MIRAMBELLO VILLAGE; A TOURIST DEVELOPMENT ON THE ISLAND OF CRETE IN GREECE

by

Terry S. Hartzides

S.B.A.D., Massachusetts Institute of Technology
(1971)

SUBMITTED IN PARTIAL FULFILLMENT OF

THE REQUIREMENTS FOR THE

DEGREE OF MASTERS OF

ARCHITECTURE

at the

MASSACHUSETTS INSTITUTE OF

TECHNOLOGY

May, 1972

Signautre of Author . . . . . .
Department of Architecture, May 12, 1972

Certified by . . . . . .
Thesis Advisor

Accepted by . . . . . .
Chairman, Departmental Committee
on Graduate Students

Rotch

THESIS ABSTRACT

MIRAMBELLO VILLAGE; A TOURIST DEVELOPMENT ON THE ISLAND OF CRETE IN GREECE

by

Terry S. Hartzides

Submitted to the Department of Architecture on May 12, 1972, in partial fulfillment for the degree of Masters of Architecture.

The work presented here is twofold in nature. In Part I there is a study of characteristics, features, and elements of Greek popular architecture. We find that the traditional characteristics have their roots in the ancient Greek "oikos" and have been passed along from generation to generation without much change. The rural Greek setting has developed much on its own without the influence of outside forces. This makes the overall setting so natural and beautiful but also very difficult if not impossible to imitate. However, it is possible to incorporate many features of these buildings into the second part of the study which consists of a tourist village development on the island of Crete. An initial study made called for the construction of various buildings including a hotel, bungalows, a village development with commercial and recreational areas. However, there was no consideration towards the realities of the Greek state and specifically towards Crete. Thus, the program has been revised and molded to fit these realities and solutions given which conform with these changes.

Thesis Supervisor: Imre Halasz
Title: Visiting Professor of Architecture

ACKNOWLEDGMENTS

I would like to extend my sincerest gratitude and appreciation to Professor Imre Halasz who acted as advisor to me and without whose help, suggestions, and encouragement this thesis could not have been completed. His constant constructive criticism enabled me to pursue various paths of inquiry which otherwise would have remained unexamined.

Many thanks are due to Mr. Apostolos Vavourakis with whom the problem was originally examined last year.

I wish to thank Miss Eleni Patrona for her help in the preparation of the final ink figures.

Last but not least, the expert typing of Miss Lucille Blake speaks for itself and is quite evident herein.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF DRAWINGS

1. Topographical site plan
2. Photograph of site
3. Phase development; Phase 1
4. Phase development; Phase 2
5. Phase development; Phase 3
6. Phase development; Phase 4
7. Hotel; plans
8. Hotel; sections and elevations
9. Bungalows; plan, section, layout, site section
10. Housing; plans, sections, sketches
11. Housing; two- and three-family prototype units; plans
12. Housing; five-family prototype units; plans
13. Housing; six-family prototype units; plans
14. Housing; seven-family prototype units; plans
15. Housing; two- three- five- six- seven-family prototype units; sections
16. Photographs of model of site and developments

PART I

INTRODUCTION

Who were the anonymous architects that created the rural architecture of Greece. This is a basic question. Upon its answer rests the way in which we understand and interpret the architecture. The rural architect was not only an experienced mason but also proficient in various crafts. Their education for generations was conducted from their early age under the supervision of the head mason. The parents entrusted their children to him and simultaneously gave him full responsibility over the young boy's life, hoping that the head mason would turn their child into an artist at least an equal of his teacher.

This professional experience took place in the workshops and on the site and thus molded within the young artisan a sense of architecture based upon the completion of project according to the life and the character of the man involved. The knowledge of traditions which coincided with the history of the country assisted him in understanding their exact meaning and their relationships within the present, within the environment, within reality. This helped retain the living elements from within the traditions and use them according to his needs. Thus tradition did not remain static, but continued in a dynamic fashion.

The application of their profession was performed with prototypes examined at the site studying their practicality and comparing them with other alternatives. From a technical viewpoint his knowledge of details enabled him to view the work as a whole and obtain all possible conclusions.

He was taught from nature, which was often quite hostile, how to build a house which would simultaneously keep out the cold and the heat. At the same time, awed by nature's beauty at her better moments, he managed to integrate the house and built it so that it merged with the landscape in a way that he could appreciate both the natural beauty and the house at the same time.

GREEK RURAL ARCHITECTURE

Characteristics. The floor plan of every house has its origin in the "cell." The inhabitants have called it a "monospito" (single-unit dwelling), meaning a dwelling having only one major room. Very austere, plain, and laconic in its expression, it is a concentration of the development of the basic essentials for survival.

The "monospito" is the basic form from which all types of popular houses in Greece, mainland and islands, have evolved. Their characteristics are determined by the following basic criteria:

1. The climate
2. The local materials available
3. The technical knowledge of the mason(s) involved with the construction.
4. The financial sources available.
5. The social and national limits of the region and of the country within which (limits) building takes place.

We thus have a conglomeration of similarities, even amongst houses not within the same region with obvious common characteristics, since the various governing factors do not differ drastically from region to region.

The "monospito" had to house all the functions of the living unit; it had to cover and shelter humans, animals, and the products of the earth. The specific ways that these problems were solved determined both organically and functionally the synthesis of the interior and the exterior of the house.

As time went on, new elements were added; a room, a stable, a covered balcony, etc.. Thus, the "monospito" acquired the nature of a well-integrated house, all elements and parts being functional--nothing useless.

Depending upon the site, the houses grew, both in height and width or both. On an inclined surface, a half structure in the direction of the slope supports the house in part, while the remaining portion is aligned with the inclination, thus providing for an entrance (Fig. 1). This is the type of house with the ground floor used as the living space and the "semi-basement" as a stable and for storage.

On a flat site the rooms are situated on one, on two, or sometimes even on three sides of the lot. Whenever the house is built on all four sides, a courtyard is formed in the center. All windows and doors of the living spaces open onto this courtyard, which is thus used as the connecting space for all the rooms. On the other hand, in this specific case, we find very few windows and doors which open towards the street.

Spaces which are actually lived in and used are connected by auxiliary spaces, their sequence being determined by the functions of the spaces they serve. Rooms usually have glass galleries for protection while the auxiliary spaces form sheds thus forming an extension of the yard.

Within this synthesis, we can easily recognize elements of the ancient Greek house (oikos) with the open-air yard in the center. But most probably, the intent of protecting the living spaces from the

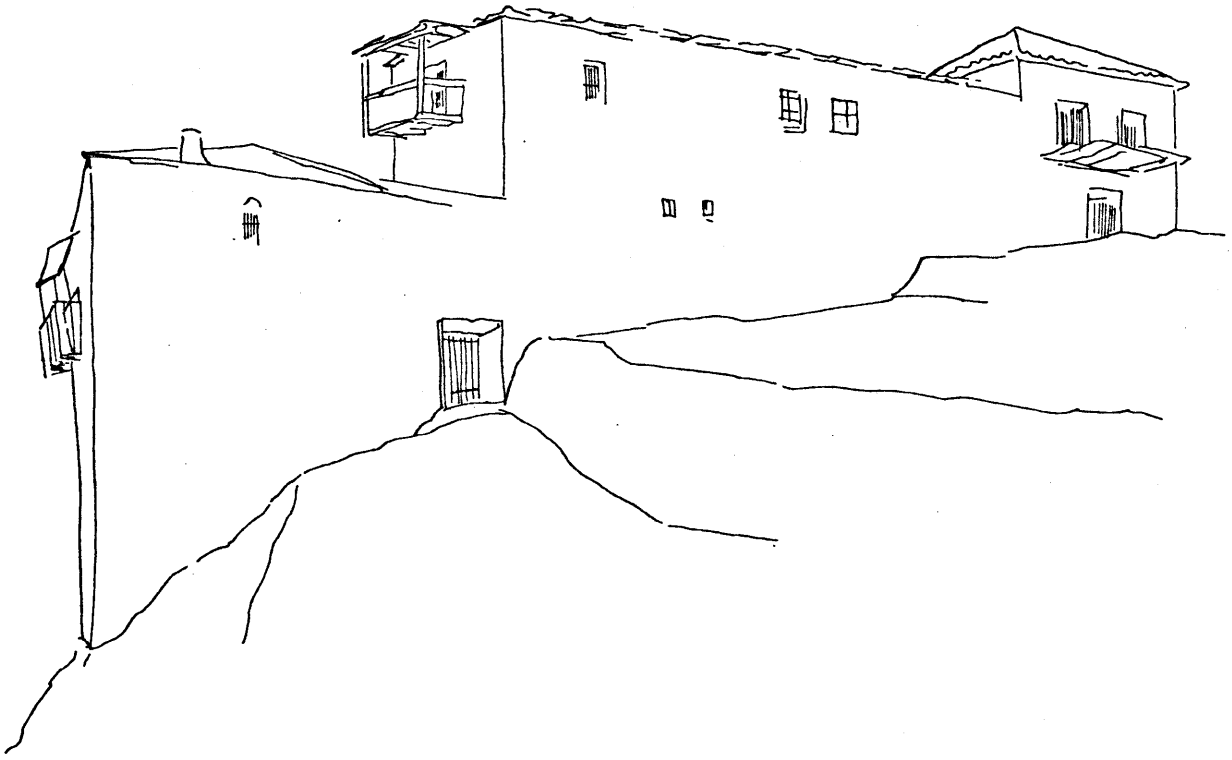


Figure 1. Moni Malevi

elements and a way to integrate outside-inside (through the yard surrounded completely by the living quarters) initiated the development of this particular type.

Houses on level ground usually have the auxiliary spaces on the ground level and the main living spaces just above it. The rooms are arranged in a linear fashion and are connected with an exterior covered corrider, a gallery as a balcony, fully or partially open towards the exterior (Fig. 2).

Elsewhere, the rooms of the living level are situated around an "entrance vestibule," covered, and either open or closed towards the front. In both cases, the balconies and the entrance vestibule are the orthological transformations of the yard when applied to houses with more than one story.

At many villages in Greece, the houses have two stories above the ground level, which is built with very thick stone walls and a limited number of windows which have horizontal and vertical safety bars.

The ground level is composed of the entrance, the storage rooms, and the well or the fountain. The level immediately above the ground floor, which the inhabitants occupy and use during the winter, is also built out of stone, having larger but fewer windows, protected with exterior wooden shades. This level provides a complete living space including living room, bedrooms, kitchen, and auxiliary spaces.

Proceeding to the second level above the ground level, usually built with brick or stuccoed stud walls, the elimination of some of

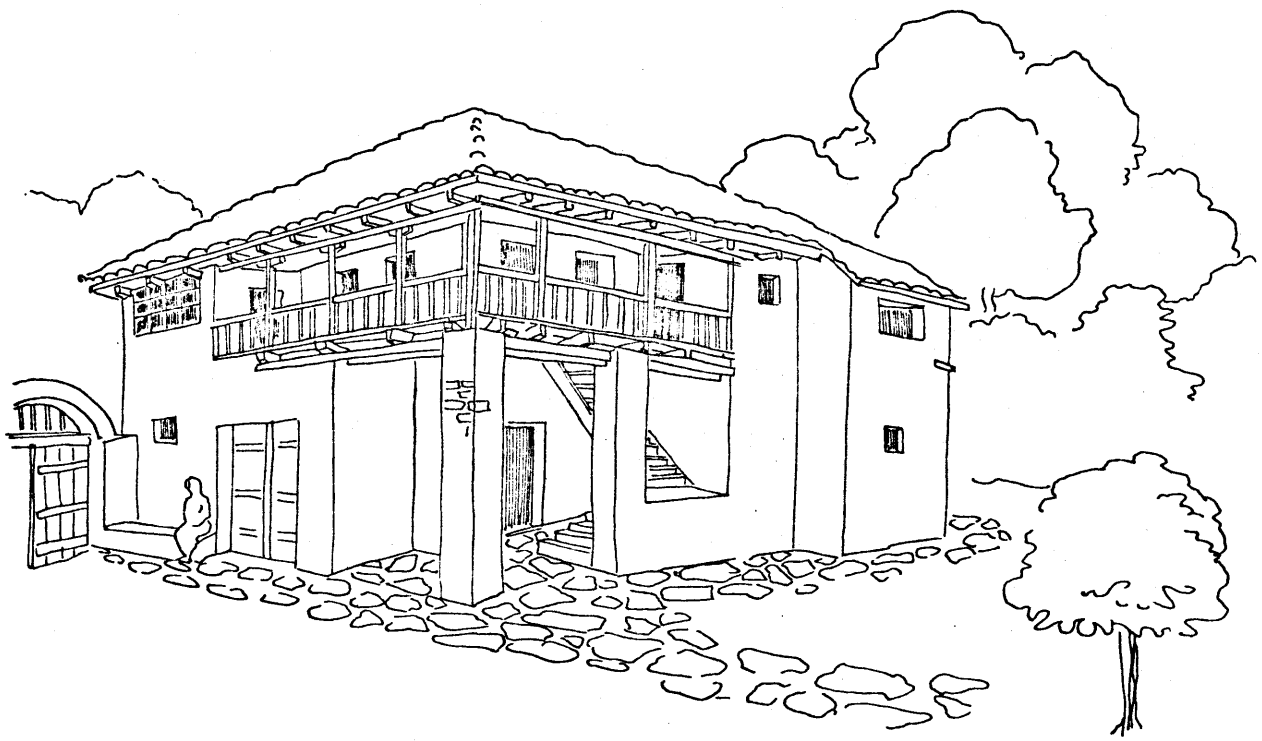


Figure 2. Anavriti

the auxiliary spaces, results in larger living quarters. The living room is considerably larger, since on the southwest side, we usually have a cantilevered interior balcony. Often, about two or three steps higher than the actual living room it is like a platform with wooden railing. Its exterior wall is a conglomeration of windows without shades. Placed adjacent to one another, they (the windows) form a large "picture window" generously overlooking the neighboring areas (Fig. 3).

Thus, the architectural space is enlarged and begins to merge with the outside.

Above the windows we often see a set of pseudo-windows, which do not open and are decorated with stained glass portraying scenes of every-day life. The family lives on this level during the summer since the larger number of windows provide pleasant drafts.

During the winter, these windows transform the space they enclose into a sun deck after, of course, the curtains have been pulled.

In Skyros, the living room, having a high ceiling occupies the largest part of the house on one side, preferably the southeastern, while the other spaces, living or auxiliary, are managed in two rows, as semi-levels with a low ceiling. The lower semi-level, immediately adjacent to the living room, is separated from the living room by a thin wooden rail and contains the kitchen, several auxiliary spaces, and possibly a sleeping corner. The entire higher semi-level forms a plane which is reached by a small interior staircase. This entire level is used for sleeping purposes and is divided into bedrooms, also having

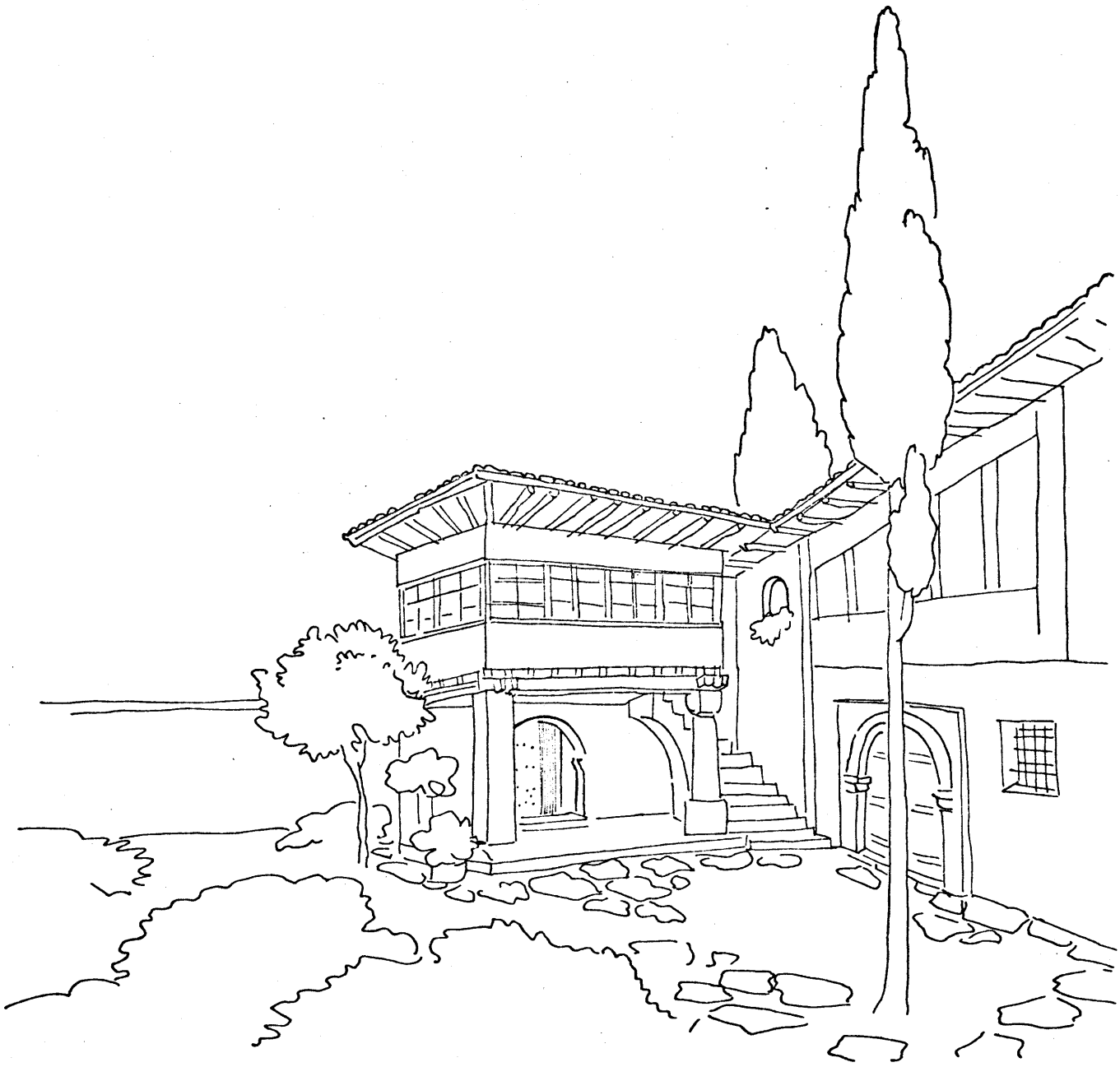


Figure 3. Kastania

a wooden rail and a wooden screen surrounding the edges which overlook into the living area. An exterior balcony along the entire length provides for sufficient light, coolness, and view.

