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(a)

Key: red #s are production
blue #s are exhibition panels

A smattering of geographical knowledge is helpful to appreciate universal architecture. Can you identify by the inane but popular method of multiple choice the location of the following places?

A cluster of five ancient amphitheaters, now turned to pasture and farming -

- a) Yugoslavia
- b) East Pakistan
- c) China

#198

One of several underground villages, its houses grouped around a square courtyard

- a) Hungary
- b) Morocco
- c) Chile

200

Mountain villages consisting mainly of one-family high-rise apartments -

- a) Switzerland
- b) Norway
- c) Nepal

~~197~~ 201

Hanging gardens, supported by forty foot high stone pillars and little else -

- a) Iran
- b) Ethiopia
- c) Malaysia

199

The correct answers will be found in the exhibition.

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Every society has the architecture it deserves. If we are sometimes less than happy about ours, it is because technology and wealth alone do not necessarily produce the best results. Architecture Without Architects drives home this point by comparing, if only by implication, the serenity of architecture in the so-called underdeveloped countries with the progressive chaos and blight of our urbs and suburbs.

← In contrast to orthodox architectural history with its emphasis on the work of the individual architect, this exhibition is mainly concerned with communal architecture, defined by Pietro Belluschi as "a communal art, not produced by the specialist but by the spontaneous and continuing activity of a whole people with a common heritage, acting under a community of experience."

← Far from being accidental, this non-pedigreed architecture gives tangible evidence of more humane, more intelligent ways of living. What we take to be archaic buildings are often models of true functionalism and timeless modernity (as distinct from architectural fashions); what seem to us no more than quaint towns - "picture-postcard towns" we call them condescendingly - may in fact represent utopia. Besides, in communal architecture an instinctive understanding (not shared by us) of the limits of architecture finds application in confining the growth of a community. In other words, the untutored builders do not subordinate the general welfare to the pursuit of profit and progress, for they know that progress that takes no account of human needs is self-defeating.

← This exhibition, the first of its kind, approaches architecture not with a historian's mind but with a naturalist's sense of wonder. By offering a global, albeit incomplete, picture of human shelter it makes us realize the shortcomings of our own architecture. The wisdom to be derived goes beyond economic and esthetic considerations, for it touches the far tougher and increasingly troublesome problem of how to live and let live, how to keep peace with one's neighbors, both in the parochial and universal sense.

Bernard Rudofsky

Small caps - set flush right

A/18 Garamond. 5" al. width, flush l/r.

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prepared for

The exhibition Architecture Without Architects was ~~commissioned by~~ the Department of Circulating Exhibitions under the auspices of the International Council of the Museum of Modern Art. Thanks to Mr. Arthur Drexler, Director of the Department of Architecture and Design, it has been made available in a somewhat larger format to the audiences of this museum. Research assistance was rendered with exemplary patience by Miss Ellen Marsh.

The John Simon Guggenheim Memorial Foundation and the Ford Foundation helped to finance the research for this project by awarding fellowships to the director of the exhibition for a study of non-formal, non-classified architecture. These grants might never have been given without the enthusiastic recommendations of the architects Walter Gropius, Pietro Belluschi, José Luis Sert, Richard Neutra, Gio Ponti, Kenzo Tange, and the Museum's Director, René d'Harnoncourt, all of whom hail from countries rich in vernacular architecture.

Sincere thanks go to the many people, too numerous to list here, who contributed to this project in various ways. Special tributes, however, are due to Mme. René Heyum, Musée de l'Homme, Paris; Miss Ruth M. Anderson, The Hispanic Society of America, New York; the staff of the Frobenius Institute, Frankfurt, and Dr. Myron B. Smith, Islamic Archives, Washington, D.C.

René

Credits

The exhibition has been directed and designed by Bernard Rudofsky.

A concrete typical of the Barcelona roofscape.

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(A)

1) Even before men and beasts walked the earth, there existed some kind of architecture, coarsely modeled by the primeval forces of creation and occasionally polished by wind and water into elegant structures. Whether these stylized shapes suggest houses or not, the many crevices, holes and hollows that occur in the stone have only to be enlarged and smoothed in order to provide habitable space. (1) (2)

2) The volcanic formations in the ~~mountain~~ Anatolian valley of Göreme are a case in point. They appealed to people with a desire for seclusion and, during the seventh century A.D., as many as 30,000 anchorites, male and female, lived here in a monastic community. Access to the thousands of chambers, churches, and chapels was, and often still is, by rope ladder. (1) (2)

3) A close-up of one of the Göreme cones, sculpted by nature. They range from the size of a tent to that of a minor skyscraper with as many as sixteen floors. (1) (2)

~~In Gallere,~~
4) Natural rock formations, granite. (1) (2)

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(B)

1) Eroded tufa rocks on the shore of Lake Tana in French Somalia.

(28) (5)

3) ~~Spain~~ Ciudad Encantada, the Enchanted City, about 120 miles east of Madrid, is a formation of cretaceous deposits covering 500 acres. The fantastic shapes, boldly cantilevered, are an astonishing sight and need no fanciful comparisons with architecture to be appreciated.

(45) (7)

4) A view of the troglodytic ~~chambers~~ ~~chambers~~. The rude chambers whose doors can be made out in the picture were cut into the nearly perpendicular declivities of the Anapo Valley by the *Siculi*, who inhabited Sicily about 3000 years ago. Originally serving as burial grounds for an adjacent prehistoric town, they were converted into dwellings during the Middle Ages. As a rule, they form multistoried apartments connected by interior passages. Similar establishments are scattered all over Sicily near ~~Siciliano, Caltabelotta, and Rafanale, wes. of Siracusa, Bronte and Maletto, between Siracusa and the Cape S. Croce, above the valley of Epipolae near Modica~~

(46) (8)

2) Occasionally, nature produces dwelling forms of advanced design that leave the carpenter far behind.

The baobab tree of tropical Africa, *Adansonia digitata*, sometimes reaches a diameter of 30 feet. Its wood being soft, live trees are often hollowed out and used as dwellings.

