A major achievement of traditional-environments research over the past decades has been to show how forms of building cannot be understood outside broader sociocultural and economic contexts. This has led to an understanding of how observable built environments reflect underlying cycles of behavior. Such a relationship is documented in this study of the transformation of Akçaalan, a village on the Bodrum Peninsula in southern Anatolia. Over the last twenty years long-standing cultural cycles of sustenance centered around water distribution and grain production have been broken or disrupted as a result of the fundamental change in the area from an agricultural to a tourist economy. The research shows that architectural idioms can only be preserved when corresponding social, economic and cultural activities are sustained and developed. If the new tourist economy of the area were now to decline, older historical cycles that tied people to the land and led to a distinctive local architectural idiom could not be restored.

Since Bernard Rudofsky's mind-opening display at the Museum of Modern Art in New York, which he titled "Architecture without Architects," what was then referred to as "folk" or "traditional" architecture has become a significant topic of interest for many architects and nonarchitects. Over a period of more than two decades, it has evolved into an area of exploration with the almost-agreed-upon appellation of "vernacular" architecture.

Among the pioneers who advanced this area into a new realm of scholarship was Paul Oliver. Based on his early work, many of the problems of contemporary built environments have been compared and tested not only to verify but also to learn from buildings and settlements which have evolved over time, and which encapsulate many easily observable building determinants.
The past two decades of work by traditional-environment researchers have internationalized the subject and added a fresh and meaningful topic within architectural research. This research had existed in local academic settings, but was usually defined by the boundaries of the architectural profession. It, therefore, did not benefit from the multidisciplinary approach which later flourished, especially after the 1960s. The extension of research beyond the mere physical attributes of architecture brought the need to explain as well as display the subject. The exclusively architectural approach had previously only managed to treat vernacular architecture as a source of deep-rooted forms; or else it had removed vernacular buildings from their social and economic contexts to present them as icons of nostalgia.

It is now an accepted paradigm that social and economic structures culminate in cultural entities which maintain form (i.e., buildings, or architecture). To consider a building as an element of hardware would present information as documentary evidence, but would not bring about an understanding of architecture. With this in mind, many have preferred to refer to “architectural anthropology” instead of “vernacular architecture,” so that physical environments can be understood within the societies within which they exist.

The architectural forms and building crafts generated by traditional societies are maintained by various processes which all culminate in some form of memory. Culture is the most general process of continuity which encapsulates the entirety of this information. It is the collective memory of the individuals who form a community which maintains the continuity of civilization. Such constituents as folklore, belief and ritual act together to secure this continuity.

Cultural continuity, on the one hand, changes over the course of time and, on the other, constitutes cycles of similar behavior under similar circumstances. In other words, the “known facts” of the processes are utilized whenever expected events occur. Various processes of nature are the basic determining factors in the formation of cycles, and culture naturally establishes the corresponding societal cycles to cope with the realities of life.

When the physical and societal cycles establish a community with the least outside forces or interference, the community may be considered to have reached a steady state. This is when the majority of forces acting upon the sustenance of a community are within the same context. The community can then also be considered an integrated societal unit.

In traditional societies, when the outside forces were scarce and impossible to penetrate, the established steady states were sustained for hundreds of years. Architecture, like many artifacts, then became thoroughly integrated within the society, and not much change was observed in forms which had been appropriated over long periods of time and were sustained by similarly well-assimilated cultural processes.

In rural contexts the cycles that sustain a community can be clearly delineated as integral parts of a particular set of life-lines. Cycles of water, food, and animals are the basic aspects of life; then come information exchange, rituals, medicine, protection, etc., as additional features of being. And, naturally, most of these processes are communal. All of them have recurring cycles, and almost all of them have a physical component which can be considered within the scope of architecture.

The technological advancements of the present century have become so widespread that they have now forced themselves into the most traditional communities. The previously impermeable societal and physical boundaries within which such communities were contained were unable to resist the conveniences and new economies and, therefore, yielded. Consequently, their cycles of sustenance have been transformed.

In research conducted on a traditional setting in southwestern Anatolia, Akçaalan, a village on Bodrum Peninsula, a close circumspection of these cycles and their transformation was made. Two of the cycles which sustained this agricultural community were prominent as the forces of sustenance: these were cycles of water and grain. Even though the village was very close to the sea, fishing has never been an interest. Historically, the sea was exclusively used for transport. Therefore, this village was basically a grain-farming community with scarce water resources (FIG. 1).

Akçaalan was mentioned in official records as early as the eighteenth century. The peninsula had mixed Greek and Turkish
settlements, but Akçaalan has always been inhabited by Turks who grow grains and vegetables on the watery lower plain, and only grains on the terraces of the upper, rougher terrain.

THE WATER CYCLE

The source of fresh drinking water for the village of Akçaalan was traditionally in a nearby village, Karabag, the birthplace of the famous Ottoman pirate (and, later, admiral) Captain Dragot, i.e., Turgut Reis. This relationship created distinct architectural features for both the water and grain systems.