In Skopelos, where the seismicity is quite high, many houses are built on small lots. Supported one against the other, they form quite limited structural volumes. The synthesis of their plans unfolds into one or two levels upon a semi-basement with each individual level being a single living space (room). These "room levels" with relatively low ceilings are connected by narrow open wooden staircases, quite similar to those found on ships, and play the role of "corriders in space." On the last level, the staircase is partially covered forming an open storage space. On the semi-basement level, we have the kitchen with small storage rooms, while the ground level, elevated by a couple of steps, serves as a living and dining room.

On several Aegean islands, the one-level houses are composed of a large living space; elevated by a couple of steps and separated by a built arch on one side (of the living room), we have the sleeping quarters, not necessarily divided amongst themselves. On the lower part of the living room, we find the kitchen and the storage rooms.

An elementary city planning regularizes, in part, the traffic within these villages whether they may be situated on the mainland or an island.

Aside from the historical, economic, and social factors which have influenced the developed structure, there are also other individual factors in Greek villages which are quite interesting.

In a country with such a rugged and uneven sea coast, the coastal villages form small, natural ports which are dictated directly from the sea but are simultaneous outlets of the land. One often sees boats docked at small inlets of the sea, almost as if they were actually part of the house (Fig. 4).

Within the village itself, the houses, built at a low density, are surrounded by gardens or yards, while the public, religious, and commercial buildings are all gathered around a piazza and form the center of the village--the village square. Some of the gardens or yards are surrounded by natural barriers of cypress trees, thus protecting them from the sea and loud winds.

The continuous conglomeration of houses within the village form the roads and paths quite naturally, while the freedom of the houses and the independence of their shapes and forms break the monotony which would occur had they been continuous volumes. The negative volumes formed amongst themselves guarantee light and ventilation on all sides.

The gardens and the yards are integral parts of the house; they guarantee free open spaces, avoid congestion, and allow for the growth of the village without it losing its personal character.

Solutions to the problems of circulation within the village become more interesting in direct proportion to the sloping of the site. Roads and streets designed for vehicles are analogous to their use; smaller side streets and paths are used exclusively by pedestrians and animals.

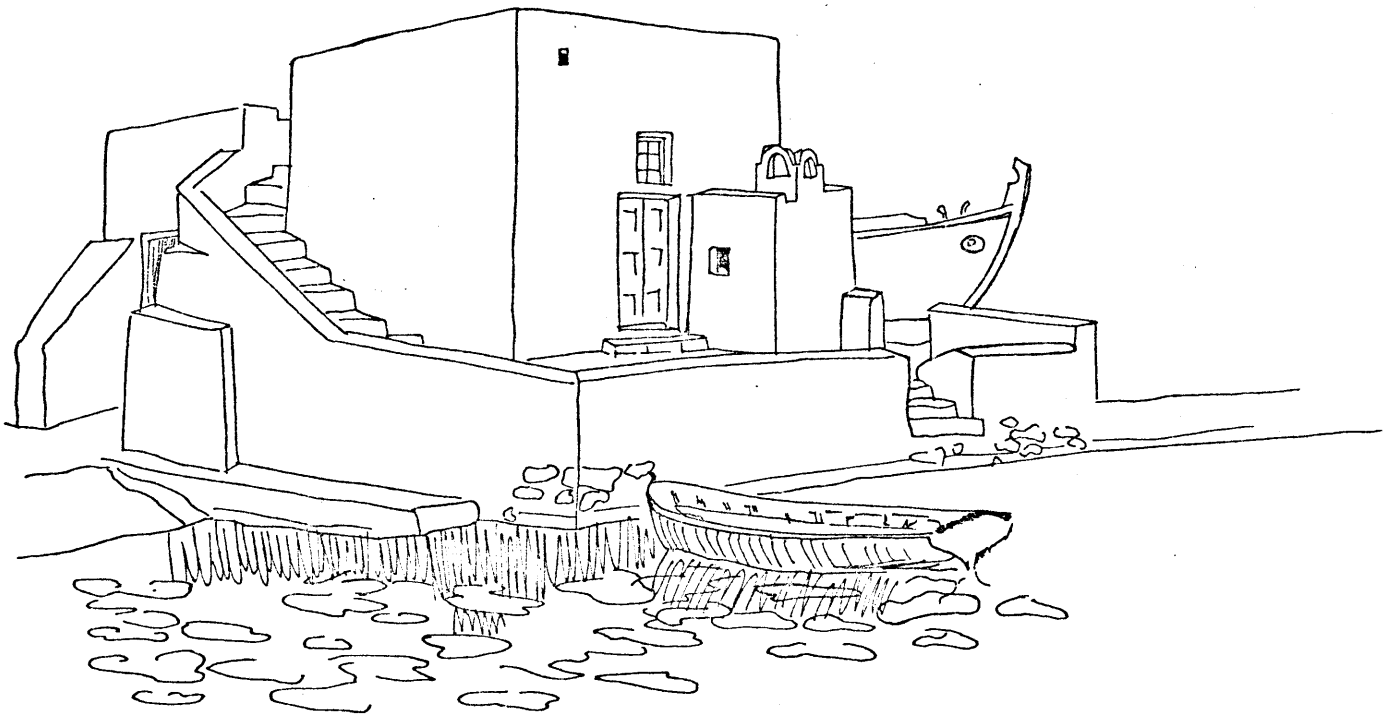


Figure 4. Santorini

Villages built on sloping or irregular sites have one main road, which provides for access and is suitable for both vehicles and pedestrians. These roads are usually shielded or protected from the wind and always follow the contours of the ground, thus avoiding costly construction and the monotony which occurs with long, straight roads in rural areas. The entrances of the houses are on small pedestrian paths perpendicular to the contours and often having a number of steps.

In many villages, depending upon the inclination of the ground, we often find the main village square on two continuous levels, varying in height. The lower one, where one find the commercial buildings, is the one used by vehicles and commercial traffic. The church and the public buildings and some smaller shops are found on the higher level of the square which is connected to the lower level only along its width with circle steps. This synthesis, aside from its practical aspects, accents the buildings on the higher level and forms a "dual life" on the square.

Occasionally, wells or fountains are situated further down and away from the square, thus offering a picturesque view of women walking to and fro with jugs or urns on their shoulders or heads.

Towards the higher side of the square, we have a large balcony, like a platform, from which one can sit back and enjoy the view. This is the usual position of the coffee shop.

Specific Locations:

1. Isari in Arcadia

The central square of the village has one side considerably higher than the other, with roads and houses on the high side, supported by

a high retaining wall, whose trapezoidal vertical section has cleverly been transformed into a wall with horizontal sub-levels. During festivals or other village activities, people sit and watch as in an amphitheater.

2. Anavriti on Mount Taygetos

The houses built on the side of a steep mountain have the back part of the ground floor dug into the mountain, while the front looks onto the road. The level immediately above, which constitutes the main living space, has its entrance on the side, off a small path, perpendicular to the contour lines of the mountain. The entire roof is flat and is usually used for drying out crops and is immediately accessible from an extension of the path where the entrance is (Fig. 5).

3. Santorini, Thira

The entire village is situated on the side of a very steep, extinct volcano and does not leave much space for regular village roads. The houses, congested one next to another, form continuous masses which are superimposed. The rooms form large levels and are accessible through exterior staircases, thus forming certain paths, irregular in nature, over and around the houses, thus achieving accessibility and neighborhood circulation (Fig. 6).

4. Limni, Evia

The houses are situated along the small harbor; they rise on top of big continuous arches, as high as necessary for technical reasons, which then form a covered area, sufficiently wide for the market. Thus, under here, we have all commercial activities going on, shielded from weather extremities, next to the sea (Fig. 7).

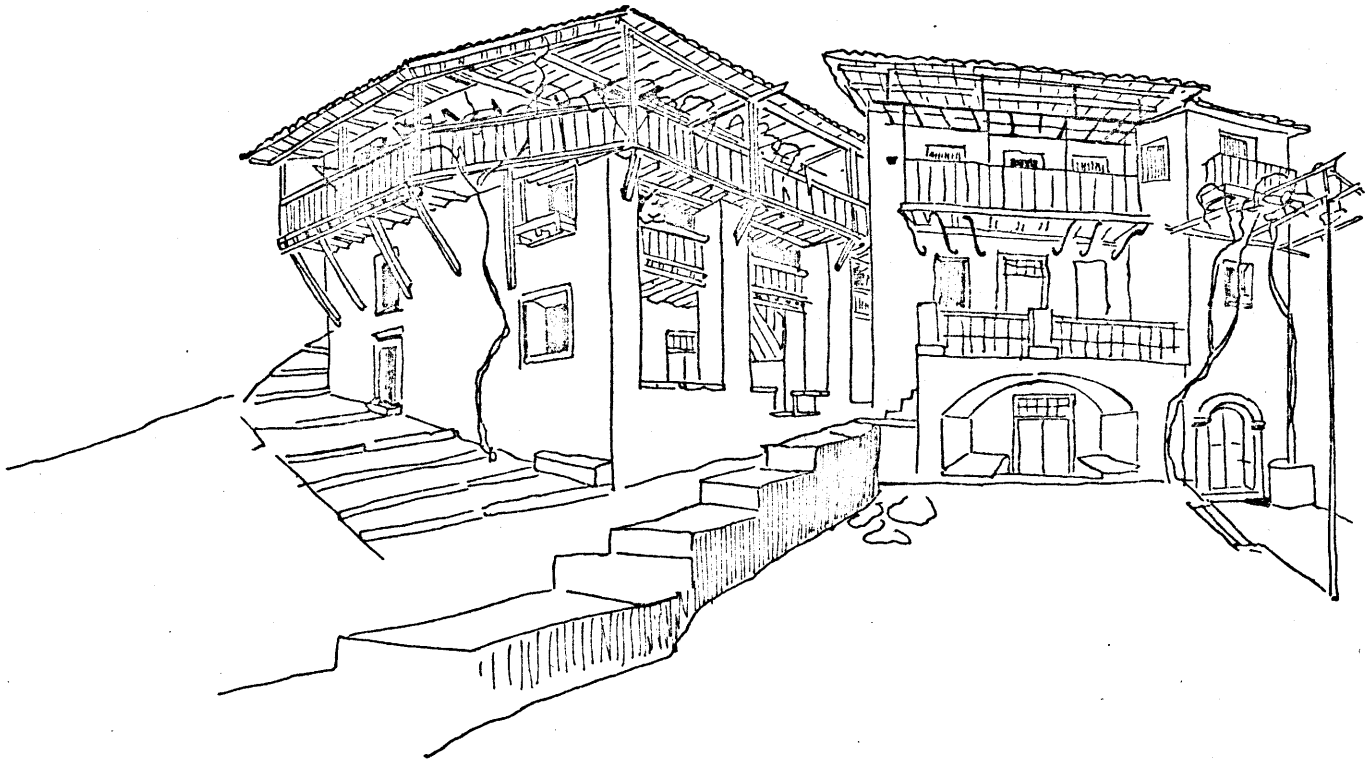


Figure 5. Platanos

Figure 6. Santorini

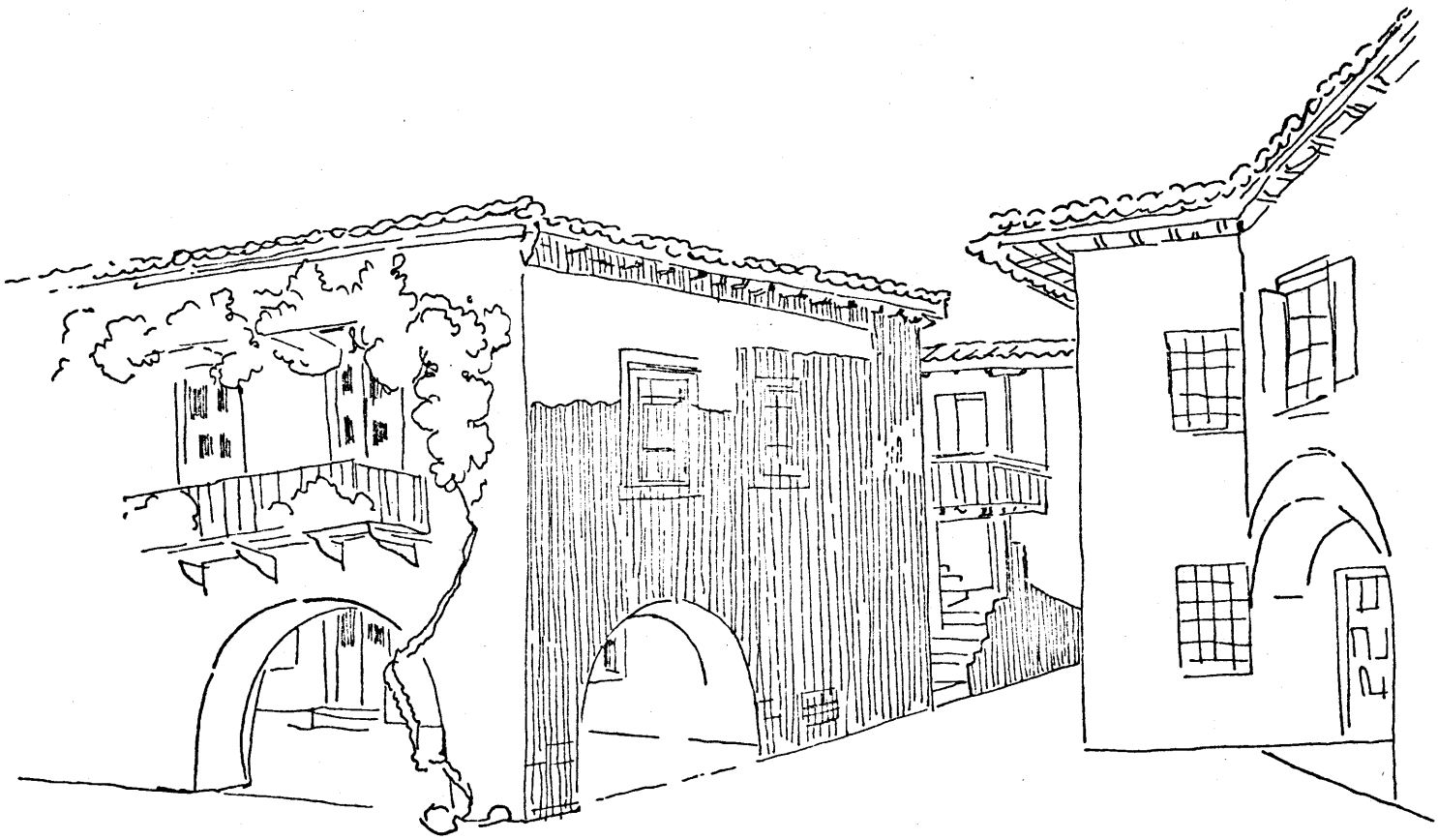


Figure 7. Limni, Evia

5. Kea-Tzia

The capital of the small island town extends amphitheatrically along the side of a hill. The houses are built in rows, in horizontal lines along the roads which transverse the entire city. Here and there, perpendicular paths, either with steps or merely inclined, connect the horizontal roads amongst themselves. On the other side of the hill, the view towards the sea is uninterrupted as from an outdoor balcony. Occasionally we see large platform balconies at the height of the first story (above ground level) covering the entire width of the roads or paths, forming arcades which protect inhabitants, commercial stores, and goods from the elements. During the summer, many of the local inhabitants sleep on these outdoor balconies underneath the clear sky (Fig. 8).

In general, the roads and paths with their inlets and outlets between the masses of the houses offer shadowy corners through which the people circulate during the hot days, but also offer protection against the rain and wind. These paths do not have heavy traffic and are usually set with either cobble stones or rough stones. Piazzas and squares open up occasionally and are connected with these roads and paths, forming a kind of continuous yard and connect all the houses amongst themselves. In the same way that the interior of the houses offer a favorable and pleasant reaction, the combinations of these paths and squares bring about the same results to the exterior.