(149) (6)

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①
D 91

Troglodytism does not necessarily imply a low cultural level. The picture of the caveman dragging his mate by her hair is a cartoonist's cliché, betraying nostalgia for bygone days, rather than a portrait of the kind of people who prefer to live below ground. Besides, troglodytic amenities vary as much as those of more conventional habitations.

2) 91 The imposing facade of a troglodytic settlement at Almonera in Southern Spain. (47) (9)

3) 91 Entrances of troglodytic dwellings at ^{Egypt} ~~Spain~~ (170) (10)

4) 91 The irregular holes in the oasis of Siwa, ^{Egypt} ~~Tunisia~~ are entrances to a burial ground that has been converted into living quarters. Compared to them, the cave-dwellings on the opposite page are highly sophisticated architecture. ^{other} (7) (11)

5) 91 An example of the transition from cliff-face dwellings to half-dug and free-standing houses at Thera, Greece (43) (12)

6) 91 Caves, having been among man's earliest shelters, may turn out to be the last ones. At any rate, they were chosen with great foresight as depositories for our most precious artifacts - government and business files.

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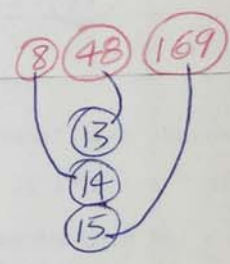
(D)

97

One of the most radical solutions in the field of shelter is represented by the underground towns and villages in the Chinese loess belt. Loess is silt, transported and deposited by the wind. Because of its great softness and high porosity (45 per cent), it can be easily carved. In places, roads have been cut as much as 40 feet deep into the original level by the action of wheels. In the provinces of Honnan, Shansi, Shensi, and Kansu about ten million people live in dwellings hollowed out from loess.

98

The photographs show settlements of the most rigorous, not to say abstract, design near Tungkwai (Honnan). The dark squares in the flat landscape are pits an eighth of an acre in area, or about the size of a tennis court. Their vertical sides are 25 to 30 feet high. L-shaped staircases lead to the apartments below whose rooms are about 30 feet deep and 15 feet wide, and measure about 15 feet to the top of the vaulted ceiling. They are lighted and aired by openings that give onto the courtyard. "One may see smoke curling up from the fields," writes George B. Cressey in his *Land of the 500 million: A Geography of China*, even though there is no house in sight; "such land does double duty, with dwellings below and fields upstairs." The dwellings are clean and free of vermin, warm in winter and cool in summer. Not only habitations but factories, schools, hotels, and government offices are built entirely underground.



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(E)

1) Opposite, a partial view of an underground village near Loyang in northern China. It takes a second glance to notice that what looks like flat roofs is earth, bare except for a few trees. Every room has a vaulted ceiling carved into the soil while the roof comes free. (53) (16) ✓

2) Occasionally, men have carved entire towns out of live rock *above ground*. The ramparts, castle, and houses of Les Baux-en-Provence were cut to a great extent from the calcareous mountain on which they stand. An important place in the Middle Ages, it has long been abandoned: the number of its inhabitants has dwindled to 250. ~~Below~~, the ruin of a free-standing house. (6) (17) ✓

3) Two views (one at the ceiling) of the nine-century monolithic church of Saint-Milion (Gironde) in Western France. It is not a "building" in the strict sense of the word ~~since it is not a building~~ but rather a carving. (50) (18) ✓ (19) ✓ (154) ceiling

4) St. George's Church at Lalibela (Abyssinia) carved from the rock like a sculpture and hollowed out. (52) (20) ✓

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(F)

From Semiramis' Hanging Gardens to the latest dam building projects, agriculture has been competing with architecture in shaping the surface of the land. Piling stone onto stone for retaining earth was a formidable advance over carving rock. By erecting the first wall, man arrived at a point in his evolution that was as sharply defined as when he got up from all fours and stood on his legs. Building his first wall, he became, mentally, a biped. With the wall, man created space on a human scale.

2) Terraces in the loess area in Honan^W, China. (156) (21)

3) Terraced fields, China. (29) (22)

4) Wind barriers, Canary Island vineyards. (155) (23)

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Anonymous architecture of a monumental kind, unknown to layman and scholar alike, can be found right on the American continent. In Peru, halfway between Cuzco and Machu Picchu, lies an ancient theater center that has no counterpart anywhere else. Built by the Inca tribe of the Maras, it comprises four theaters in the round and one in the form of a horseshoe. As might be expected, the acoustics of all five theaters are superb.

The contours of the architecture have been eroded by the elements, the site turned to pasture and farmland. Yet the basic structure is relatively well preserved. The largest theater—probably set into a meteoric crater—accommodated as many as 60,000 people. Twelve of its terraces, each about 6 feet high and 23 feet wide, still exist. The lowest circular platform of the four theaters, which corresponds to the Greek orchestra, varies in diameter from 80 to 134 feet. Water pipes, one foot wide, carved into stone monoliths, carried spring water from a nearby mountain peak.

Although nothing is known about the kind of spectacles performed, we may assume that athletic exhibitions—boxing, jumping, racing, and animal baiting—outweighed true theatricals. Peruvian archaeologists believe that the "undescrivable beauty" of the landscape (about 12,000 feet above sea level) was an inspirational factor in the grandiose enterprise. As yet, the site has not suffered the ravages of tourism.

(5) (49)
small large
(25) (24)

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(H)

1) #9

Great builders draw no line between sculpture and architecture. With them, sculpture is not "commissioned" as an after-thought or budgetary dole. Neither is so-called landscaping. The three are inseparable.

(2)

these

The geometric figures formed by stone slabs mark the battlefield of Brävalla in Sweden. For all we know, the battle may never have taken place, but, since history does not concern us here, we are free to admire the design of this war memorial. It is no doubt more sophisticated than, say, the designs for the four hundred bronze and marble monuments of Gettysburg battlefield. (Jens Jansson, Sweden

Stone Monuments in all Countries, 1872)

202

4) #

The aerial view of cemeteries near Lanchow, in the Chinese province of Kansu, brings to mind Isamu Noguchi's models for his "contoured playgrounds," a sculptor's rather than an architect's idea of how to improve on the surface of the land. As in other civilizations (see next pages), the houses of the dead were constructed far more solidly than those for the living.



