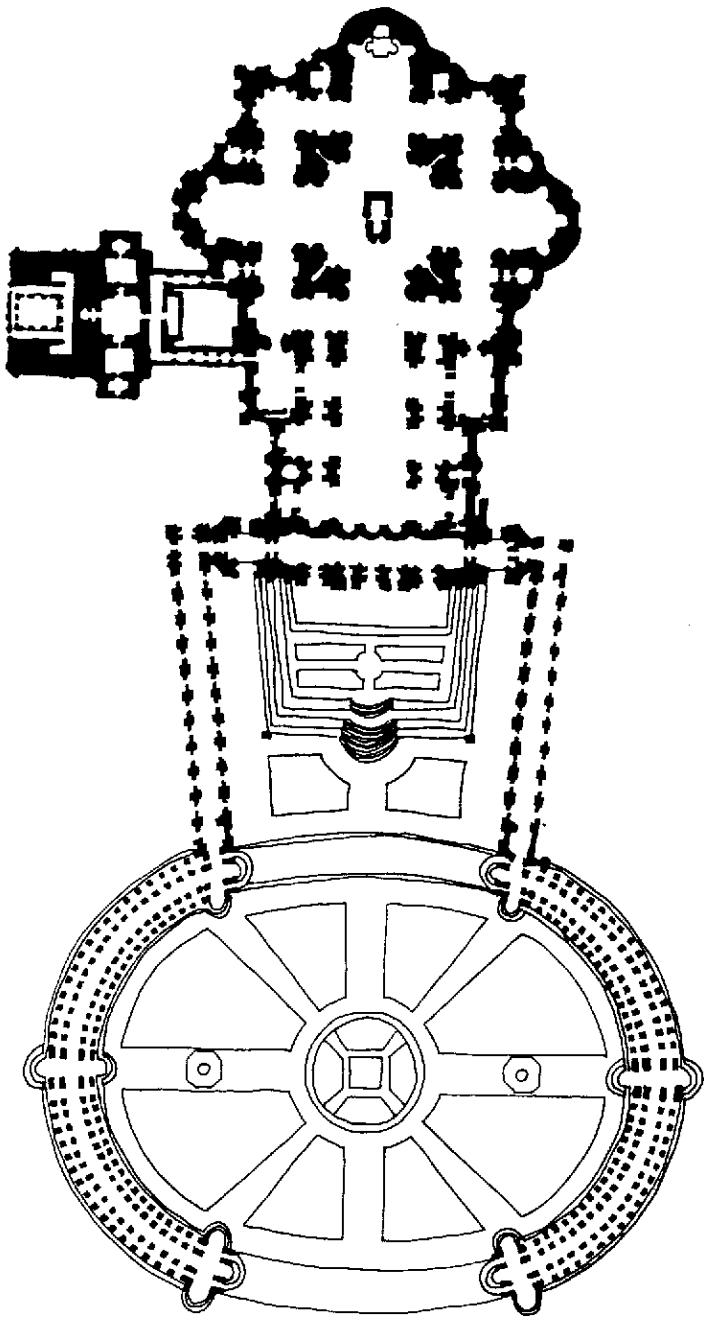
According to Karsten Harries (1983, 16),

[O]ne task of architecture is still that of interpreting the world as a meaningful order in which the individual can find his place in the midst of nature and in the midst of community. Time and space must be revealed in such a way that human beings are given their dwelling place, their *ethos*.



4-14 Pompeii: The Forum. (George R. Collins and Christiane Crasehann Collins, Camillo Sitte: The Birth of Modern City Planning, 1986, Rizzoli International Publications, Inc.)

Harries links the problem of arbitrariness in modern design to our greater freedom. "To this one may object that freedom has here been grasped inadequately, because only negatively: true freedom is not freedom from constraint, but rather to be constrained only by what one really is, by one's essence" (Harries 1983, 11). Modern man has emancipated himself from many of the natural constraints that confronted our "primitive" ancestors. In the process, modern man has also lost his sense of place in the larger whole to which he should belong. Both modern and post-modern architecture are really part of the same tradition in this regard. Both aestheticize architecture with their emphasis on the object-in-space without due regard for the relationship between the object and what surrounds it. Both elevate architecture to the status of hero by



4-15 Rome: St. Peter's and its piazza. (George R. Collins and Christiane Crasehann Collins, Camillo Sitte: The Birth of Modern City Planning, 1986, Rizzoli International Publications, Inc.)

looking almost exclusively to architecture for new directions rather than to the larger context. Both commit the sin of narcissism: the sin of regarding themselves perpetually in a mirror. And both inadvertently render architecture gutless because neither acknowledges that the problem of arbitrariness in architecture is not first of all an aesthetic one.¹

Man's perception of his relationship to nature is the central issue of our time. We live in an age obsessed by its own inventiveness. The dilemma of such an obsession derives from the predicament such invention creates. Informed with experiences such as Three Mile Island; the Love Canal; Times Beach, Missouri; Bhopal, India; and now Chernobyl, we lose our faith in our inventiveness. We are forced to question the conceptual premise that leads to such destructive creation. It would be useless to try to ignore the dilemma posed by the modern world by retreating into simpler, agrarian existences. But we can learn to revere again the basic premise that sustains the Pueblo farmer: that man is a part of nature, not separate from it. We can learn again to build with the land and not merely on it. What makes the architecture of the Pueblos "a true, indigenous, American architecture whose beginnings predate imported European concepts" (Markovich preamble) so important is that it bridges the abyss that separates the two realities of human history: the one we used to organize *perceptually* and the one we now understand *conceptually*.

Lincoln Barnett has made the following observation:

In the evolution of scientific thought, one fact has become impressively clear: there is no mystery of the physical world which does not point to a mystery beyond itself. All highroads of the intellect, all byways of theory and conjecture lead ultimately to an abyss that human ingenuity can never span. For man is enchained by the very condition of his being, his finiteness and involvement in nature. The farther he extends his horizons, the more vividly he recognizes the fact that, as the physicist Niels Bohr puts it, "We are both spectators and actors in the great drama of existence." Man is thus his own greatest mystery. He does not understand the vast veiled universe into which he has been cast for the reason that he does not understand himself. He comprehends but little of his organic processes and even less of his unique capacity to perceive the world about him, to reason and to dream. Least of all does he understand his noblest and most mysterious faculty: the ability to transcend himself and perceive himself in the act of perception (Barnett 1948, 109).

The profound lesson we can learn from the Pueblos and their architecture is precisely the one suggested by the satellite image of earth against the backdrop of space: that man is part of nature, not separate from it. The architecture of the Pueblos should not be seen merely as the picturesque perception of a simpler world. It is an original pedagogue. If architecture is to intervene in the New Mexican landscape in a nonarbitrary way so that it helps man to dwell in and make sense out of this distinctively vast world, then it must begin with respectful attention to that which is truly indigenous. By learning from the Pueblos, architecture can begin to complement the land by helping man to live with the land, and not merely on or in spite of it. The sublime beauty of the New Mexican landscape is its ultimate indifference to man's presence. It is an indifference that should remind us of our place within nature and convince us that the continuity of dance that connects our pre-Columbian past with the future ought to be revered, not broken.

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NOTES

1. For a discussion of arbitrariness in architecture, read Harries (1983).