The orientation of the house is generally towards the southeast, thus enabling it to take advantage of the sunshine. During the summer,

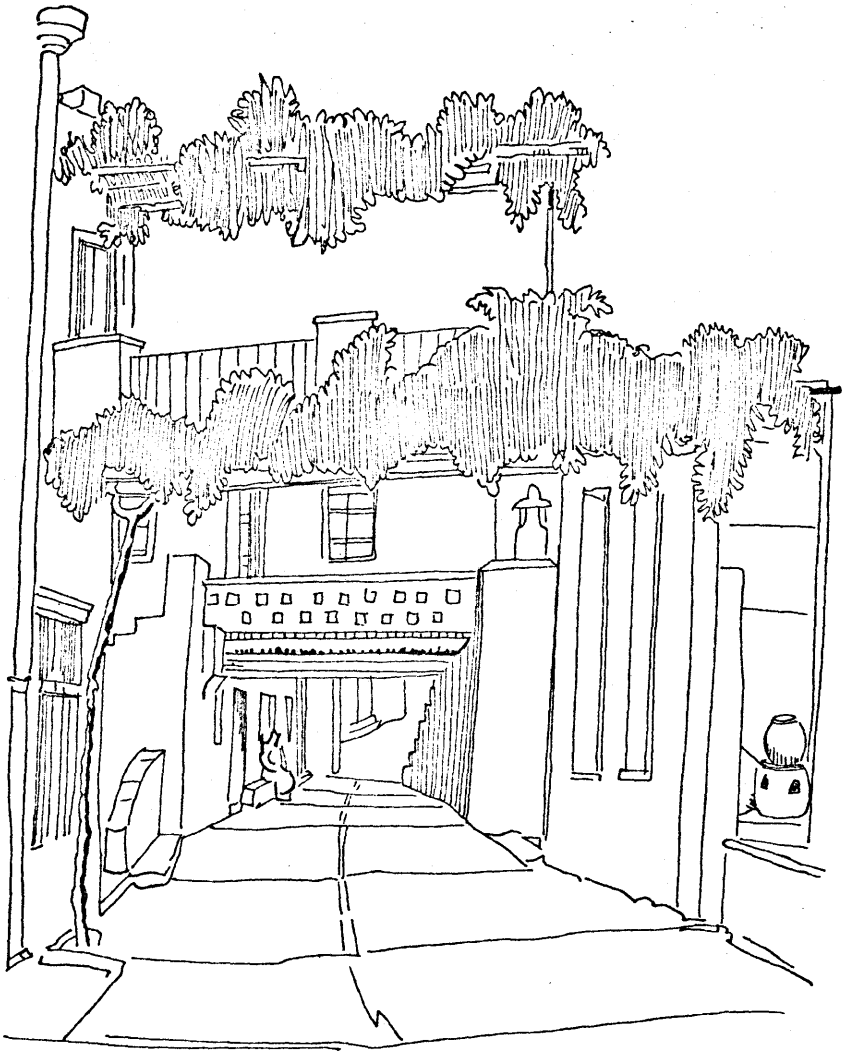


Figure 8. Tzia

when the sun is high up, its rays cannot penetrate into the rooms, especially during the hottest noon hours. During the winter, however, the sun is comparatively low in the horizon, and thus we have the maximum penetration of light and warmth. Balconies and overhangs placed directly on this side protect the walls from coming into direct contact with the solar rays. Furthermore, the interplay of volumes creates shaded corners. Trees planted in specific places around the house protect the walls from overheating during the summer while during the winter the rays pass through the naked branches and warm the walls up.

On the northern side, small windows allow for air flow and light whenever necessary. On the side we usually find the kitchen, the storage rooms, and often a room, a yard, and a balcony to be used during the hottest summer days.

The major construction material is stone, being so abundant in this mountainous country. It is mostly limestone, which is used naturally, without processing, for walls, and roughly shaped when used for corner stones. Door lintels and columns are often constructed out of roughly processed monolithic stones. Bricks, red or yellow, produced by hand and either let to dry in the sun, or baked in furnaces are used as a supplementary material. They are used to construct arches, vaults, domes, and horizontal zones between the stones--reminiscent of Byzantine construction.

In regions with a high seismicity (Lefkas, Skopelos), we find houses with wooden frames while the infill is stud walls covered with lime whitewash.

Wood is quite important in Greek popular architecture taking the place of steel. It is mainly used to construct zones which are tied with the floor beams, thus forming a horizontal skeleton of "wooden reinforcement" covering the entire area of the house and connected to the exterior walls with iron bracing. Houses constructed exclusively with wood are rare. Interior partitions, however, and auxiliary spaces, independent or attached to the main house are often constructed of wood. But, the virtuosity of masons with wood is mainly seen in roofs, sun decks, and balconies

Iron and steel are imported from abroad and are thus expensive; they are used for constructing minor elements such as ties, hooks, gates, doors, window bars, locks, door knobs, etc.

Another material playing an important role is asbestos. Mixed with sand or plain dirt and water, we get the common mortars for building and plastering. Mixed with gravel, it is used as "rough-beton" for floors over stone earth, for rooms on the ground floors, yards, and also for roofs and balconies. Asbestos and crushed brick, mixed with or without fine sand, depending upon the circumstances, produce a mortar, sturdy and waterproof for elements such as domes and wells.

The method of construction, besides being a function of economic factors, also depends upon the availability of materials which are accessible at the place of question, the nature of the building to be constructed, and the soil conditions of the site.

Brick constructions, even when used as bearing, are synthesized in a decorative way. However, the use of stones is the most interesting.

In poorer sections, we find stone walls whitewashed only interiorly. It is interesting to note how the mason has assembled the stones and how the various joints and connections have been constructed to provide for minimum penetration and maximum protection against the elements. On the exterior, the walls are often covered with mortar or whitewash with a smooth or rough finish. Rarely do we find interior walls of exposed stone. This method is applied to works including arches, vaults, wells, bridges, and churches (Fig. 9, 10).

Floors, either on the ground or supported on arches, are covered with small, irregular slabs--sometimes having corners, while often the in-between voids are filled with asbestos. Houses in Thessalia and Macedonia often have single or multi-colored marble slabs on the floor, reminiscent of Byzantine churches. Most floors above ground level are made of sturdy wooden planks, nailed into wooden beams.

The dimensions of rectangular doors and windows are seldom larger than human dimensions thus presenting a minimum area for exposure to the elements. We often find the golden ratio governing their dimensions. When they are open and a human being or a landscape fill up their plane, the openings resemble a frame portraying a live pictorial composition. Arched windows are used less than arched doors. Pointed Gothic arches are totally alien and avoided as heresy.

A careful study of Greek popular arts leads us, in general, towards instructive knowledge. All the artistic manifestations of the popular artists, in spite of the differences that do exist insofar as their origins are concerned, their organic nature, and their

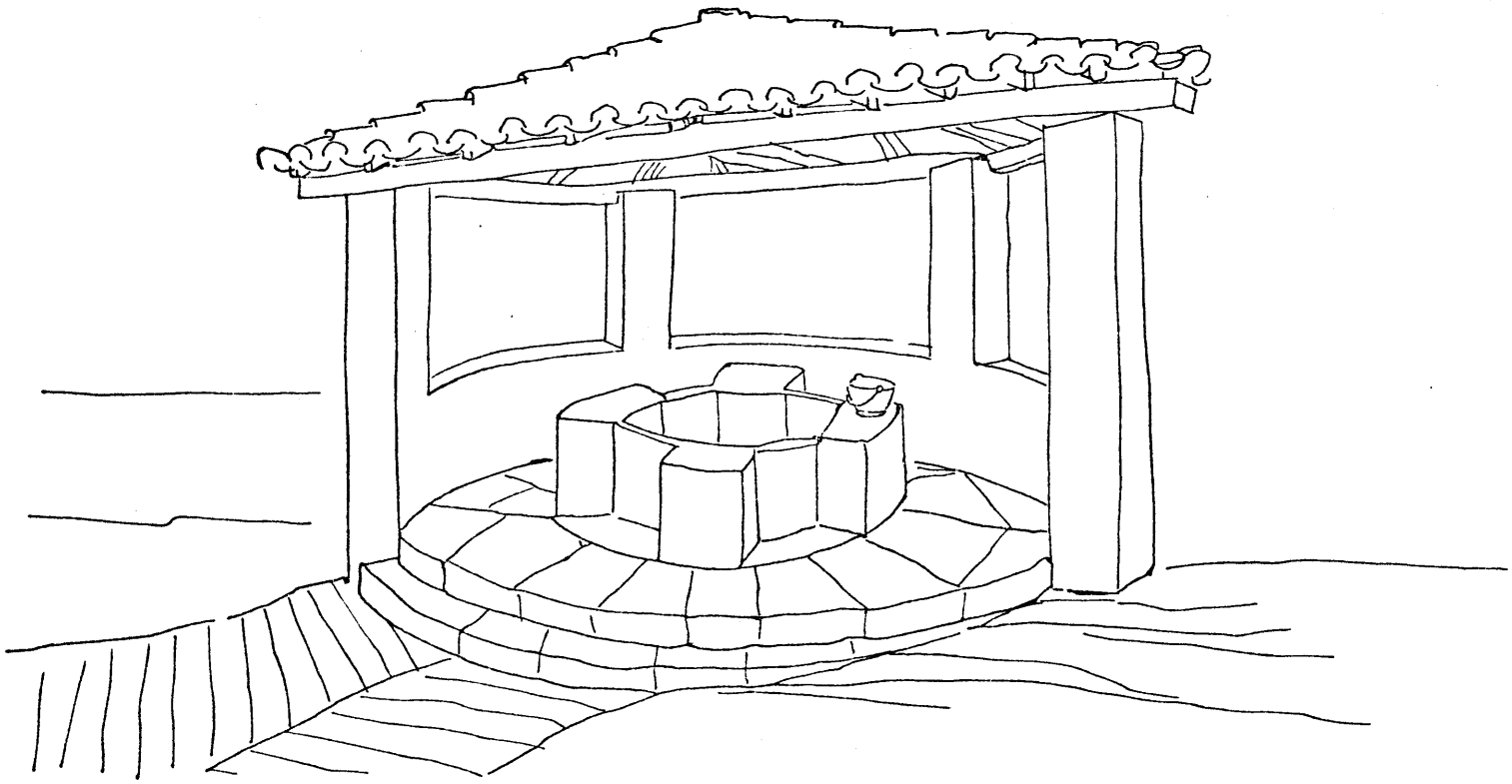


Figure 9. Skopelos

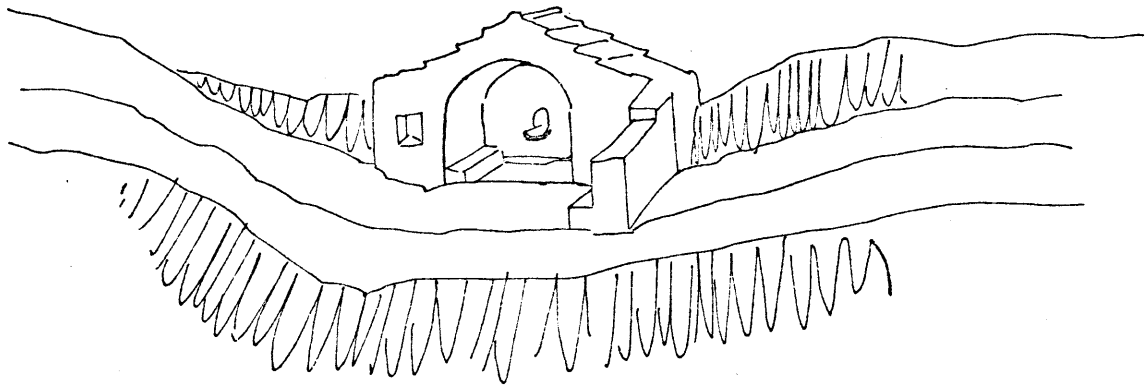


Figure 9a. Pirgi

Figure 10. Milos

functional evolution, tend towards and are subjected to the same discipline, thus creating their unity while retaining their individuality within the realm of Greek popular art.

Within Greek popular architecture, we find most of the basic principles of modern architecture applied. The house responds to the basic needs of the inhabitant and is not primarily concerned with aesthetic virtues. The plans were studied--possibly only mentally or on the site--and were carried out by one mason-architect who was simultaneously chief builder and craftsman; which gave him the freedom to find solutions bordering between reality and fantasy.

The beauty of the houses, both inside and out, is a result of the orthological forms, depending upon and simulataneously resulting from the techniques that were used. The popular architect creates the house with a sense of measure, which is supported by the human needs of the construction; it prevents him from creating extravagant, metaphysical, or romantic elements. He thus achieves a synthesis of balanced forms with a plastic whole, where the human emotions blend with the technical mental austerity.

The results towards a homogeneous unity prove that popular architecture could not exist without discipline towards certain principles, theoretical but, nonetheless, without these becoming panacreas or formulas, monolithic, unchanging, and never evolving.

When the house wasn't built at once, it would be completed in a prudent way. If new needs and new techniques present different problems, the builder uses them with courage, knowledge, and emotion.

And thus we have a startling advance tradition and progress, supplementing each other, facing the demands of reality. The construction and the expression of the work are transformed in a way that doesn't destroy its character. The basic spirit of architecture is not disfigured by the new methods and outlooks. Instinctively, these "natural architects" realised the basic truth: that art always depends upon its energetic esoteric evolution and not its superficial characteristics. For them, architecture was a natural expression, a "biological" phenomenon, and they felt its artistic and technical implications, its social meaning, and its historical significance. Due to the firm relationships that the popular architect set up between building and nature, the houses looked at, either individually or collectively, do not destroy the plastic structure of nature around them and do not disturb the natural surroundings with which they are harmoniously integrated, but complete it and give it life.*

---

*All figures in this section are adopted from: P. N. Tzelepis, Laiki Elliniki Architectoniki, Athens, 1971.

PART II

Tourism is a revolutionary new social expression. The concepts valid at the beginning of the century are now outdated; it should be met with new concepts. Tourism has become a mass movement ever since the worker's gain for a paid vacation has spread to all working classes; ever since young people set out to visit other lands; ever since great masses of people have acquired the desire to see and touch the great moments of past civilizations; ever since thousands of immigrants, benefiting from improved means of communications, return to visit their fatherlands; ever since people have felt the need to return to the wholesome archetypes of life. This need to return to archetypes constitutes a new driving force for tourism.

Commercial tourism, all of us should know, is nothing but an imaginary source of income, since the social conquest it represents will soon spread to all countries. In the place of commercial tourism we should try to create an entirely new system of ideas. "Tourism" (mass migration stimulated by social, economic, artistic, or religious motives) has been in the past a manifestation ideological and institutional in its roots and should acquire that very same expression today. Such gatherings still occur today. The great national celebrations, the celebrations at war's end, the Olympic Games, the great scientific congresses, the theatre, dance, and music festivals, the big visual arts displays, the old cities with their immense attractive power, the contemporary architectural expressions (Brasilia, Chandigarh, Ronchamp) are all causes for large gatherings. It is possible that with such an

ideological tourism based on institutions and motivations, a friendship between the people will be born. Perhaps behind the still confused wanderings and cravings of the masses of tourists lies this very claim.

But the existing methods for dealing with tourism tend to separate us. We create classes and groups. The local inhabitants become weary of those foreigners who come full of contradictory claims; with whom it is impossible to communicate and exchange on a cultural level. The main task at the present is to search, predict, and express on a large regional scale (which might eventually transcend national boundaries) future tourist trends. To foresee for cultural and natural recreations for the mind and body; to take measures for the preservation of old cities; to create opportunities for tourists; to participate in all the activities of a country while maintaining the natural, virgin character of selected regions in each country--this can be achieved, at least for the time being, with agile, flexible vacation settlements.

It would not be an overstatement to say that Greece stands as one of the most beautiful countries in the world. It has a mild climate, a bright sun, and an almost constantly clear sky. But aside from nature's blessings, it also has an abundance of beautiful landscapes, plain and simple in both shape and form, whether they be mountainous or on the sea.

But there exists something else within modern Greece--an anonymous popular tradition full of artistic sensibility where every building,

no matter how simple, reflects the same merits and qualities as its ancient predecessors. However, many contemporary Greeks, perhaps due to overzealous economic ambitions and social projections, tend to overlook the meaning of the landscape and ignore the deeper meaning, the more substantial truth, and the quality of the space that created them and still supports them both in body and mind. We have only to look around and notice (houses, roads, streets, gardens, neighborhoods, villages, cities) how much buildings have in common with nature and with the works of those who lived in the same places before us. We have only but to open our eyes and see whether the landscape--our natural surrounding--retains its character and its natural artistic quality; whether our every work (small or large) fits in harmoniously with its environment every time and even whether the particular building is what the landscape and the surroundings call for in its organic substance, its function and functionality, and its aesthetics.

The problem for Greeks of modern times is indeed very difficult. Since this is an area which has as its major characteristic simplicity combined with landscapes having such specimens of antiquity, we are forced and bound--historically we could say--towards a responsible action. And if in other places which do not have such a heritage, people seem to live more comfortably, more plainly with only material comforts with no plasticity and no historical or artistic background, in Greece we have the moral and biological obligations to transform our actions and our material needs into forms and beauty and quality and anthropometric usage.

Bad architects, bad technicians, spiritually immature men from all social classes (together with bad politicians for so many generations) have inundated the land with ugly works. And whenever newly arising needs are to be sheltered, this is done in a hasty, haphazard, and ugly way compelling men to live devoid of the fundamentals conducive to a sense of enjoyment in life. Similar things happen with tourist constructions on mountains, on beaches, on islands, in historic old towns, or next to priceless archeological sites.