54

28 detail

54 27

3) #

Looking like the model of a prize-winning entry in a sculptors' competition, this splintery architecture turns out to be indeed a great monument. No more than a ruin, the forest of wild poplar posts nevertheless forms a striking composition whose original design has been greatly improved by the corrosive action of wind-carried sand. The hill, allegedly harboring countless coffins and treasures of gold and silver, was discovered in Sinkiang some thirty years ago by one of Sven Hedin's Turkish servants, Ordek, who liked to do some private prospecting on the side.

26 50

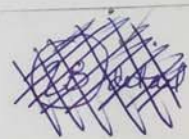


illustration: Brävalla # 202

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I

1) ✕

Tombes of Chin Shih Huang T'1, first Emperor of Chin Dynasty.
Circumference, ca. 10 miles.

(57) (29) ✓

2) ✕

The old photograph of a cemetery on Okinawa reveals a rare, not to say
rarified, architectural landscape, devoid of such prosaic elements as
houses and streets.

(38) (30) ✓

~~3) *Rustic house at Monsanto, Portugal*~~
Monsanto

4)

The corner of a castle at Sotalba in the province of Avila, at the
foot of the Sierra de Peñalgüete, another example of architecture
where man's handiwork blends into the natural setting.

(30) (32) ✓

5)

A fusion of sculpted rock and fitted stone masonry at the abandoned
Quechua town of Machu Picchu, Peru.

(59) (33) ✓

3)

Rustic house at Monsanto, Portugal.

(60) (31) ✓

~~██████████~~

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1) (J) 9

imagine's here

Whereas we find flat, featureless country most to our liking (any flaws in the terrain are easily erased by the application of a bulldozer), more sophisticated people are attracted by rugged country. In fact, they do not hesitate to seek out the most complicated configurations in the landscape. The most sanguine of them have been known to choose veritable eyries for their building sites—Machu Picchu, Monte Alban, the craggy bastions of the monks' republic on Mount Athos, to mention only some familiar ones.

2) 9

Among Sudanese tribes, one of the best known—for their art rather than for their architecture—are the Dogons. Numbering about a quarter of a million people, they live along the plateau of Bandiagara, south of Tombouctou. The photographs show one of a string of villages built on rocks fallen from high cliffs. ~~What at first glance appears to be mere debris (below),~~ is a mixture of flat-roofed dwellings and straw-hatted houses.

The absence of any large buildings, vehicles, or even streets, would suggest to us barbarian conditions had not extensive ethnographic investigations disclosed a highly sophisticated culture.

(22) (34) *storehouses* (61) (35) *pannaeus of cliff*

4) 9

Dogon storehouses, protected by overhanging cliffs.

(22) (34)

3) 9

Dwellings cut into the top of a mountain ^{at in} ~~in~~ ^{Ulreze,} Turkey.

(47) (36)

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(K)

1) Prehistoric cliff dwellings of a vanished race, excavated in 1909 at the Mesa Verde in Colorado. The walls are partly restored and reinforced with concrete and steel. (66) (37) ✓

2) Man's physical freedom manifests itself no doubt in his ability to choose the place on earth where he wants to live. Whereas immature reflection tends to judge by usefulness alone, a discriminating mind may ask its share of beauty. Neither privations nor danger will deter man from selecting a spot that provides him with the exhilaration generated by a superb landscape.

↑ ↑ no leading

3) Phira, the capital of the small Greek archipelago of Thera, is a sort of box seat in the theater of creation. It towers 660 feet above its small port on the brink of an ancient volcanic crater, and no better example could be found to illustrate the original meaning of the words uptown and downtown. Periodically devastated by earthquakes, the island has never been abandoned.

(38) ✓

(65) ~~38~~

(39) ✓

(64) ~~39~~

4) The row of houses clinging tenaciously to their privileged, if precarious, position are part of the town of Bonifacio in Corsica. (31) (40) ✓

5) Built on a nearly perpendicular slope, every house enjoys a view of the fisherman's harbor at Procida in the Gulf of Naples. (63) (41) ✓

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(L)

9
1)

Before being introduced to the prosaic tasks of their chosen profession, students of architecture are sometimes given problems that call for tackling sites like these. It is the one and only chance in their careers for tasting the exhilaration that comes from working, if only on paper, in connivance with nature at its most magnanimous.

2)

91 L
the Peñón de Alhucemas, one of a group of three small islands that guard the Moroccan coast southeast of Ceuta. With its turrets and batteries, the place ~~is~~ a sort of stationary battleship. Below:

looks like

(141)

(42) ✓

3)

91
In the Spanish province of Castellón, facing the Mediterranean, lies Peñíscola of similar shape. A narrow sandbank joins it precariously to the mainland.

(142)

(43) ✓

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(M)

1) 9 | The very thought that modern man could live in anachronistic communities like these would seem absurd were it not that they are increasingly becoming refuges for city dwellers. People who have not yet been reduced to appendages to automobiles find in them a fountain of youth. | 11

2) 9 | Aniceli Corrado, in the Sabine Mountains near Rome. 11 (44) ✓

3) 9 | ...ring of the Greek monastery of Simon Petra in the monks' republic of Mount Athos. Access was once gained by being hoisted in a basket - the prototype of our elevators. (62) (45) ✓

(M) | The stone-walled, stone-roofed houses of the village Casares in the Spanish province of Cáceres revert, as it were, to the mountain from which they were quarried. |

(197) (46) ✓

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(R)

3) Use of a single type of building type does not necessarily produce monotony.