Water from the hillside village of Karabag was brought in a canal following the natural contours of the hillside. It was then placed on a low wall to cross the lower plain and reach the village. The wall was built in rubble stone abundant in the region, and it contained a large, simple, circular arch at the point where an opening through it was needed at the bottom of the valley of a usually dry creek. This wall was a distinct architectural feature of the landscape. It gave the image of a boundary to the fields in the plain, while at the same time it visually connected Akçaalan to the other hillside villages. A fountain in the village was the outlet for the drinking water.

For watering their animals and for household cleaning purposes, villagers in Akçaalan supplemented their supply from the aqueduct by collecting rainwater into cisterns placed at critical points of natural catchment. In order to avoid fast evaporation, the cisterns were covered with hemispherical domes. The domes collected additional rainwater by draining inside through a series of holes placed on the edge. The domes also marked focal points in the pastures and signaled the availability of water.

In the village, houses located by the road once all offered drinking water held in jugs placed in neat niches. The jugs were covered by green leaves to signal to passers-by the freshness of the water (FIG.2). And on the plain there were also deep wells, the water from which was drawn by windmills and used to irrigate vegetable fields.

The above cycle of water in Akçaalan had architectural elements at every functional point: aqueduct, fountain, cistern, jug, niche and well, all built in rubble stone masonry. At times the masonry was stuccoed and painted white to indicate the cleanliness of the water. The architectural elements of the water cycle displayed all the bold features of eastern-Mediterranean vernacular architecture native to the Aegean Islands and the nearby mainland. The features of this water architecture blended harmoniously with the local architectural idiom (FIGS.3,4).

FIG. 2. (TOP) Water jugs set out for passers-by.
FIG. 3. (MIDDLE) An aqueduct for domestic water supply.
FIG. 4. (BOTTOM) An aqueduct for irrigation.
The cycle of water was maintained until the 1950s. At that time, however, the existence of a climate that was conducive to citrus growth and the availability of ground water combined to create a change in agricultural policy, and tangerine production was encouraged. First, electric pumps were placed in the fields to draw up the additional ground water that was needed for tangerine groves; this immediately led to the disappearance of the windmills on the plain. Next, of course, the whole landscape of vegetable gardens was transformed into one of intensively tended tangerine orchards.

Tangerine production had the additional benefit of increasing wealth in the village. This afforded the chance to pay for the purification of ground water. First, this new water supply was piped to public taps in a number of locations; then, individual houses were supplied with running water. All this meant the aqueduct carrying the water from the natural spring became obsolete, and it was demolished. The elegant domes of the unused cisterns likewise became architectural elements evoking the sense of a not-very-distant nostalgia. Finally, the availability of factory-bottled drinking water brought an end to the tradition of providing water for those passing by the entrances of individual houses.

Overall, the break with the past occurred with great speed. The technology of electric pumps broke the fragile, centuries-old water cycle so quickly that the loss of traditional architectural elements was noticed by only a very few people.

**THE GRAIN CYCLE**

In most of the agricultural areas in Anatolia grains constitute the staple diet. An inaccessible and distant locality like Akçaalan had to produce its own grains for survival. All of the dry fields and parts of the land with water were used to cultivate grains, such as wheat for bread, and barley and maize for animals. The grains, like the water, created a cycle wherein each process was facilitated by a corresponding architectural element.

Of great importance among these architectural features were the dry-stone retaining walls which terraced the terrain and held in the soil. Thus retained into narrow strips, the fields did not permit access by machinery. As a result, most of the work — like sowing, cutting and threshing — was done by hand or animal power. Separating was done by hand and wind power.

The peninsula, being exposed to *éteienne* winds, has had an abundance of wind energy for ages. Wind power has been in use since the fifteenth century, when its use spread all over the Mediterranean basin, and in Akçaalan it was used to draw water from wells as well to grind grain. As late as the mid-1970s, one of the village’s three original windmills was still in use (FIGS. 5, 6). People took their grains to the hilltop mill either to be ground into flour for baking or crushed into animal feed. The strenuous uphill climb was considered worth the effort, as the quality of grain slowly ground under low pressure was considered superior in the baking of the local bread.

The flour was kept in cool, dry places, and it was baked all year round in local fireplaces whose design had been developed to bake bread daily in small quantities. Every traditional house had a baking facility for bread and cooking located in the garden (FIG. 7). A fire was first made in the fireplace with twigs, branches and reeds; then the ashes were removed and the heat stored in the stones and plaster was used to cook according to a slow process of diminishing heat. This method yielded the taste in bread and other dishes that was traditionally most enjoyed.