The problem is an economic, social, organizational, even a political one (isn't the land being sold day by day to foreign businessmen). But essentially the problem of tourism is identical to the problem of our life at large. And if we don't protect the landscape, the monuments, the historical heritage, the beauty of the land--if we don't respect ourselves--how shall we offer hospitality to foreign visitors, to "tourists" who come to Greece for its monuments and for its history? How will these people enjoy their vacation if we force them to live in ugliness, chaos, and aesthetic barbarism? And for how long will they keep coming to Greece when they finally discover that "Greece" is no more because for their sake (!) we have destroyed the landscape, the monuments, and the beauty which they longed to know and live next to.

Twofold are the goals of a tourist program to satisfy a common denominator of tourist needs; and to use the tourist energy effectively to promote the way of life of a country. But the needs of the tourists and the way of life in Greece, a country undergoing its industrial revolution, are in a state of rapid change which implies that a tourist

program has to be open and flexible in order to hold some long-term validity. This, however, does exclude the existence of "constants" within a long-term program. Since the tourist program in Greece is on an uprise, a long-term program should be prepared to meet the problems created by the tourism of great numbers which often leads to destructions hardly compensated by the economic benefits such tourism might include.

A long-term program in the realm of seaside tourism could be formed out of four "constants" which are:

1. A system for providing the "natural goods" of seaside tourism.
2. An infra-structure system.
3. A system for providing architectural spaces.
4. A system for diffusing the economic benefits resulting from the seaside tourism of great numbers.

In order to set this problem within its proper perspective, i.e., in relationship to existing conditions in the European realm, I now wish to insert a condensed translation of an article by S. Vagianos, architect and city planner, which appeared in the 1969 edition of "Architectonika Themata." I believe that the article presents a number of facts which are of importance to understand the realistic position Greece is in, tourist-wise, with respect to her European neighbors.

"a. Every effort for quick and continuous growth in an underdeveloped country, when it doesn't have as its goal the betterment of all the levels of the organizational pyramid, is doomed to insignificant results. A precondition for the success of any desired

betterment is the confrontation of the whole of the problems of every aspect of development.

Before every effort of development, there must occur a reasonable and correct evaluation and hierarchical positioning of the more general socio-economic factors involved in the long-range programs of the country within the frame of bettering the individual according to national objectives. Only in this way can a country hope for fast and continuous growth.

b. The general direction of the necessary actions, the methods and the scale with which the tourist problem must be attacked, must necessarily be based upon the development of tourism up to date. The way in which recreation, travel, and group-tourism have developed is shown in Chart 1.

c. Tourism in Greece must be formed by two basic facts. The first, that we have one hundred days of vacation (work stoppage) per year with a perspective of 130-150 days, as is the case in most developed countries. In other words, almost a fifty-fifty split. According to United Nations statistics, 50 per cent of a developed country's population takes place in tourist activities every year (30 per cent approximately local population, 20 per cent moving towards other countries, and 20 per cent approximately, tourists arriving from other countries). This indicates, in a way, an opposite trend with respect to urbanization and indicates that the state must cope with vacation as it does with regular working days.

CHART 1 : Historical Development : Recreation - Travel - Group Tourism

Cycle	Period	Various Forms of the Tiptych	Era
Inwardness	Kings and rulers	The second dwelling of prosperous Egyptians The heavenly gardens The golden century without labor	Pharaohs Persian Kings Ancient Greece (5th century)
	Organization of the State and Public Works	Hunting and fishing (as organized sports and recreation) Vacation of students and judges Institution of calendar with 135 vacation days per year	Roman State
	End of the "Mythical" Ages		
Outwardness	Moralizing revolution	Pilgrimage to Holy Lands	High point of Christian church
	Sanitary and social revolution	Healing baths, sea baths, and villas Vacation with compensation	Period of peak and predominance of medical factors (1916) Predominance of political factor (1936 Leon Blum)
	Technological revolution	Tourist cities (resorts) International tourist currency (in various forms)	Predominance of business factor (1956) Predominance of market factor (1966)
	End of historical ages (or historical necessity)		
	Humanistic sciences		? (1976)

Another fact is that tourists spend about 10 per cent of the gross national product of a developed country while their transportation accounts for 40 per cent of total transportation revenues. This is indicative of the fact that tourism-vacationing now belongs within the realm of communication-transportation-group tourism.

d. A major factor in the development of tourism today is science and its collarary, technology, whose active role in the political life of developed countries is an established fact. Technology determines the objectives, potentialities, time of realization, and cost of every tourist project.

e. Our tourist policies move within the policies which are dictated by the need to attract foreign currency. Undoubtedly, the positions and the goals of Greece within the European realm dictate general governmental policies. It has been shown, though, that the economy tends to progress quite randomly when there is a lack of social goals. For the same reason, the tourist problem must be attacked within the same framework, always respecting human values.

A few facts are indicative of the seriousness of the tourist problems:

1. Italy's share of world tourism is 10 per cent while Greece's is only 0.9 per cent.
2. International tourism has an annual growth rate of 12 per cent while for local (Greek) tourism the growth rate is 5 per cent.

3. Lower income groups increasingly participate in tourist activities. This fact is behind the French government's decision to build resort facilities for one million tourists at Lauguedoc.
4. Rothchild accommodates over half a million tourists in his forty-five "villages" spreading from the Mediterranean to the Pacific.
5. In 1966 alone, Italy built the equivalent of 70 per cent of all hotels existing in Greece.

Therefore, before proceeding with other programs, the state should conduct a market research in order to define the basic framework within which our tourist policies should evolve. This research should cover the following items:

1. The net per capita exchange income.
2. The exchange volume in relation to imports (in order to determine the income groups to be attracted).
3. State of demand (in order to plan for tourist investment and promotion campaigns).
4. Return of private capital invested in tourist enterprises (in order to provide the necessary incentives).
5. Tourist prices (so as to maximize returns).

Market research is outside the scope of this study, even though it constitutes the basic prerequisites for a short-term handling of the problem; the drafting of a master plan covering the entire country is necessary for any consistent and long-term programming for our tourist development.

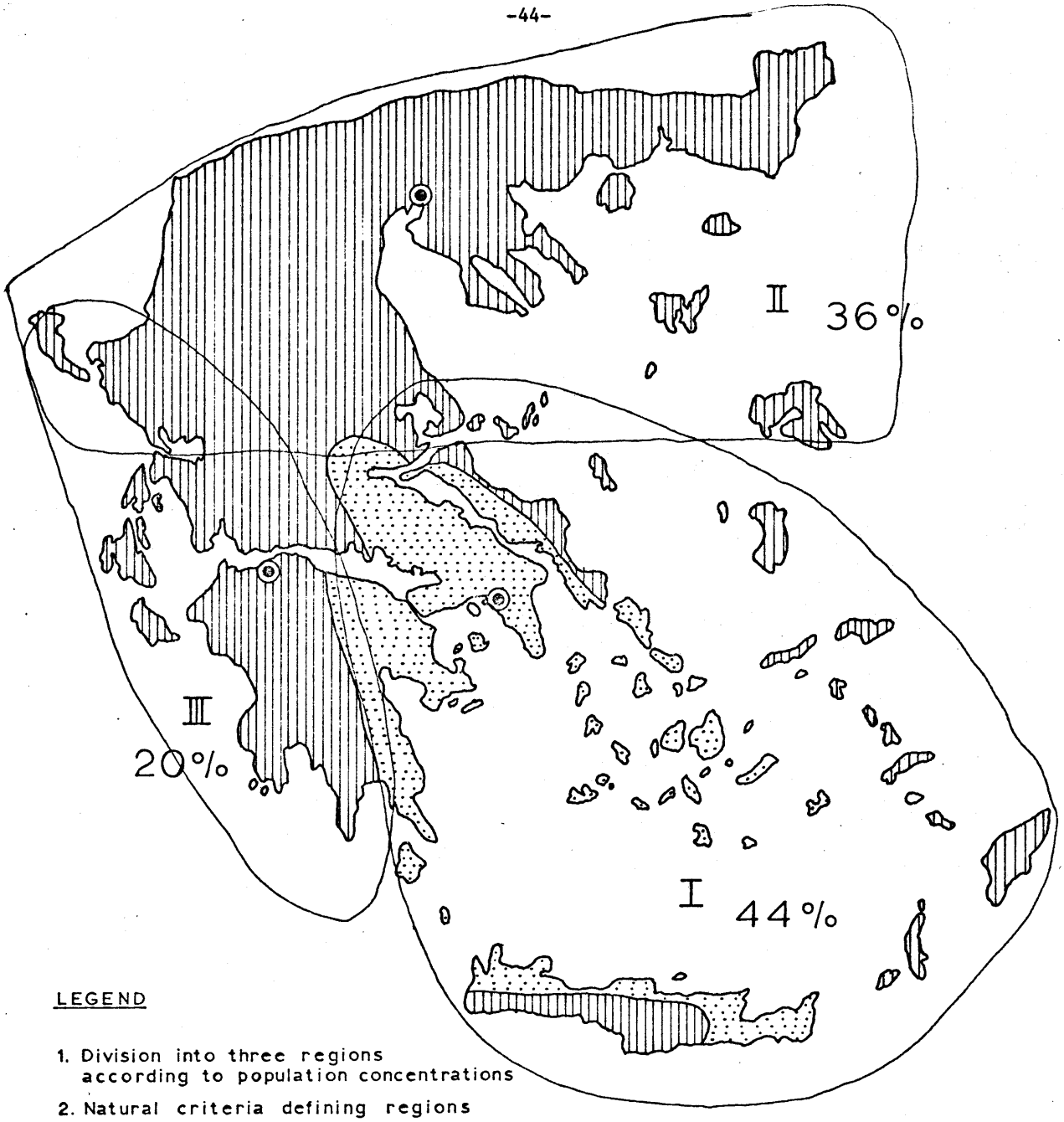
Physical conditions, infra-structure, and population trends define three main regions in Greece with Athens, Thessaloniki, and Patras as

their centers (Fig. 11). These large population concentrations develop various recreational facilities which gradually evolve into hotels and then general resort areas. Such tourist poles are created in spite of the fact that other places may be more beautiful and more interesting. For example, the tourist traffic in Mykonos is thirty times greater than in Skyros.

But when we move from the cycle (recreation-excursion-vacationing) to the cycle recreation-travel-group tourism where foreign visitors are also expected, comfortable facilities alone are not enough; climatic conditions, local vegetation, and length of summer season are equally important considerations. In other words, we are forced to take the natural environment into account before assessing the value of each region (see Chart 2).

Because of its mild and dry Mediterranean climate and the long duration of its summer, Region I (Figure 11) is the most suitable for important tourist installations. Due to the strong vertical and horizontal division of the country, the climate is more basic a factor than the topological conditions in the development of the flora. This is another advantage of Region I. Koppen's international climate chart shows the unique advantages of the Aegian Sea (and especially of the Cyclades) as compared to other dry and warm regions of the world (Fig. 12).

Aside from the above-mentioned factors which attract tourists, but also permit the establishment of prosperous tourist developments, we must also bear in mind that Region I includes almost the sum total of



LEGEND

1. Division into three regions according to population concentrations
2. Natural criteria defining regions

damp climate - warm summer relatively short summer season

dry climate - cool summer relatively long summer season

Figure 11.

CHART 2

a. Population distribution

	Inhabitants	
Region I	3,700,000	(44%)
Region II	3,000,000	(36%)
Region III	1,700,000	(20%)

b. Population of capital cities

	Inhabitants	
Athens	2,000,000	(23%)
Thessaloniki	380,000	(4.5%)
Patras	100,000	(1.3%)
	2,480,000	(30%)

c. Capital regions re population

	Inhabitants	
Athens	2,000,000	(23%)
Macedonia	2,000,000	(23%)
Peloponnesos (including Aetoloacarnania, Kefallinia, and Zakynthos)	1,500,000	(17%)
	5,500,000	(63%)

INTERNATIONAL CLIMATIC CHART BY KÖPPEN

dry and warm summer climate

Greece's main competitors : ITALY, FRANCE, SPAIN, YUGOSLAVIA

Figure 12.

all important monuments (archeological) in the country. Thus, Region I becomes a standard with which tourist developments in other regions are compared to.

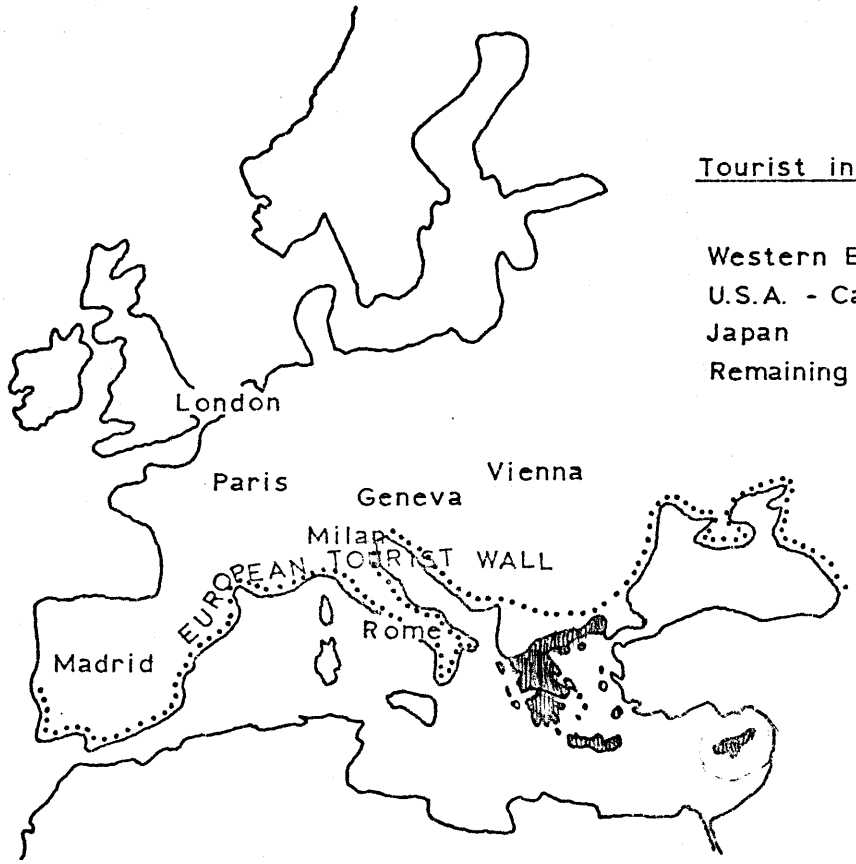
The next question which arises is to what scale must tourist developments be established. From Fig. 13, it appears as though there is a continuous European wall which should determine the scale of tourist investment in Greece. From Fig. 14, we observe that mainly three countries create the trends and tourist fashions in Europe, namely, France, Italy, and West Germany.

Figure 15 indicates the way tourist income is exploited in various European countries, through the promotion of their various means of public transportation.

Greece produces neither cars nor petrol. While Italy has everything to gain from the construction of tourist highways which will inevitably boost its car industry, Greece must construct only the absolutely necessary roads for local use and think of their application to tourism as secondary. Naturally, productive roads should be enlarged if they also happen to serve tourist needs and if they are included in the list of priorities by the corresponding development program. We thus arrive at a general classification of touring and tourist areas as shown on Figs. 16 and 17."*

---

*S. Vagianos, Tourism, Recreation-Travel-Group Tourism, Architektonika Themate, Athens, 1969, pp. 126-133.