The aerial view of this village of Zambian herdsmen recalls the mycological phenomenon called witches' rings, where certain mushrooms grow in perfect circles. Here, a thousand thatched huts form a circle around the chief's enclave, composed of huts for his many wives. The largest hut belongs to his favorite wife, while he lives in a foreign-style, flat-roofed wooden box. The hundred-odd pens accommodate 5000 cattle.

(68) (50) ✓

Opposite-page, a segment of the ring shown at right. (3) (51) ✓

1) Peasant houses, called *trulli* (below), dot the almond and olive groves of southern Apulia. They are built of annular layers of stone that terminate in a false conic cupola crowned by a keystone. The archaic house form of an early megalithic civilization, they are related to the Balearic *talyots*, Sardinian *nuraghi*, and the *sesi* of pantelleria. Despite the passage of a dozen nations, the type has survived almost without change since the second millennium a.c. It still serves the inhabitants well.

(67) (48) ✓

2) One of scores of beehive villages in the alcornet treeless Aleppo plain, Syria. (187) (49) ✓

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(N)

1) # At left, a panoramic view of Mojacar, in the province of Almeria. (The Mediterranean Sea is visible in the upper right corner.) (140) (47)

□ Mojacar used to be one of the more spectacular Spanish hill towns until recently when tourism caught up with it. Its houses were torn down, or are being torn down, to make space for parking lots, hotels, apartment houses, and villas designed in bogus vernacular.

2) # A 1963 photograph of Mojacar. (171)

illustration # 171

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①

1) #

The use of a single building type does not necessarily produce monotony. Irregularity of terrain and deviations from standard measurements result in small variations which strike a perfect balance between unity and diversity.

2)

#

The Spanish mountain town of ~~mijas~~ Mijas, near Malaga.

180

52 ✓

3) #

A panoramic view of Aul Shreck in the Western Caucasus.

181

53 ✓

4) #

Mousgoum village, Cameroon.

178

54 ✓

5) #

Slovak mountain village founded in 1700.

179

55 ✓

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~~add 2 captions!~~

5

Two different communal structures are represented by the almost pointillistic pattern of Zanzibar (left) and the relaxed geometric one of Marrakesh. A good part of the town of Zanzibar has preserved its village character with its detached huts. Streets, or whatever the vacant spaces may be called, run erratically, like raindrops on a windowpane. Marrakesh (Morocco) is the archetype of an Islamic town with its quadrangular houses organized around interior courts. There are no traffic arteries to speak of; the cool narrow alleys of broken course often lead to dead ends.

70

56

69

57

3) 9 A roofscape of Skiros, one of the Sporades in the Aegean Sea.

71

59

2) 9 What appears at first glance to be mere debris, is a mixture of flat-roofed dwellings and straggled houses. Plateau of Sandiagara, Sudan.

144

58

5) 4 Shangri-La, ^(sic) native village in Dutch New Guinea.

72

61

4)

Garden walls, hedges and fences are looked upon with suspicion by people who are allergic to privacy. Still, screens of every conceivable sort have always been indispensable requisites of civilized architecture. The perpendicular view of Logone-Birni (Cameroun) reveals such an abundance of enclosed outdoor spaces as to make the roofed-over buildings seem almost accidental.

166

60

Shangri-La
New Guinea

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(7)

1) # No doubt, the picturesque element abounds in these photographs, yet the exhibition is not an exercise in quaintness nor a travel guide, except in the sense that it marks a point of departure for the exploration of our architectural prejudices.

2) # Kotoko de Divil in Northern Cameroon (143) (62) ✓

4) # Village in Central Japan. (9) (64) ✓

3) # Ain Leuh, in the Middle Atlas. Altitude, 3,500 feet. The roofs are of beaten earth to protect the houses from the extreme cold. (138) (63)

5) # The proximity of a body of water, whether a river, a lake, or the sea, has always been of great consideration in the choice of a community. In the Orient, millions of people live much like waterfowl, more or less permanently on the water. The advantages are evident - the waterways never need be torn up for costly repairs, drains suffer no stoppage, a bath is ready at all hours. Besides, the expanse of water functions as a cooling plant during the hot season.

Houseboats in Shanghai's Soochow Creek near its junction with the Whangpoo River. (139) (65) ✓

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Q

1) *Rugged* nature seems to stimulate man's artistic powers. This remarkable Greek town on the island of Thera, whose inhabitants come nearest to living on a volcano, is a case in point.

In the 1920s, when this photograph was taken, commercial architecture was already on the march (see upper right corner). The old houses in the foreground, however, are modeled according to local tradition, their forms being no more accidental than the voices of a fugue. All of them are variations of a single dwelling type, the vaulted cell. They contain no interior staircases, each room being accessible from the outside only. The small windows prove perfectly adequate since walls and ceiling—and often also the floor—are whitewashed and thus reflect the light. No outside buildings disturb the general harmony; even the many churches and chapels submit to the vernacular.



2) *Four fifth* of the houses of Apanomeria were ^edestroyed by an earthquake in ~~195~~ ^{the 1950s}. This photographs, taken only a few months ago, shows the scars left by the catastrophe. (75) (67) ✓

3) *Apanomeria is built on the brink of a crater, the leftovers of a volcano that blew up in prehistoric time. The houses, blindingly white against the masses of dark-colored rocks, represent a sort of endless sculpture.* (78) (68) ✓

4) *A typical roofscape of Theraen houses.* (76) (69) ✓

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(7)

1) 9
| photo of page 6

It is a curious comment on our architecture, not to say civilization, that grown-up people have been known to be in raptures over the esthetic adventures afforded by a "split level" house. Which suggests that we seem never quite able to leave the ground on our modest flights of architectural fancy. Never having a chance to wend our way through imaginatively devised space, we are unlikely to be good judges of the architecture shown here. Yet even the poor snapshots hint at some of its delights. The fascination of labyrinths and secret chambers, of murky passages and vertiginous flights of steps—all the eternal mysteries of enclosed space—is here conveyed without loss of impact by being translated into an architectural idiom that is at once complex and crystal clear.

2) 9 →

Two fortified places in Southern Morocco. Neither house nor town but a synthesis of both, this architecture was conceived by people who build according to their own inner light and untutored imagination.