**FIG. 5. A windmill of Akçaalan.**
In a way similar to the water cycle, the grain cycle was disrupted by the coming of a technological "convenience." In this instance it was a petrol-operated grain mill in Karatoprak. After the establishment of this mill, the windmills that dominated the hilltop of Akçaalan remained as distinct marks on the landscape, but the motion of their sails was seen less and less. The new mill brought instead the noise of crude machinery and the odor of burnt petrol. Then, as the new agricultural economy took over, the grain fields were gradually replaced by tangerine orchards. This improved the cash flow of villagers and made money available for the purchase of ready-made flour. Finally, the labor-intensive task of baking bread at home was taken over by commercial bakeries, which provided loaves of French bread every morning.

After these changes in the grain cycle became permanent, the windmills were left to fall into disrepair. By 1974 one had been demolished, while only the drums of the other two remained, only one of which was still functioning. By 1980 even this central element of the former grain cycle was destined to be sold as an architectural curiosity. Currently, bread ovens still exist in the gardens of old houses, but new houses have only barbecues located by the sides of their verandahs to facilitate a different kind of cooking.
**SUSTENANCE AND DISRUPTION**

The Akçaalan study displayed the transformation of an agricultural village into a tourist resort over the course of two decades. It indicated how architectural components of the village were affected by external forces such as changes in available materials and methods of building construction and building technology. But it also showed how the architecture of the village changed after age-old chains of sustenance were broken or disrupted. When the "new" arrived, it had its own logic and economics. And while changes were not particularly brought about by the wishes of the local community, local residents played a major role in the transformation by taking advantage of new financial opportunities.

In 1967 the three villages of Akçaalan, Karabag and Karatoprak were combined and renamed Turgutreis; its population was then 2,000. Today, this new entity has a permanent population of more than 15,000, most of whom are retired people seeking the benefits of the mild climate (FIG.8). During summer holidays the population reaches 100,000.

Since the study began, it has become apparent that the local population has become dependent upon the jobs and trade generated by tourism. None of the older, formerly critical cycles that defined the village have been maintained. The town now finds itself in the midst of an economy based on the supply of services for more people than could once ever have been imagined to live there. The town has also witnessed an exchange of international values and culture, causing the local culture and folklore to fast disappear (FIG.9).

Over-building means that even formerly precious agricultural lands have now been taken over by developers. Even the tangerine groves are on the verge of extinction. Furthermore, over-pumping of ground water has endangered the water table, and salty sea water has begun to seep in. When these environmental impacts become fully realized, they may spell the end for present forms of livelihood in the area.

Over-building will also eventually lead to a decrease in the desirability of the area, and 1994 was already an alarming year for investors, because the number of tourists was much below expectations. When the tourist economy falters, it will not be possible to restore or reinstate the historical cycles it replaced.

The future seems bleak. In a place where the local architectural idiom has been respectfully emulated, it is once again obvious that architecture cannot be considered simply a shell. An architectural idiom is only vital when it has corresponding social, economic and cultural entities to support, sustain and develop it.

**REFERENCE NOTES**

2. Oliver produced the first book which placed "vernacular" architecture within the frame of reference of the theory of architecture. His content-full opening essay in *Shelter and Society* (London: Barrie and Jenkins, 1969) was followed by many articles on field-based cases in order to display the richness of this new area of architectural research. Later, he edited books on geographic themes, such as *Shelter in Greece, Shelter in Africa, and Shelter in Afghanistan*. He also dealt with themes like *Shelter, Sign and Symbol* (London: Barrie and Jenkins, 1975). In all these books, he has voiced fresh research and given chances to younger academics by encouraging them to publish. The author of this article was among these. Oliver has dedicated the past five years to putting together the *World Encyclopaedia of Vernacular Architecture* (Cambridge: C.U. Press, forthcoming in 1997).
3. In the 1980s, many academics in the Third World, especially in Turkey, explored the local architecture of various regions as dissertations. Many have remarkably high standards of survey and measured drawings. Similarly, Sedad Eldem dedicated almost his entire professional life, covering more than half a century, to the same subject within Turkey. He produced many thematic titles, among which his five-volume *Turk Evi (Turkish House)* can be mentioned as the definitive work.
4. The research was initiated by S. Ozkan and R. Plunz as a joint project between Columbia University, New York, and Middle East Technical University, Ankara. The investigators have maintained their interest and made successive research missions with their students to the same village during the period between 1974 and 1994. They were able to study the transformation of a traditional society into a tourist town. (See R. Plunz and S. Ozkan, *Homes on the Aegean: Fifteen Families of Akçaalan*, forthcoming.)
5. The subject in its entirety has been studied as a separate paper from the perspective of the history of technology and published in: A. Medohi, S. Ozkan, and R. Plunz, "Grain Cycle and a Windmill in Akçaalan," METU Journal of the Faculty of Architecture, vol.1 no.2 (1975) (Ankara).

All figures are © 1974 and 1995 Akçaalan Project (Columbia University, New York; and Middle East Technical University, Ankara).