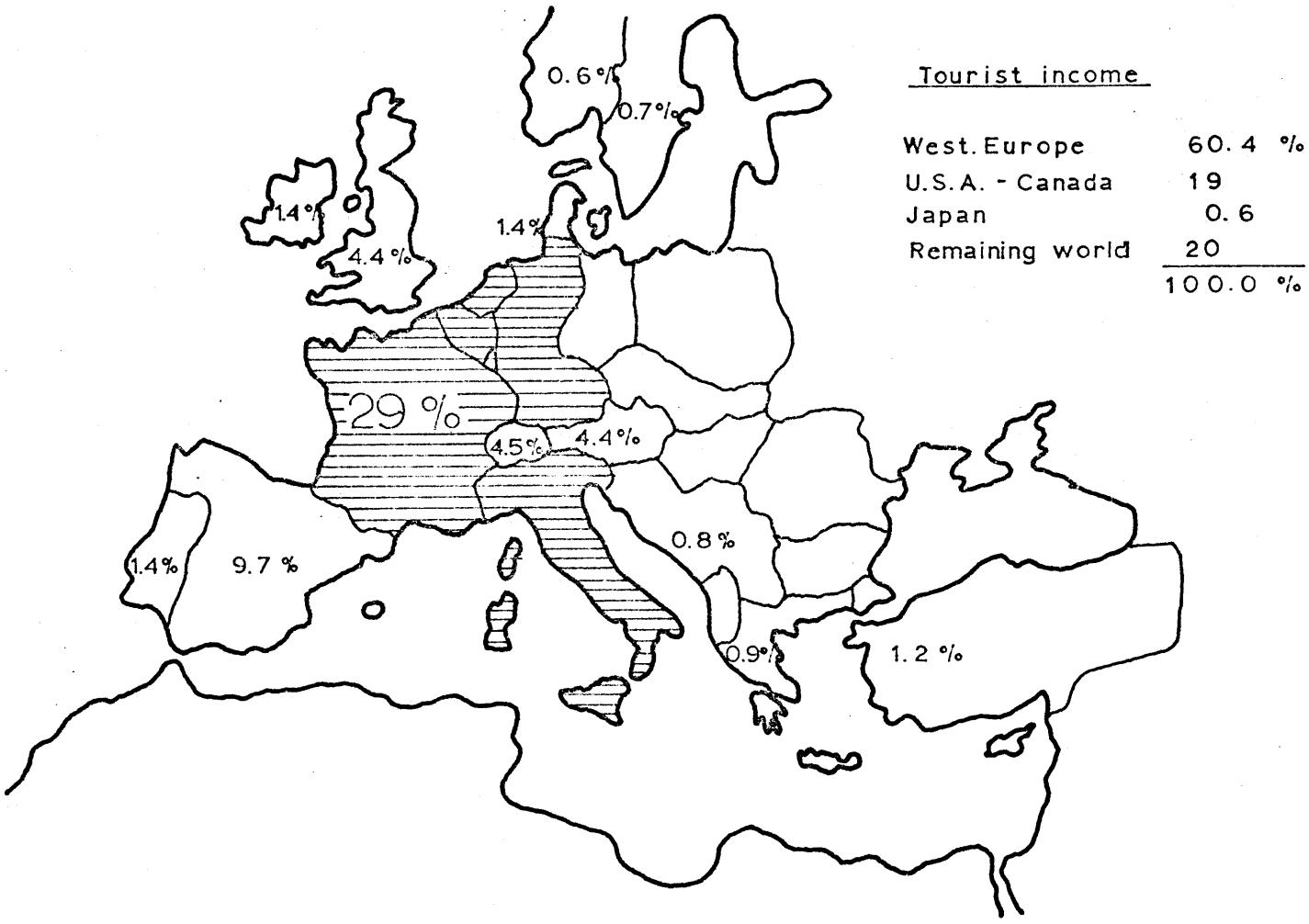


Tourist income

Western Europe	60.4 %
U.S.A. - Canada	19
Japan	0.6
Remaining world	20
	100.0 %

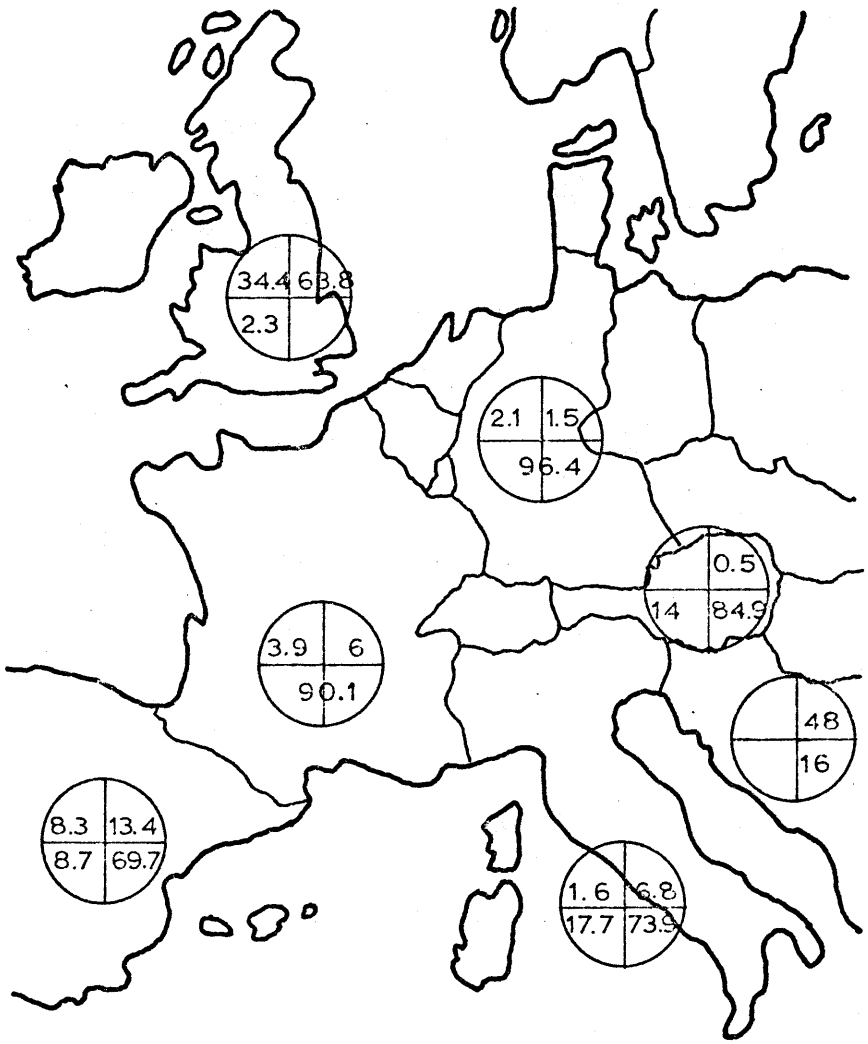
General criteria determining the scale of tourist installations.

Figure 13.



Percentage value of tourist income per country (1966).

Figure 14.



Tourist use of public means of transportation

(all numbers represent percentages)

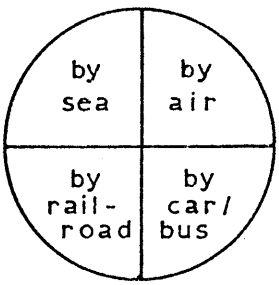


Figure 15.

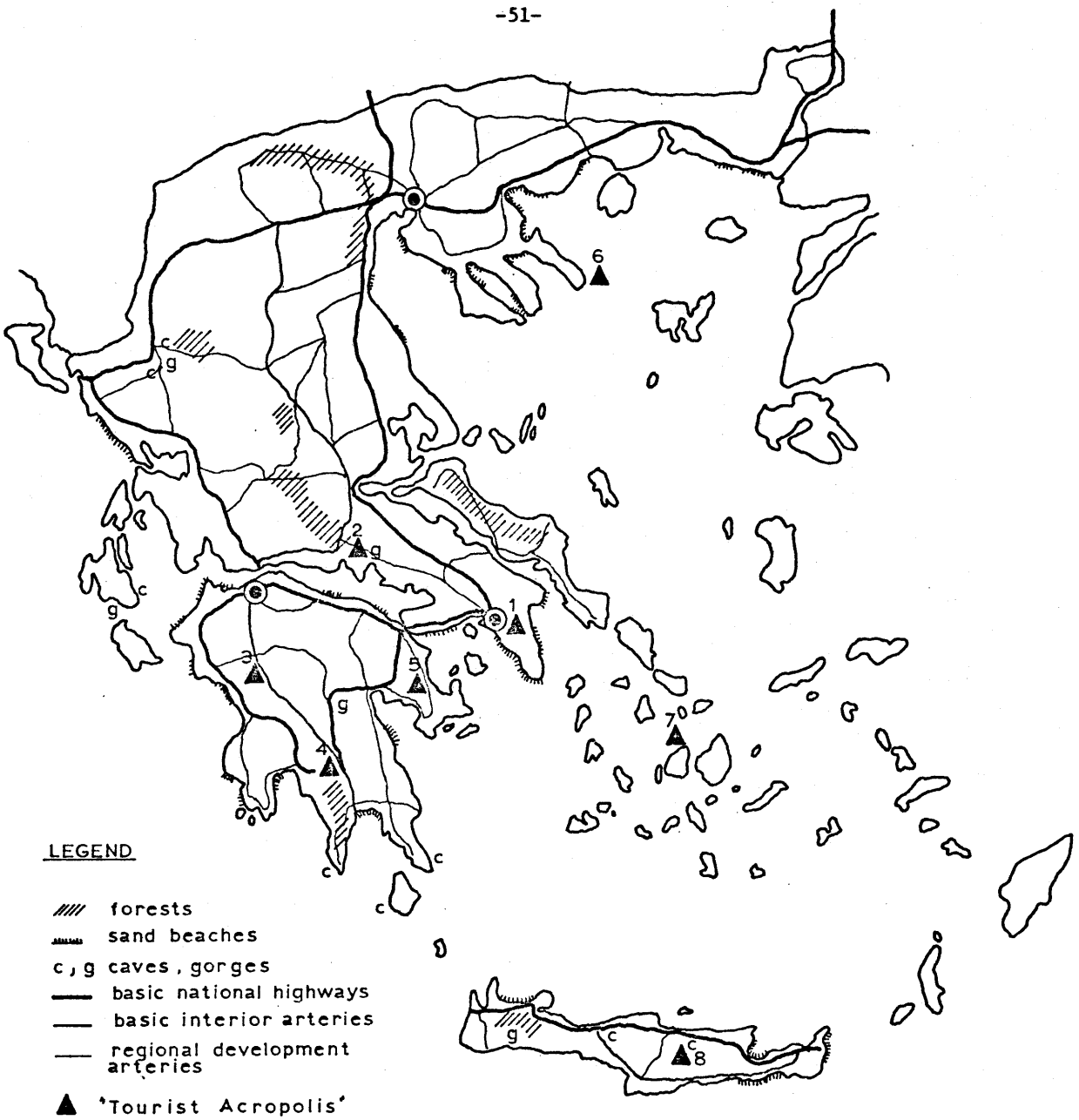

LEGEND
forests
sand beaches
c, g caves, gorges
basic national highways
basic interior arteries
regional development arteries
'Tourist Acropolis'
1 Athens
2 Delphoi
3 Olympia
4 Mystras
5 Epidavros
6 Mount Athos
7 Delos
8 Knossos

Figure 16.

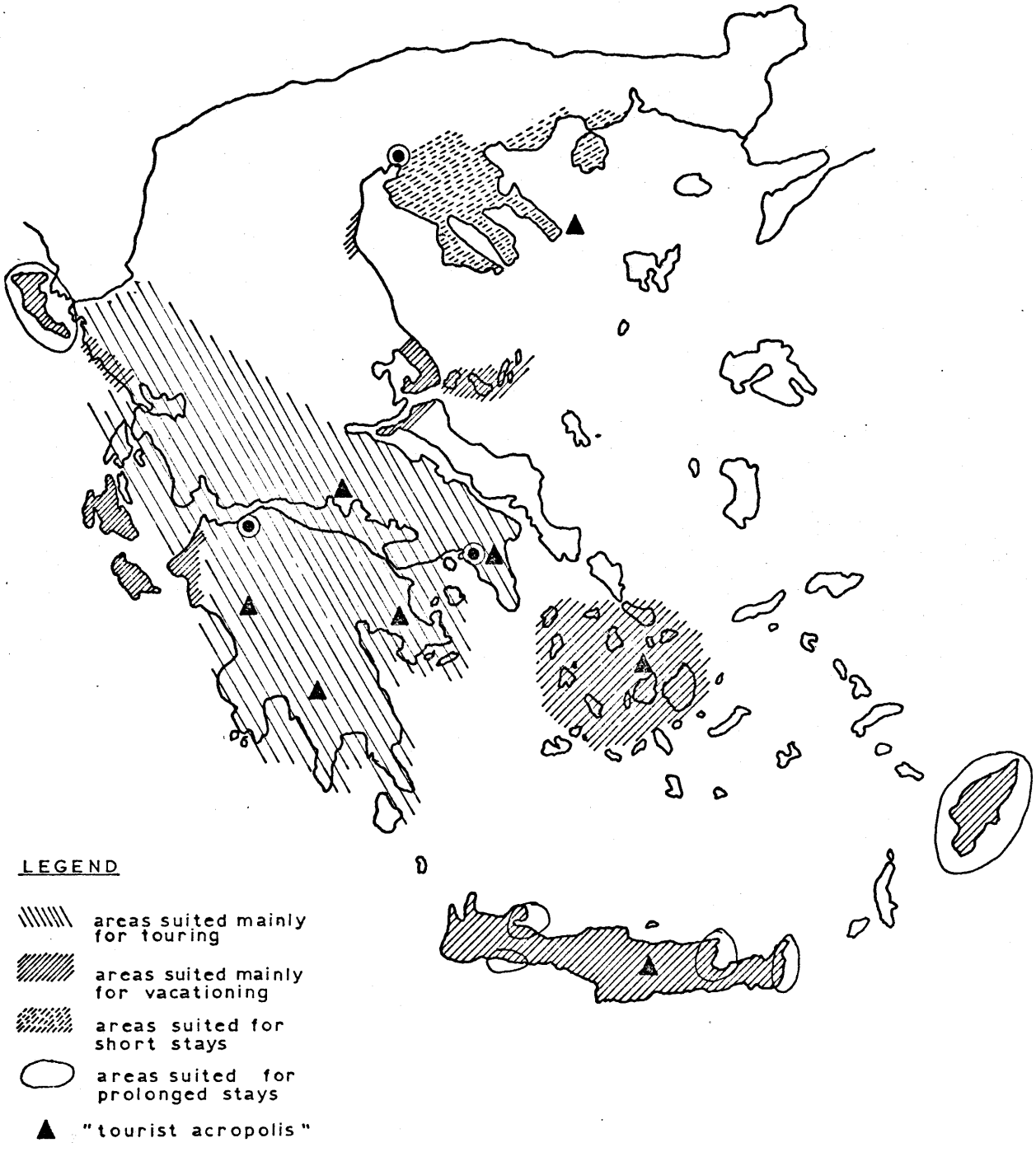

LEGEND
areas suited mainly for touring
areas suited mainly for vacationing
areas suited for short stays
areas suited for prolonged stays
"tourist acropolis"

Figure 17.

PART III

CHAPTER 1 - ORIGINAL PROBLEM

I. INTRODUCTION

In the end of 1962, the Ministry of Coordination in Greece published the general regional development plan for Crete, which contained, apart from an evaluation of the economic potential of the island, an outline of preliminary programs and criteria for determining priorities. It also set up the Service for the Regional Development of Crete.

A preliminary analysis by F. Basil had shown that Crete will play an important role in the tourist development of Greece to render it competitive to the Mediterranean front of Spain, France, and Italy.

The main objectives of the plan were: the Messara plain, oil production, tourism, and the sub-urban settlements of the island. Thus the studies already completed include master plans for (tourist) regional and tourist development, as well as town plans for some important sub-urban settlements.

However, experience has shown that most development plans drawn up in the past were never put to use, because architects are usually unaware of the way state services work and ignorant of the economics involved in programming. Often, therefore, the present solutions are at best theoretical.

But due to the lack of anything else, I shall include in outline form various points and characteristics of the "Master Plan of Agios

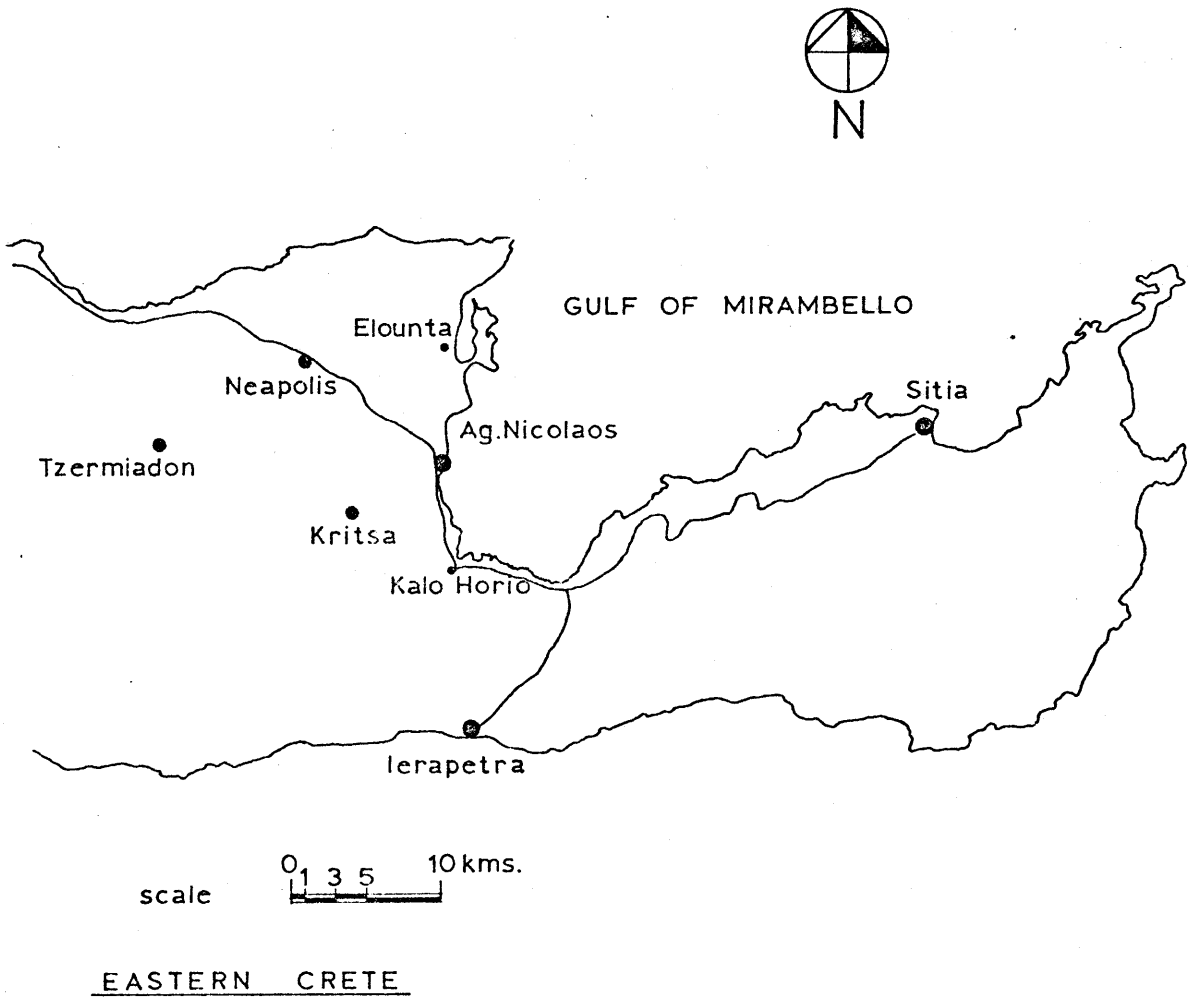
Nicolaos and of Tourist Development of Gournia and Elounta" by architects-city planners, A. Aravantinos, P. Loukakis, D. Kontargyris, and A. Lambakis, as presented to the Ministry of Coordination in order that I might give a sense for the scale of planning and development for the region which, of course, includes the site of my project.