(196) (71) ✓ (186) (70) ✓
round

3) 9

The fortified village of Imilchil, at an altitude of 6,800 feet in the northern Atlas.

(145) (72) ✓

~~near us, with ancient battle site, in the valley of the Var (Chasse-Mine)~~

4)

Erbil, the ancient Arbela, site of Alexander's battle, ~~xxxxx~~ "a mound town that is said, on the best authority, to have had a continuous 'life' of 5000 years or more, and is still in active use - a remarkable example of urban survival." (F.R. Hiorns)

(74) (73) ✓

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U

1) 9

← The tendency to build on sites of difficult access can be traced no doubt to a desire for security but perhaps even more so to the need of defining a community's borders. In the old world, many towns are still solidly enclosed by moats, lagoons, glacis, or walls that have long lost their defensive value. Although the walls present no hurdles to invaders, they help to thwart undesirable expansion. The very word urbanity is linked to them, the Latin *urbs* meaning walled town. Hence, a town that aspires to being a work of art must be as finite as a painting, a book, or a piece of music. Innocent as we are of this sort of planned parenthood in the field of urbanistics, we exhaust ourselves in architectural proliferation. Our towns, with their air of futility, grow unchecked—an architectural eczema that defies all treatment. Ignorant as we are of the duties and privileges of people who live in older civilizations, acquiesce as we do in accepting chaos and ugliness as our fore-ordained fate, we neutralize any and all misgivings about the inroads of architecture on our lives with lame protests directed at nobody in particular.

3) 9

Town wall of Tiznit, ~~Morocco~~

(73)

(75) ✓

4) 9

Like many other Italian towns, Locorotondo (the name means round place) has preserved its ancient shape without the aid of a physical enclosure. Beyond the peripheral street extends the unspoiled countryside. (33) (76) ✓

5) 9

The Spanish Carmona presents another example of urban integrity; town and country are clearly separated. (32) (77) ✓

6) 9

Houses, forming the town wall, at Tavira in Portugal. (34) (78) ✓

2) Entrevaux, with ancient battlements, in the valley of the Var (Basses-Alpes). (10) (74) ✓

Illustration (Canton)

Town plan of Canton, #172

(172)

from *Album de la Compagnie Orientale* etc, 1665

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V

careful with sequence

1) 9

Only a few hundred years ago, the skylines of many European and Asian towns bristled with slender prismatic towers, for it was both more dignified and more esthetic to fight intramural battles from the vantage point of an appropriate architecture rather than from rooftops or in streets, as is the custom in our day.

2) 9

These fortified villages are in Svanetia, a high-lying valley in the western

Caucasus. Until recently, each family had to defray its own defense budget, for as late as the latter half of the nineteenth century blood feuds and vendettas raged unchecked. "The little fortifications in which each family lives," comments William O. Field, an American glaciologist who visited the valley in the 1920s, "date from some time previous to the twelfth century. The outward aspect of the country has changed little, and the towers and castles remain dotted about the landscape, sometimes singly, sometimes in clusters of fifty or sixty."

79 80 81
79 81 80

3) 9

Opposite, two of the original two hundred towers of Bologna. The *Torre Asinelli* (left), 323 feet high, dates from 1109. The unfinished *Torre Garisenda* (right), built one year later, leans more than eight feet.

82 82 ✓

4) 9

Above, a view of Vatheia, one of several fortified villages in the Peloponnesus.

83 83 ✓

5) 9

Below, a Yemenite town of similar silhouette.

84 84 ✓

6) A primitive type of fort in Swat State, on the North-West Frontier of West Pakistan. 85 85 ✓

Pavia illustration (168)

1a

Detail of a 16th century fresco, depicting Pavia, "the town of 100 towers."

caption for Pavia

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(V)

careful with sequence

1) 9

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2) 9

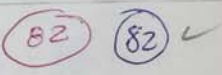
These fortified villages are in Svanetia, a high-lying valley in the western Caucasus.

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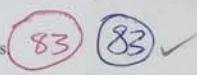
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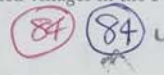
4)

Above, a view of Vatheia, one of several fortified villages in the Peloponnesus.



5)

Below, a Yemenite town of similar silhouette.



6) add: Swat (see W)

caption for Pavvia
illustration (Pavvia)

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(X)

1) ✓ Fortifications of a different, entirely peaceful kind, are the monumental granaries of Africa.

~~Interior of a saré, a dwelling in Cameroun.~~

2) ✓ Conical granaries near Mopti in the Sudan. (87) (90) ✓

3) ✓ Storage fortress at Nalut in Libya. (147) (91) ✓

4) ✓ The four miniature silos are from Yenegandougou, Korhogo and Diebougon, on the upper reaches of the Volta River (Ivory Coast). The fourth picture shows a Sudanese type. (157) (158) (159) (160)

(92) ✓

5) ✓ Granaries at Medenine, Tunisia. (88) (93) ✓

6) ✓ Storage fortress at Cabao, Libya. (112) (94) ✓

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(Y)

J

Among some of the least known manifestations of rural architecture are the granaries in the Spanish province of Galicia, the northwest corner of the Iberian peninsula. The inhabitants of that region descend from the Celts who invaded the continent around 500 B.C. Their rude, circular stone huts can still be found in mountain districts, yet it is the *horreos*, the corn cribs, that most deserve our attention. Built for eternity, resembling nothing so much as chapels à *pilotis*, they are conspicuous for their severe lines. Such dignity is by no means accidental—most peasants have a religious respect for bread and the stuff that goes into its making.

Put together from large granite slabs, a horreo is fire- and vermin-proof. It rests on pillars topped by circular stones that act as rat-guards, and, incidentally, are the forerunners of the classical capital. Interstices in the walls serve for ventilation. Folklore has it that horreos go on walks at night.

(39) (95) (91) (96) (4) (97)

date.

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(2)

1) d

Cultural ties between northern Portugal and the rest of the country have never been as strong as with the neighboring Spanish province of Galicia. Not surprisingly, ~~horreos~~ ~~(see preceding page)~~ have their perfect counterpart in the Portuguese *espigueiros*. In the rural community of Lindoso, where harvesting is a collective task, these granaries are the dominant feature. They have been placed in a privileged position to take advantage of the winds (for ventilation) and to facilitate transferring the grain to the castle in case of invasion.

(89) (98) ✓

2) d

In societies where food is looked upon as a divine gift rather than an industrial product, the architecture of granaries is solemn. So much so that to the uninitiated it suggests ecclesiastical buildings. Although small in scale, storehouses achieve monumentality, whether in the Iberian peninsula, in the Sudan, or in Japan. In view of their great stylistic purity and precious content, we have termed them quasi-sacral.

3) d

~~Below~~ A view of the granaries from the castle. The land on which they stand consists of natural granite terraces that serve as threshing floors.

(90) (99) ✓

3) d

The supporting pillars of an Iberian granary resemble nothing so much as a rude sort of prototype of classical columns.

(29) (100) ✓

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AA

1) In the Western world, pigeons take their place somewhere among such pests as houseflies or chiggers; whether nuisance or menace, most people look forward to their extinction. Not so in Eastern countries, where pigeonry is held in the highest esteem. The birds' droppings are collected in special towers that work on the principle of a piggy-bank. When filled, they are smashed and their precious contents put to use.

2) ~~a battery of pigeon towers at Lindjan near Isfahan. Above and right, pigeoncoats in the Nile Valley.~~ (37) (101) ✓

3) This Göreme super-fortress shaped by nature's forces, menacing as it looks, is but a dove-cot. The entire bastion is white—the steps (at the extreme left of the picture) look like footprints in the snow—while the man-made openings for the pigeons are painted red and orange. (153) (102) ✓

4) Pigeoncoats in the Nile Valley. (21) — (103) (104) (105) (38) (36)

A dove-cot typical of the Barcelona roofscape. (101) (106) ✓

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BB

1) 9

Neither the word *arcade* nor its many synonyms translate satisfactorily into the American language, perhaps because we have no arcades. (The penny arcade is not a variant to be considered here.) Arcades are altruism turned architecture—private property given to an entire community. < > Unknown and unappreciated in our latitudes, the function of this singularly ingratiating feature goes far beyond providing shelter against the elements or protecting pedestrians from traffic hazards. Apart from lending unity to the streetscape, they often take the place of the ancient forums. Throughout Europe, North Africa, and Asia, arcades are a common sight because they also have been incorporated into "formal" architecture. Bologna's streets, to cite but one example, are accompanied by nearly twenty miles of *portici*.

2) 9

The old Moravian town of Telc in what is today Czechoslovakia consists mainly of two monumental blocks of patrician houses bordering the town square on one side and lakes on the other. Thus each house has an urban and a pastoral part, the latter ending in a garden. The town square (which is anything but square) forms the only thoroughfare. The entire length of its perimeter is covered by arcades.

93 92
107 108

~~etc.~~

3) 9

One side of the town square of Toro in western Spain and a close-up of a street juncture.

94 41
109 110

~~etc.~~

5) 9

~~Below~~ a street in Aibar, in the Spanish province of Navarra. The town has preserved its medieval aspect; some streets are lined with arcades of wood or stone and many houses still have Gothic portals.

40 112

6)

A covered street in *Ponto Masarizio* on the Italian Riviera.

95 113

4)

~~Below~~ a street in Caldas de Reyes in Spain where the arcades have reduced the street itself to a narrow passage.

96 111

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(DD)

1) # The chiaroscuro picture of a street at Kharga, ^{Libya,} ~~Libya~~, may strike terror into the heart of the urbanite because he automatically associates them with unspeakable crimes. In underdeveloped countries, however, such streets are usually as safe as a church at high mass. Still, although they are taken for granted by the natives, to us they seem unreal, devoid as they are of sidewalks, traffic lights, parked cars, and batteries of garbage cans, all of which we

(CC)

2) # Above all, it is the *humaneness* of this architecture that ought to bring forth some response in us. For instance, it simply never occurs to us to make streets into oases rather than deserts. In countries where their function has not yet deteriorated into highways and parking lots, a number of arrangements make streets fit for humans: pergole and awnings (that is, awnings spread across a street), tentlike structures, or permanent roofs. All are characteristic of the Orient, or countries with an oriental heritage, like Spain.

2) # Two views of Souks, (23) (98) (114) (115)

3) # A semi-covered street in Gubbio, Umbria. (97) (116)

4) # Photographs can only hint at the actual experience of traversing passages through complicated space that plays on all senses: sheafs of light piercing darkness; waves of coolness and warmth; the echo of one's own footsteps; the odor of sun-baked stones. The sum of these impressions adds up to an esthetic adventure that, modest though it is, we are usually denied.

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DD

1) # ^{Libya)} The chiaroscuro picture of a street at Kharga, ~~Libya~~, may strike terror into the heart of the urbanite because he automatically associates them with unspeakable crimes. In underdeveloped countries, however, such streets are usually as safe as a church at high mass. Still, although they are taken for granted by the natives, to us they seem unreal, devoid as they are of sidewalks, traffic lights, parked cars, and batteries of garbage cans, all of which we have come to accept as the attributes of higher civilization.

(99) (117) ✓

~~2) Libya ...~~

3) Toldos, canvas awnings spread across a street in Sevilla. (100) (119) ✓

4) Reed mats shading the camp streets at Hassi Messouad, French Sahara.

(101) (120) ✓

2) Covered shopping street in an old quarter of Osaka, Japan. (188) (118) ✓

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EE

1) The contraptions of primitive technology may earn the contempt of today's engineers, yet some of their charm cannot be matched by modern machines.