This master plan covers the town of Agios Nicolaos and the projected tourist developments for the regions of Elounta and Gournia. For convenience sake the "greater area of Agios Nicolaos" was determined as shown in Fig. 18. For this region the following are projected:

a. Agios Nicolaos will be the main administrative center with simultaneous development of two other basic poles, namely Ierapetra and Sitia.
b. The Gulf of Mirambello will constitute the main zone of attraction for tourist development, having Agios Nicolaos as the major urban center for tourist activities and minor ones at Elounta and Kalo Horio. Main visiting areas, aside from the above-mentioned areas, will be centered at Gournia, Kritsa, and the Lasithi plateau.
c. Agriculture presents few opportunities for growth.
d. Industry will develop into small units producing items primarily for local consumption.

For the regions in question, the following data were gathered and projected:

1. The population of Agios Nicolaos, presently (1969) at 4,000 will reach 7,000 inhabitants by 1980 and 12,000 by 2000. Its work force will climb to 4,200 by 2000. Of these 1,250 will be involved in tourism, 1,800 in other services, and the remaining in handicrafts and agriculture.



EASTERN CRETE

Figure 18

Approximately 2,000 beds will be required for tourism and, of course, eating places, recreation, and entertainment areas. Roughly 3,000 new houses will be needed.

2. At Elounta, which has a large potential in comparison with the entire Gulf, a projected 2,000-2,200 beds will be required, scattered in hotels and vacation houses; restaurants, sports areas, marinas, recreational spaces, etc.
3. Gournia is projected to require a tourist pavillion and development of the archeological sites. After completion of the Gulf of Mirambello developments, beach facilities might be required here as well.

II. SITE AND TOPIC SELECTION

Initial preliminary studies for the site under consideration were made by architects E. Nemeti and E. Papademetriou. However, due to the inertia which characterizes the Greek government when dealing with developments of this type and also due to a lack of sufficient private initiative, the original proposals, and plans were never carried out. This, however, does not diminish the interest and challenge which this type of project has. The entire topic was presented to me by Miss Papademetriou, and simultaneously, I was asked to modify and change the original outline, making it more feasible and plausible. I will mention the basic characteristics and requirement of the original outline and proceed to point out the changes performed by giving a detailed analysis of my proposed program and solutions.

III. MAJOR CHARACTERISTICS OF ORIGINAL PROGRAM

"For the program we planned three phases of development. The first phase will be treated as our detailed architectural program and design and would be a 1,000-bed development for Lygaria.* The second stage and of similar size will be that of the Gulf of Mirambella. Before that, a 300-bed hotel can be added on the Mirambello beach, using part of the recreation area as construction grounds (not harassing the good operation of the establishment). More condominia can be also added. The third phase will be an extension of both and will include more of rentable accommodations plus possibility for private villas and a cultural center with an open-air theater, a cinema theater, a small museum for folkloric art, children's playground, a post office and bank branch, and all facilities suited for a settlement that will have to accommodate 2,000 to 3,000 people.

Analytically, our program for the first phase will include the following:

A. A central hotel: 300-bed capacity, including

1. Bank; gift and smoke shops
2. Cocktail lounge
3. Bar
4. Coffee Shop
5. Swimming pool
6. Shopping center

---

*Another development, similar to the one in Mirambello.

7. 600-seat convention hall

8. 300-seat restaurant

B. A village development; 500-bed capacity including

1. Reception building

2. Lobby

3. Office

4. Coffee shop

5. Snack bar

6. Taverna

7. Little stores and shops: antiques, Greek souvenirs, etc.

8. Bar - cafeteria - espresso shop

9. Fish restaurant

C. Condominia--200-bed capacity

D. General facilities including

1. Yacht club - night club with a 200-seat restaurant

2. Small boat storage and cabanas

3. Yacht service and boat storage

4. Skin diving and equipment renting

5. Stables for horseback riding

6. Hunting equipment for storage and renting

7. A small all-denominational chapel to form a landmark for the development

8. Sports and recreational facilities

a. Tennis

b. Basketball

c. Volleyball

d. Swimming

e. Sand tennis

f. Water skiing

g. Miniature golf

h. Horseback riding

i. Hunting

j. Free land for multi-purpose use,"*

---

*"Aeria" development for Lygaria and the Gulf of Mirambello, Crete; E. Papademetriou, E. Nemeti.

CHAPTER 2 - MODIFICATION AND PROPOSED PROGRAM

I. INTRODUCTION

In view of the "Master Plan of Agios Nicolaos and of Tourist Development of Gournia and Elounda" by Aravantinos, Loukakis, Kontargyris, Lambakis which was mentioned earlier and of the projected development for the Agios Nicolaos region in general, it is my opinion that the proposed solutions for Mirambello beach by Papademetriou and Nemeti are too far-reaching. Their projected expansions for tourism will then cover the entire projections for the entire region. Therefore, it is my opinion that the entire plan be revised and condensed always bearing in mind the feasibility of final construction.

Consequently, due to the size of the development, even after alterations and modifications, the financing of the development is a predominant factor. Therefore, I shall proceed to state management/ownership problems and practices as well as phases of development before proceeding to the actual program itself, so that these realistic guidelines may be established in the beginning in order to avoid any possibilities of going astray with unrealistic/unfeasible proposals.

II. MANAGEMENT AND OWNERSHIP

When one speaks about developments of this size, bearing in mind the economic situation and the realities of Greek life, we must always consider the government as the major financier of the project. The way these businesses usually work is through an initial private initiative, presenting proposals and plans--economic and physical--to the Ministry of Coordination seeking approval and assistance. If and when

approval is granted, a long-term loan is arranged through the Bank of Greece, and thus total funds for the project are guaranteed. Private funds of the individual or agency initiating the project usually run anywhere from 10 to 50 per cent (usually around 20 per cent). After completion, the individual or group pay the government back by a pre-arranged percentage of the gross returns, usually set (the percentage) at 15-20 per cent. Note: Agency will now mean the individual or group in charge of initiating, following through, building, and managing the development and will be referred to as such from here on.

Thus, we will have an agency managing the entire development as well as handling the houses to be sold to private individuals. The agency will manage the hotel, cabanas, and all rentable houses (either long or short term). Servicing of all these facilities will be performed by the same agency. Smaller commercial and handicraft facilities (shops) will be owned and operated by local inhabitants who also live within the development in privately owned houses, either part of their commercial shops (i.e., second story with living quarters) or elsewhere within the village. Employees of the agency either live in housing specifically provided for that purpose, or in privately owned houses within the village, or elsewhere in the region (Ag. Nicolaos, Kalo Horio).

The above-mentioned agency is, of course, in charge of promotion and advertisement of the development locally, nationally, and internationally. Arrangements for vacationing and reservations are made

through tourist and travel bureaus in Greece and through the offices of the National Tourist Organization of Greece for foreigners outside of the country. Individuals must contact the agency directly when interested in purchasing a house. The agency will present the perspective client with a range of drawings and locations within the development to select from and, in case an agreement is reached, assume the construction responsibilities. Minor changes and alterations might be allowed when feasible, but always maintaining the final product within the realm and style of the overall development (i.e., height, maximum number of stories, type of roof, size of house, total area, etc.).

III. PHASE DEVELOPMENT

Quite obviously, it would be very difficult indeed, if not impossible, to carry through the presented proposals at once and construct the entire development at once. Consequently, construction procedures must be scaled down and carried out after assessing the economic potentials of all elements.

Certain characteristics must always be kept in mind:

1. Size of the development and its overall scope.
2. Time factor in considering construction.
3. Financial factor of all parts and of the whole.

We must always take the realities of functioning of the Greek government as our guidelines, if indeed we wish to remain within the realms of plausibility.

Bearing in mind the costs of construction in Greece at the present (materials and labor), we can set the following criteria:

1. Hotel: Construction (for a Class A) will run in the vicinity of 150,000 drachmas ($5,000) per room.
2. Cabanas: 100,000 drachmas ($3,300) per cabana.
3. Houses: 1,200 drachmas ($40) per cubic meter of housing construction.

Extrapolating upon these figures, we estimate that the approximate cost of all the housing elements (hotel, cabanas, houses) of the development will reach 80 million drachmas (2.6 million dollars).

Naturally, such a sum to be financed is not realistic on the part of either the government, nor on the part of a private individual, as a lump sum. Therefore, a more plausible approach is called for. Specifically:

Phase 1.
- a. Initial financing of 18 million drachmas (600,000 dollars) for the construction of the hotel.
- b. Simultaneous development of street and road system (circulation network) within which the development will later be constructing.
- c. Parking facilities for fifty cars.
- d. Marina development and yacht facilities.
- e. Beach facilities on north side of peninsula.

Phase 2.
- a. Cabana construction.
- b. Expansion of path network on north side.
- c. Expansion of beach facilities along the shore (north-west).
- d. Some commercial facilities near the hotel; initial formation of village square.

Phase 3. a. Construction of neighborhoods, evolving radially around newly formed village square.

b. Expansion of commercial stores and shops.

c. Simultaneous efforts of agency to sell houses to interested individuals; construction of such.

d. Expansion of paths on south side of peninsula.

e. Parking facilities move outside of development making circulation mainly pedestrian.

f. Construction of housing for local inhabitants/employees.

g. Sports facilities.

Phase 4. a. Continuous growth of neighborhoods according to demand.

b. Simultaneous development of path network.

c. Recreational facilities.

d. Expansion of sports facilities.

e. Parking facilities grow according to demand.

IV. DESCRIPTION

A. Introduction

The selected site is situated approximately seven kilometers southeast of Agios Nicolaos in Eastern Crete. The National highway (two lanes) connecting Iraklion - Agios Nicolaos - Sitia defines the site area south and west and the Mediterranean on the north and northwest. It encompasses an area of roughly 250,000 square meters (approximately 62 acres). There are two large sand beaches enclosed in the site while it is almost totally covered with olive and orange trees.

Since the aim of the development is at attracting tourists and visitors, both Greek and foreign, it is necessary to provide a

stimulating and yet peaceful environment. Basic to the design is the desire to create a place which becomes one with the landscape, that minimizes the built area (thus maximizing open terrain), and is in line with the vocabulary of Greek island architecture.

The development is approached by either car or boat. There are also government plans for the development of hydrofoil facilities linking Iraklion and Agios Nicolaos.

The program itself consists of the following basic elements:

1. A central hotel; 200-250-bed capacity
2. A village development; 600-bed capacity
3. Cabanas; 50-75-bed capacity
4. General facilities; including
    a. Restaurant (s)
    b. Snack bar (s)
    c. Tavernas
    d. Yacht club - night club
    e. Yacht service/marina
    f. Skin diving facilities
    g. Water ski facilities
    h. Chapel
    i. Sports facilities
    j. Parking area
    k. Commercial shops
    l. Tourist shops

B. Criteria and Characteristics

1. Natural Characteristics

a. Soil Conditions: rocky terrain, no special provisions for foundations are required; low water table.

b. Earthquakes: practically zero seismicity, although building codes call for certain provisions; i.e., total area of columns must be equal to or greater than 1/800 of total floor area.

c. Sun: approximate latitude of site is 35° N; the following table applies.

A. M.	P. M.	Azimuth		Altitude		Season
Noon		180°	0'	31°	30'	
10:00	2:00	149°	30'	25°	0'	Winter
8:00	4:00	126°	30'	8'	30'	
7:10	4:50	119°	0'	0°	0'	
Noon		180°	0'	55°	0'	
10:00	2:00	135°	0'	45°	0'	
8:00	4:00	108°	30'	24°	0'	Spring and Fall
6:00	6:00	90°	0'	0°	0'	
Noon		180°	0'	78°	30'	
11:00	1:00	127°	30'	72°	30'	
10:00	2:00	105°	30'	61°	30'	Summer
8:00	4:00	85°	30'	37°	0'	
4:50	7:10	61°	0	0°	0'	

d. Flora: most of the site (80-90%) is covered with olive and orange trees, as is evident in the photographs. Low bushes line most of the length of the road. The peninsula within the site has less trees (comparatively speaking) and will probably require some planting during the construction. Palm trees, also prevalent on the island, can flourish here as well.

e. Wind: Prevalent north and northwest winds tend to cool the region during the hot summers. They are not a serious problem though as far as the beaches are concerned since their orientation is towards the east and the extension of the coast towards the north protects the coast of our site.

f. Noise and Air Pollution: No existing industry in the vicinity. These problems are virtually non-existent.

C. General Characteristics

Crete, in recent years, has been given more attention as far as tourist potentials are concerned than ever before. Both the government and private investors have realized its potential due to a conglomeration of diverse physical characteristics as well as a number of archeological sites of major interest. As an indication of this growing interest, we have an increasing number of hotels and tourist developments going up. In other words, taking into account the history, the natural beauty, and the ideal climate of Crete, as well as the well-known hospitality of the local inhabitants, there is no doubt that the reasons tourists and visitors come to Crete are justifiable.

In and around the Agios Nicolaos area, there is at the present time only one major tourist development, this being the Minos Beach establishment (bungalow-type hotel). We are not considering two or three hotels of small capacity within the town. Considering the expected rise of the tourist inflow, as well as the previously mentioned master plan for the region, we notice that no provisions have been made for the Mirambello beach area. Consequently, our proposed development is definitely in line within the general framework and could expect a profitable return. Furthermore, the site of the proposed development is within reasonable distance of Agios Nicolaos (5-7 kilometers) and Kalo Horio (2 kilometers), thus providing contact with an urban center, if this is so desired. Similar developments, both in Crete and on other islands have proven to be quite successful economically. It would also present a different "style" of vacationing (other than a tourist facility within an urban setting) offering all expected luxuries and conveniences, which have become to be considered as "essential," i.e., easy transportation (access to and from), communications, services, recreational, entertainment, and sporting facilities, etc.

As far as access is concerned, we have a variety of ways to get to the development. Olympic Airways has direct service to Iraklion from Athens--three flights daily during the low season and six flights daily during the high season. There is also direct air service from Rhodes. The airplane trip from either Athens or Rhodes is approximately one hour. We also have ferryboat transportation from Piraeus to

Iraklion three to five times a week (high season) and one to two times a week during the low season. The sea voyage lasts for about ten hours. Once at Iraklion guests can either: (i) drive their own car to the development; (ii) rent a car at one of the many local agencies; (iii) use the development's bus service; (iv) use the hydrofoil to Agios Nicolaos (when and if the government decides to install this service). The ride from Iraklion to Agios Nicolaos is approximately one hour by car and another five to ten minutes from Agios Nicolaos to the development. International travelers can either go through Athens and proceed as above, or fly direct Iraklion International Airport and proceed from there.

Due to the nature of the proposed development, one can expect a variety of guests arriving at the village. Naturally, the variety of accommodations will reflect these differences. Most probably we will have:

a. Local inhabitants working and either living here or not, some for the entire year and others for the high season only.
b. Individuals owning houses and spending the better part of the summer here as well as visits during major holidays (Christmas, Easter).
c. Persons renting houses for usually the better part of the summer, mostly Greeks, but without excluding the possibilities of foreigners planning on a long stay renting houses as well.
d. Persons renting accommodations for a medium duration time period.
e. Transit visitors either staying for a short duration, or just passing through on their way to somewhere else.

Consequently, the housing accommodations must reflect these projected trends. I believe the following guidelines would be quite appropriate:

a. Houses will be rented out on a monthly basis with a possibility of converting this to a weekly basis if the demand does not meet expectations. This (the monthly basis) is common practice in Greece, most vacationers renting a house for the duration of the summer (three months).

b. The hotel (also being the first phase of the development) by nature cannot have restrictions on the length of desired stay provided that the necessary arrangements have been made before hand.

c. Cabanas again are usually rented by the month in most resort areas in Greece. This may also be converted to a weekly basis if deemed necessary.

It is only natural that prices will be accordingly set so as to reflect the above-mentioned guidelines.

D. Area Requirements

The program for the completed development incorporates all of the following facilities.

Analytically we have:

1. A central hotel--accommodating 180-220 guests in double rooms and suites. Space allocations within the hotel can be broken down into:

   a. Administration

      i. Accounting - 15 sq. m.

ii. Manager's office - 12 sq. m.

iii. Reception/concierge - 15 sq. m.

iv. Cashier - 15 sq. m.

v. Telephone and switchboard - 12 sq. m.

b. Guest facilities

i. Bar-cocktail lounge - 30 sq. m.

ii. Living room - 100 sq. m.

iii. Restaurant (250-300 seats) - 240-250 sq. m.

c. Service facilities

i. Kitchen - 150 sq. m.

ii. Employee's dining room - 40 sq. m.

iii. Steward's storage - 55 sq. m.

iv. Beverage storage - 20 sq. m.

v. Receiving room - 20 sq. m.

vi. Garbage room - 10 sq. m.

vii. Laundry - 95 sq. m.

viii. Maintenance shop - 65 sq. m.

ix. Furniture storage - 40 sq. m.

d. Guest accommodations

i. Double room - 20 sq. m.

ii. Suite - 40 sq. m.