2) A Chinese horizontal windmill, pumping water into the fields. (109) (121)

3) Greek windmills dotting a mountain pass to take advantage of air currents. (110) (122)

4) A battery of horizontal windmills in the province of Khorassan, Iran. (107) (123)

Watermills at Jajce, Yugoslavia. (108) (124)

6) This timeless ~~Spanish~~ water wheel lifts water from the Orontes River into aqueducts for the houses and gardens of Hama, Syria. The wheel is 64 feet tall and does double duty as a gigantic mobile - a combination of ferris wheel and diving board - for Hama's privileged youth. (13) (105) (125) (126) detail

Detail of a noria, a water wheel at Hoa Binh, Tongking. (106) (127)

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FF

✓

"Upon the mountain slopes steep by the lake, stand the rows of naked pillars rising out of the green foliage like ruins of temples: white, square pillars of masonry, standing forlorn in their colonnades and squares . . . as if they remained from some great race that once worshipped here." Characteristically, a poet, not an architect, discovered the charms of this exotic architecture. Around 1912, D. H. Lawrence lived on Lake Garda, and there wrote his essay *The Lemon Gardens*.

The *limonaie* form terraced labyrinths, enclosed by high stone walls and guarded by ferocious dogs. During the winter months, the lemon trees, some of which have been bearing fruit for 150 years, are protected from cold and snow by roofs of wooden boards, while glass panels are inserted between the 40-foot-high columns. The photographs, taken in summer, show the rustic conservatories stripped of roofs and walls.

107
15-16
107
130
128
129 - cover photo

etc

ill

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(GG)

1) These unusual roofscapes are a prominent feature of the lower Sind district in west Pakistan. From April to June, temperatures range above 120°F., lowered by an aftern^oon breeze to a pleasant 95°. To channel the wind into every building, "bad-gir," windscoops, are installed on the roofs, one to each room. Since the wind always blows from the same direction, the position of the windscoops is permanently fixed. In multistoried houses they reach all the way down, doubling as intramural telephones. Although the origin of this contraption is unknown, it has been in use for at least five hundred years.

2) Three views of Hyderabad-Sind, its air-conditioners looking like so many pennants.

18-19

131 ✓

102

132 ✓

103

133 ✓

~~131~~

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(HH)

1) d

The partial enclosures ~~are~~ are windscreens in Shimane Prefecture in Western Japan. To achieve solid buffers against winter winds and snowstorms, the farmers coax pine trees into thick, L-shaped hedges about fifty feet high. In some parts of Northern Japan, straw screens of similar height are put up during the winter months around houses and, some- times, around entire villages.

(12)

(134) ✓

2) d

Hedge-enclosed farmstead at the Kizuki Delta in the Shinji Depression.
(Courtesy, Glenn Thomas Trewartha).

(167)

illustration #167

Trewartha house

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II

- 1) Among abstract architecture, some of the most imposing examples stand in Delhi and Jaipur, India. They are gigantic astronomical instruments built in the eighteenth century to the plans of Maharajah Sawai Jai Singh II. Their purpose was to achieve greater accuracy of astronomical data than that available from portable brass instruments. Since they never lived up to expectations, they represent that rare instance of pure, or nearly pure, architecture of a functionless kind.
- 2) Samrat Yantra, "the supreme instrument," at Jaipur. (111) (135) ✓
- 4) A view from the Samrat Yantra ~~in~~ at Delhi. (113) (137) ✓
- 3) An interior view of ~~the Samrat Yantra~~ the circular Ram Yantra at Delhi. (112) (136) ✓
- 5) The Samrat Yantra at Jaipur, surrounded by twelve smaller instruments known as Rasi Valaya Yantra. (114) (138) ✓
- 6) A detail of the Misra Yantra at Delhi, an instrument composed of a central ramps and four semicircles, each of which is in the plane of a great circle that runs through one of the world's four time-center observatories. (152) (139) ✓
- 7) A detail of the Samrat Yantra at Jaipur. (174) (140) ✓

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(77)

1) #

Indigenous building methods often show great daring and elegance. The soaring framework (left) for a men's clubhouse at Maipua, in the Gulf of New Guinea, is made of bamboo poles and will be covered with thatch. (Bamboo is not a tree but a grass that may attain a height of eighty feet.)

(14) (141)

2) #

Two working stages and the final result of a construction method used in southern Iraq. The building material is giant reed (*fragmites communis*) that grows along the lower Tigris and Euphrates, where it attains a height of twenty feet. It is bound into fascies, stuck into the ground and bent into parabolic arches. Mats woven from split reed serve for roofing. The interior is bare of furniture; carpets and a hearth for brewing coffee are the sole fixtures.

(142)
(162) (163) (164)

3)

Method of vault construction at Tahoua, Nigeria.

(115) (143)

Illustration # 159

Plan of a Massa farm at Yagoua, North Cameroun, from L'Habitat au Cameroun, 1952.

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KK

1) d

In civilizations less ponderous than ours, enclosures made from woven matting are considered fit for kings. The free-form walls (~~screen~~) screen the royal court of Lealui in Zambia, the former Northern Rhodesia.

148

144 ✓

2) d

a house in the royal quarter of Bakuba (Congo).

118

145 ✓

3) d

Garden pergola, Iraq.

151

146 ✓

Yokuts Tule lodges, a semi-fictitious representation of dwellings of California Indians. (Lewis Morgan, Houses and House-Life of the American Aborigines, 1881)

191

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(LL)

2) A detail of the Palace of Justice at Aloa Bay in the Solomon Islands.

(116)

(148)

1) Picnic hut, near Alcazar Quivir, Morocco.

(117)

(147)

3) In a genial climate, buildings often consist of little more than a roof that acts as parasol and *parapluie*. "We first spread a parasol to throw shadow on the earth," writes the Japanese novelist Tanizaki, "and in the shadow we put together a house." The roof with earflaps reaching to the ground (~~is~~) is characteristic of the vernacular of some valleys in the northern provinces of Japan. Compared to some industrial roofing materials, thatch is everlasting (not to mention its being a superb insulation against heat and cold), but good roofers are hard to come by these days.

(26)

(149)

5) Kirdi shelter of straw matting and hay. Northern Cameroun.