All guest rooms have private bathrooms including bath, toilet, bidet, washbasin. All rooms have private balconies.

e. Guest room services

i. 1 maid room per floor - 20 sq. m.

ii. 1 office per floor - 20 sq. m.

iii. 1 linen room per floor - 20 sq. m.

2. A village development--housing

The village housing will be grouped into a number of clusters, each containing approximately 20 units. The entire capacity will be in the neighborhood of five hundred people. Housing units will consist of:

a. 1 - bedroom units - 60 sq. m.

b. 2 - bedroom units - 90 sq. m.

Note: area of units are approximate

All units will consist of (at least):

a. Bedroom (s) - 16 sq. m. per bdrm.

b. Living/dining room - 20-30 sq. m.

c. Kitchenette; including stove, refrigerator, sink, cupboard space - 5-10 sq. m.

d. Bathroom; 4 fixtures (toilet, basin, bathtub or shower, bidet) - 4-6 sq. m.

e. Storage space - 4 sq. m.

Privately owned houses will follow these general criteria as well.

3. Cabanas

These will accommodate approximately fifty guests in double units. Adjacent units can be combined into quadruples in the event of family occupancy.

Each cabana will consist of the following:

a. Living/dining/sleeping area - 25 sq. m.

(Larger units have an additional 16 sq. m. room which is used as living and sleeping area.)

b. Kitchenette; including a small refrigerator, sink, hot plate, sink, cupboard space - 3 sq. m.

c. Bathroom; 3 fixtures: toilet, basin, bath or shower - 5 sq. m.

4. Recreational and entertainment facilities

All recreational and entertainment facilities are available to all persons within the development. These include:

a. Swimming: two sand beaches on either side of the existing peninsula. Both are visible and within walking distance from any part of the development. Beach facilities include small cabins for changing, toilet facilities, beach umbrellas, and snack bar (providing snacks, sandwiches, cheese pies, ice cream, soft drinks, etc.)

b. Skin and scuba diving: equipment renting and instruction are available

c. Water ski facilities: equipment renting and instructions are available.

d. Small sailboat renting facilities and equipment

e. Sports activities:
   i) Basketball - 1 court; 270 sq. m. per court
   ii) Volleyball - 2 courts; 170 sq. m. per court
   iii) Tennis - 2 courts; 150 sq. m. per court
   iv) Mini-golf - 2 courses; 150 sq. m. per course

f. Yacht club - night club: including dining facilities for approximately two hundred persons. Total area: approx. 500 sq. m.

5. Transportation facilities

a. Private bus service, operated by the agency for guests arriving at Iraklion and visa versa. Possibilities for the installment of hydrofoil service connecting Ag. Nicolaos and Iraklion by government has already been mentioned.

b. Continuous bus service to and from Ag. Nicolaos and the development. Possibilities of extending the public transportation system of Ag. Nicolaos to encompass the development. If this is not possible, the agency will provide private bus service to and from Ag. Nicolaos.

c. All movement, except for service vehicles, within the village is pedestrian. Main paths and streets will be wide enough for vehicle movement, in case any unit requires servicing. Maximum walking distance within the village is approximately 300 meters.

6. Commercial Facilities

All commercial shops and stores are either owned and operated by local inhabitants, or owned by the agency and leased to local inhabitants for operation. Commercial facilities servicing the development will include:

a. Grocery store - 40 sq. m.

b. Meat and fish store - 30 sq. m.

c. Vegetable shop - 30 sq. m.

d. Pharmacy - 30 sq. m.

e. Cleaner - 40 sq. m.

f. Dairy shop - 30 sq. m.

g. Bakery shop - 50 sq. m.

h. Tour and travel bureau - 25 sq. m.

i. Souvenir shop - 30 sq. m.

j. Taverna (s) - depends upon location

k. Open air coffee shops and patisseries - depends upon location

Home deliveries for the grocery store, meat and fish shop, vegetable shop, and dairy shop are at the discretion of owners.

7. Parking

Parking facilities are available at specially provided spaces adjacent to, but outside of the development. Facilities will be able to accommodate approximately one hundred fifty automobiles as well as the agency's buses. Total area required: approximately 2500 sq. m. for the final stage. During the initial phases of development, parking facilities will be provided adjacent to the facilities and will be later used as construction sites (not hindering the normal operations of the development).

E. General Criteria

1. Building materials

A cement factory and a stone quarry are within a few kilometers of our site, thereby making these materials readily available. Local design traditions furthermore indicate that the use of these materials is in line.

a. Structural elements - concrete and stone

b. Infill - stone and brick

c. Floors - stone, wood (parquet), linoleum, tile, depending upon use of each space

d. Partitions - wooden stud walls, brick, concrete blocks

e. Roofs - water and weather proofed, flat and possibly accessible from interior to be used by inhabitants

f. Exterior - all houses to be whitewashed (lime-asbestos) exteriorly

g. Ventilation - air conditioning - heating

i. Hotel - fully airconditioned; partly heated (only levels which remain operative during off-season period)

ii. Housing - windows appropriately positioned for sufficient cross ventilation. Electric heaters available through agency for heating purposes during off season; fireplace

iii. Cabanas - for summer use only. Balcony doors and windows provide cross ventilation.

h. Utilities, electricity and water - electricity and water are already available on site. Provisions must be made for a sub-station of ΔΕΗ (public organization of electricity); approx. 50 sq. m. are required for a development this size

i. Garbage disposal - all garbage will be gathered by a garbage truck servicing the entire development and disposed of at the Kalo Horio dump.

j. Human waste - installment of sewage system for adequate disposal

k. Communications - 1. All housing units are provided with telephones connected to main switchboard of OTE (Organization of Telecommunications of Greece) branch office in development center. Hotel rooms and cabanas are connected to switchboard of hotel. Privately owned houses may have regular telephone service installed if so desired.

2. Post office branch in development center.

3. OTE branch office in village center providing telephone and telegraph service.

2. Justifications

In justifying the various elements of the overall development, I must note the following:

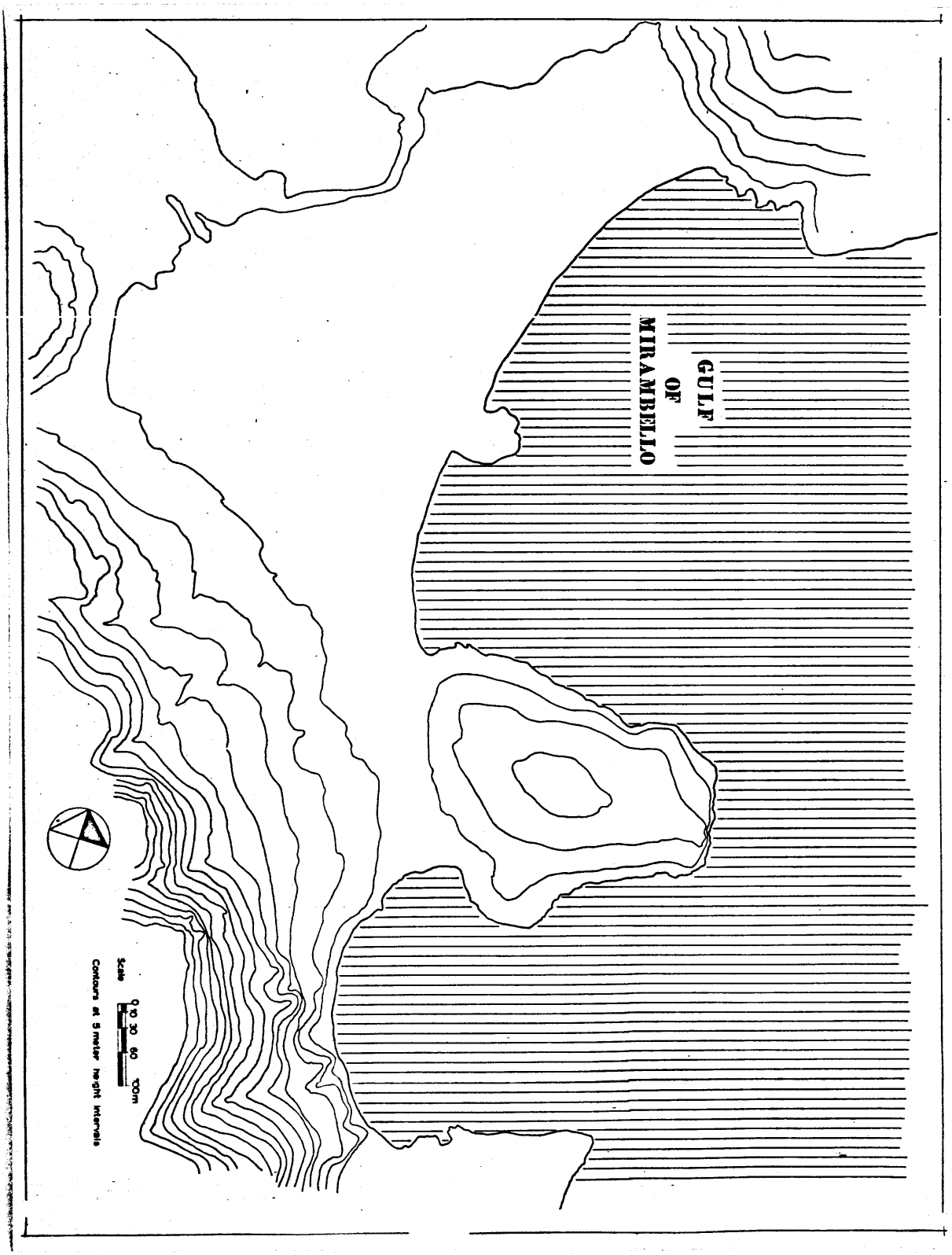
a. Tourist policy of the Greek government at the present make it almost imperative to begin with the construction of the hotel first. The need for such a facility is at the moment great. The Minos Beach development and the few hotels in Ag. Nicolaos are not sufficient to meet the demand. A major installation (accommodating a large number of people comparatively speaking) which can be constructed quickly

and efficiently, which can expect 75 per cent to full occupancy during the high season and which can expect to have speedy returns is, in fact, essentially the initial step economically for such a development. It will be the backbone; the attracting pole of the development (at least during the initial phases).

b. The creation of the marina with the yacht facilities and the bungalows are the next step. Taking into consideration the possibilities of the government initiating a hydrofoil service, as well as the success of other developments offering yacht facilities (Vouliagmeni, Hydra, Mykonos), the justification for this step, speaks for itself. The bungalows can be financed through the returns of the hotel without too much trouble.

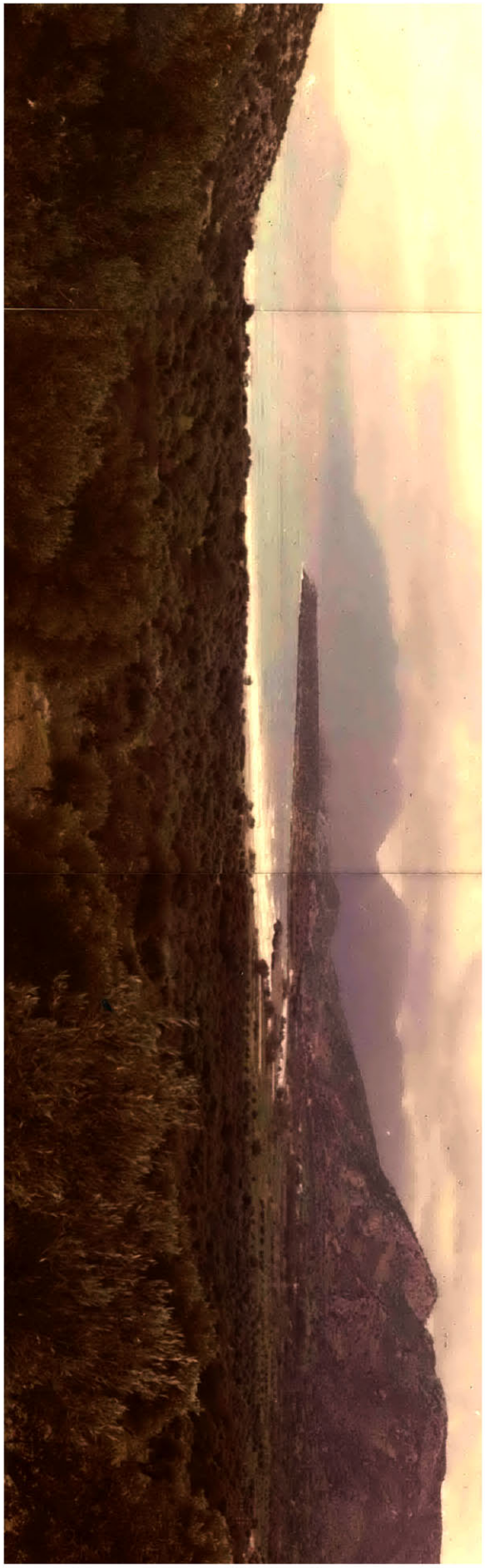
c. Assuming the success of the initial phases, the village development comes next. Depending upon the magnitude of the demand, housing and supporting commercial and recreational facilities will be provided.