(119)

(151)

6) The underside of the roof of a community house in South Vietnam.

(121)

(152)

4) Building site showing prefabricated elements for the attic floor and roof skeleton of Bamiléké houses. Cameroun. (L'HABITAT AU CAMEROUN, 1952)

(120)

(150)

Plan of prefabricated attic floor. (L'Habitat au Cameroun, 1952)

(175)

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MM

1) Many so-called primitive peoples deplore our habit of moving (with all our belongings) from one house, or apartment, to another. Moreover, the thought of having to live in rooms that have been inhabited by strangers seems to them as humiliating as buying second hand old clothes for one's wardrobe. When they move, they prefer to build new houses or to take their old ones along.

2) Moving day in Guinea and Vietnam. 153 ✓ 154 ✓
122 ✓ 150 ✓
Guinea Vietnam

3) Two donkeys carrying structural elements, to be assembled into huts. Rendille nomads, Kenya. 123 155 ✓

4) Truly magical effects are sometimes achieved with modest means. A Japanese arbor composed of bamboo poles and climbers. Mukōjima, Tokyo. 125 156 ✓

5) Log cabins are not the only architecture that one can make with unsawed tree trunks. In the two examples shown, this material achieves monumentality, tempered by elegance. a row of torii flanking the approach to the Inari Shrine in Kyoto. A torii is a kind of square arch, accessory to shinto shrines; its origin is unknown. 124 157 ✓

6) This interior, reminiscent of Piranesi's fantasies, consists of shorings in the eleventh-century salt mine of Wieliczka in Poland. This underground labyrinth extends over sixty miles and reaches a depth of 980 feet. The seven levels, one below the other, are connected by flights of steps. 125 158 ✓

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NN

1) We usually judge enclosed space in terms of construction cost or rental fee; its sensual effect rarely makes itself felt except perhaps in a yearning for "high ceilings," regardless of a room's proportion. But at least this hints at the important role played by the lid of every architectural container. Vaulted ceilings, especially, seem to impart a sense of comfort. In Iran, where vaulting is almost synonymous with building, a townscape seen from above clearly discloses the inner organization of every building. At Isfahan, ^(below) houses of God, houses of men, even streets, are covered with voluptuously undulating roofs. The row of cupolas stretching diagonally across the picture covers a bazaar street.

129
159

2) Extrados (exterior face) of vault at the Masjid-i Jum'a, Isfahan.

127
160

3) Both, the caravansarai ^(above) and the teahouse ^(below) stand in the town of Qum, near Teheran. Their walls are of stone rubble, the vaults and arches of mud brick. The nine bays of the teahouse are covered by five domical vaults and four segmented vaults, resting on four piers and the peripheral walls. The vaults of the 21-bay caravansarai, flanked by ramping segmented vaults, have 4-pier internal supports for maximum elasticity. Swelled, as it were, like a sail in the wind, this type of vault is indeed referred to as *volta a vela*, a sail vault.

126
Caravansarai
161 ✓

128
Teahouse
162 ✓

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PP

1) "Give a mason bricks and mortar," writes Jamshid Kooros, an M.I.T.-educated Persian architect, "and tell him to cover a space and let in light, and the results are astounding. The mason, within his limitations, finds unending possibilities, there is variety and harmony; while the modern architect with all the materials and structural systems available to him produces monotony and dissonance, and that in great abundance."

2) Above, at the ceiling, the photograph of a vault in the Masjid-e-Jameh ~~shown~~ at Isfahan. Probably fifteenth century. (173) (163) ✓

173. ★

3) Next to it, a view of the cupola of a Turkish bathhouse - a whirlpool of bright stars, arrested, as it were, in its movement. The ~~many~~ luminous disks embedded in the dome are thick, lenslike glass blocks. (177) (164) ✓

177. ★

2 illustrations

5" x 5"

1 2/3
4
3 1/2

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00

1) # The Theraen house in the Southern Cycládes goes back to prehistoric times. The standardized dwelling unit consists of a rectangular cell with barrel vault, on which another identical unit is superimposed. Some houses have a flat roof added for drying fruit and vegetables. Specimens of the vaulted cell-house are not confined to the Aegean Sea but are also found along the ~~A~~ Tyrrhenian.

130

165

2) # Vaulted roofs are often found in the neighborhood of troglodyte dwellings, yet their exact relationship has never been properly established. Houses at Tameur near Medenine in Tunisia.

132

166

3) # Nubian houses on the shore of the Nile.

131

167

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QR

1) This rapid review of non-pedigreed architecture, concerned as it is mainly with its broader manifestations, cannot be expected to touch on the delights hidden under its roofs. These ~~two~~ pictures, therefore, merely hint at the intimate architectural aspects.

2) Totemistic wall paintings of the Dogon at Dyameni, Sudan.

(135) (168) ✓

3) Painted wall of a ^{house} ~~substance~~, India.

(134) (169) ✓

5) Anthropomorphic pillars support the roof of the palace at Ketou, Dahomey.

(136) (170) ✓

4) Wooden pillar in a communal rest house of the Dogon. Less distant perhaps and less ladylike than the Kore of the Erechtheion, these sculptures are linked to modern Western art. Museum pieces in our eyes, they represent rather common fare in some superbly underdeveloped countries.

(137) (171) ✓

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PR

Architecture is too serious a matter to be left to the experts. Although good architecture is occasionally conceived on the drafting board, it is truly born in the conscience of the community. Since a town is not just the sum total of its buildings but is also the breathing space between them -- the streets and alleys and squares; above all, those elements not made by man but given in trust to him: trees, water, sky, and air -- these elements, essential to a human environment, have to be jealously guarded by the inhabitant.

Moreover, a taste, not to say a passion, for building must be ingrained in the child. Mechanical toys and mechanized entertainment kill his imagination and initiative; the feat of putting building blocks on top of each other hardly taxes the brain of a monkey.

Left, the village compound being modelled in mud and sticks by Ethiopian children illustrates the intimate relationship between architecture and intelligent play.

133

172