DRAWINGS AND PHOTOGRAPHS

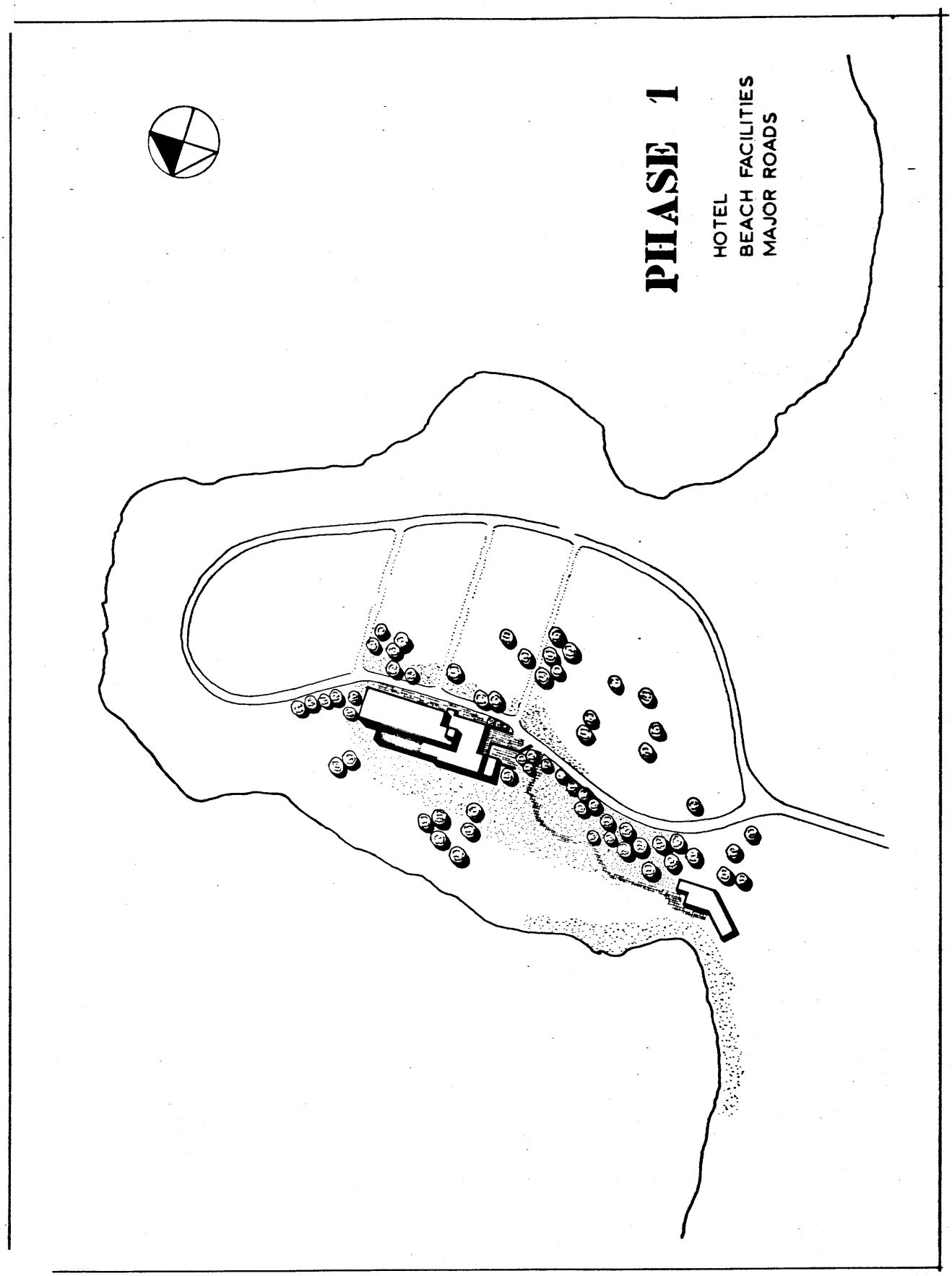


1 M.I.T.

TERRY S. HARTZIDES
MAY, 1972

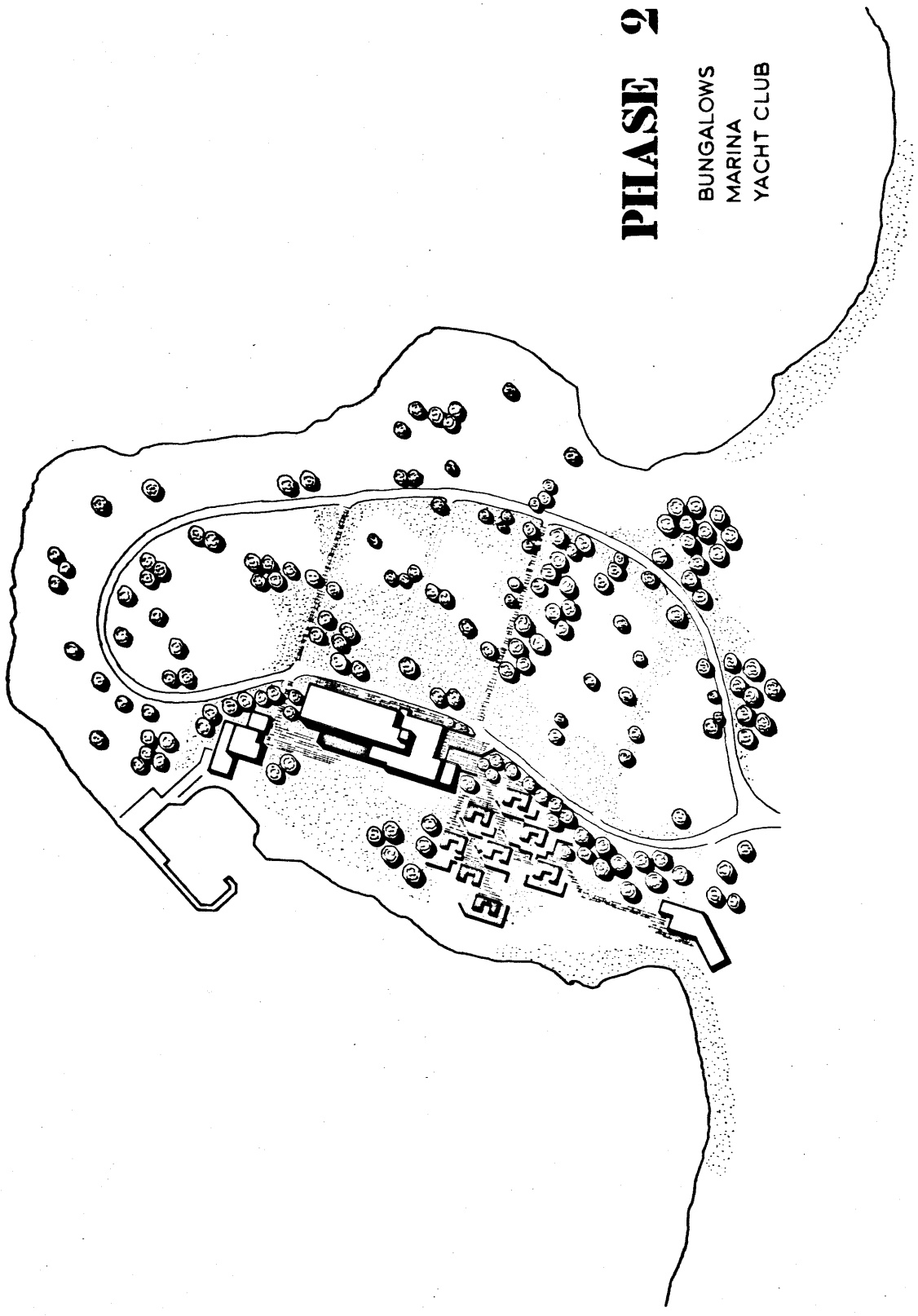


SITE
PHOTOGRAPH



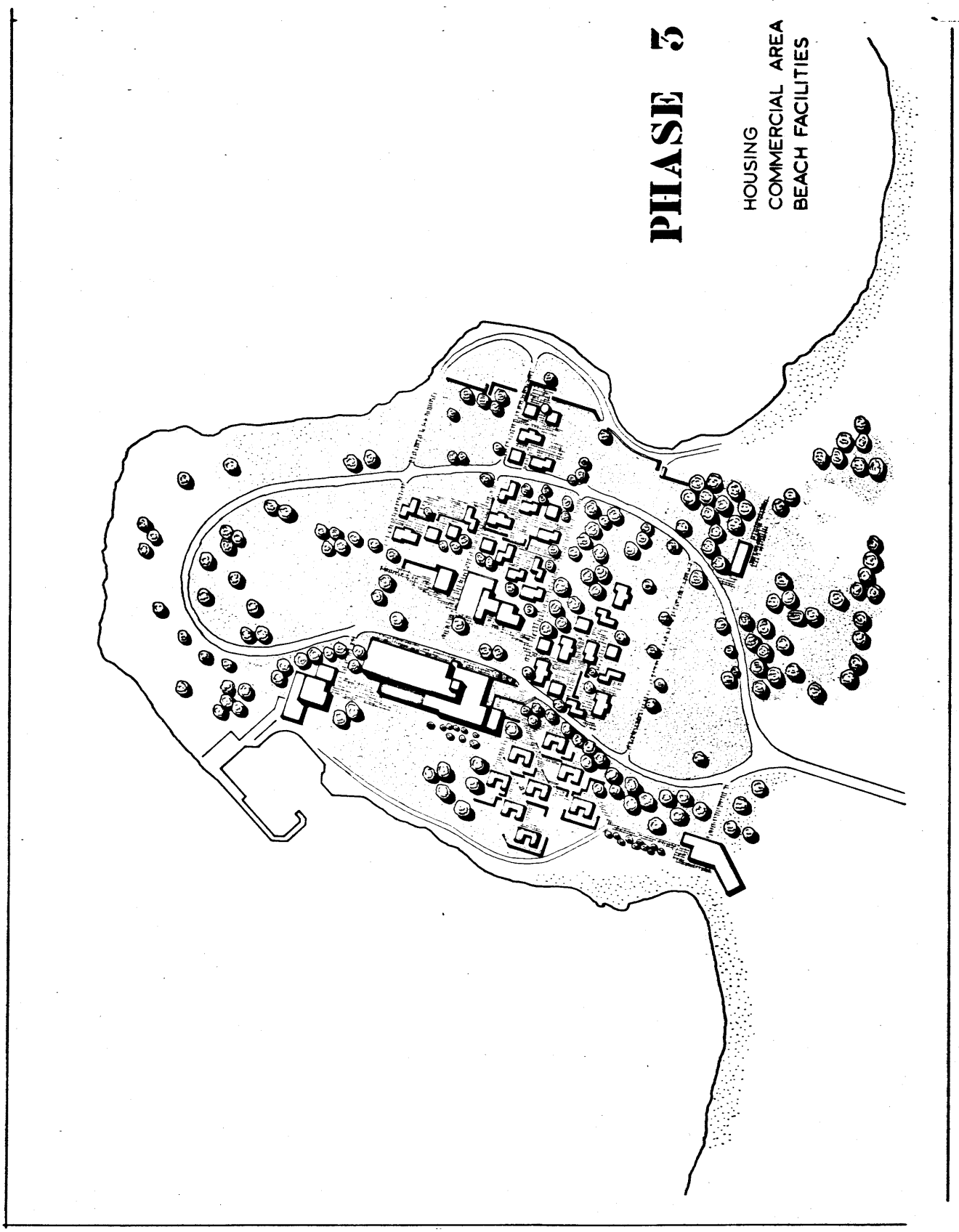
3 M.I.T.

TERRY S. HARTZIDES
MAY, 1972



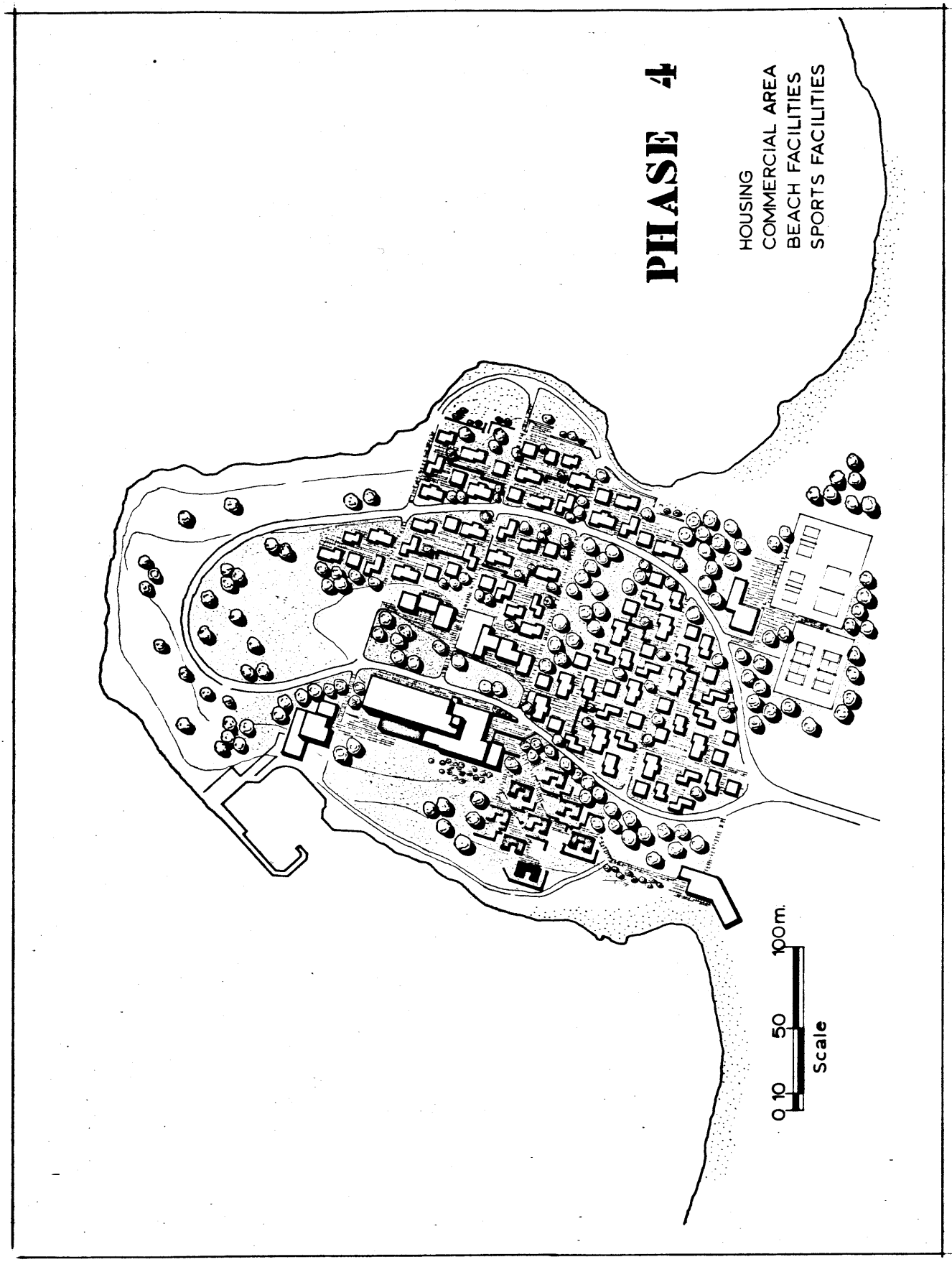
4 M.I.T.

TERRY S. HARTZIDES
MAY, 1972



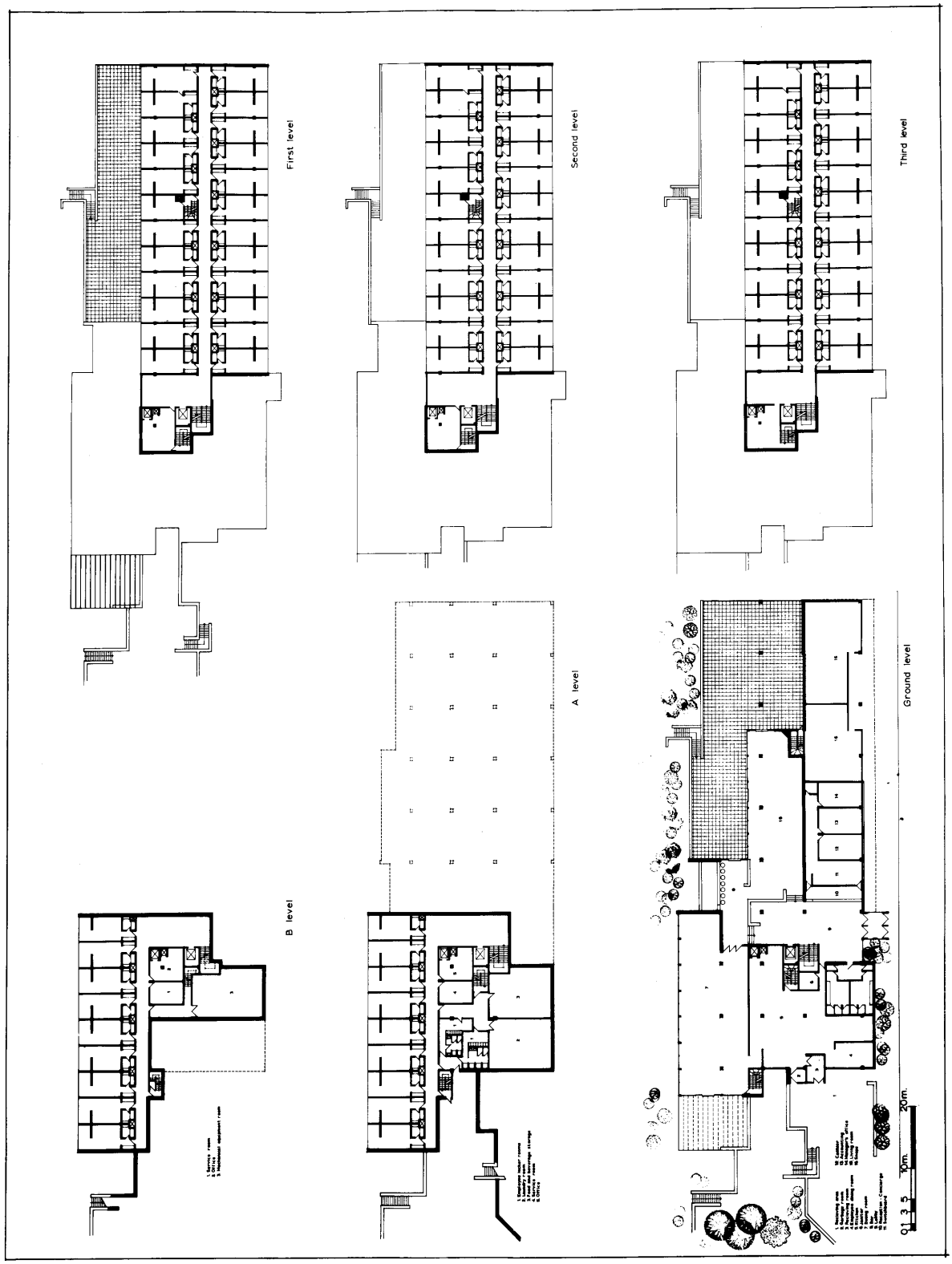
5 M.I.T.

TERRY S. HARTZIDES
MAY, 1972



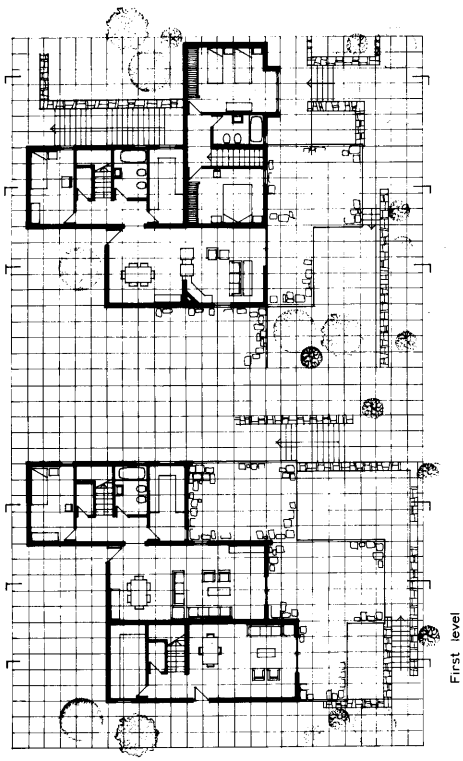
6 M.I.T.

TERRY S. HARTZIDES
MAY, 1972

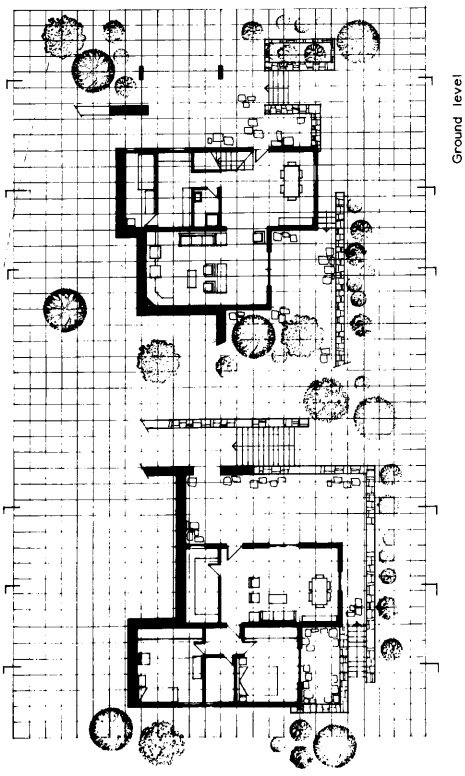


7 M.I.T.

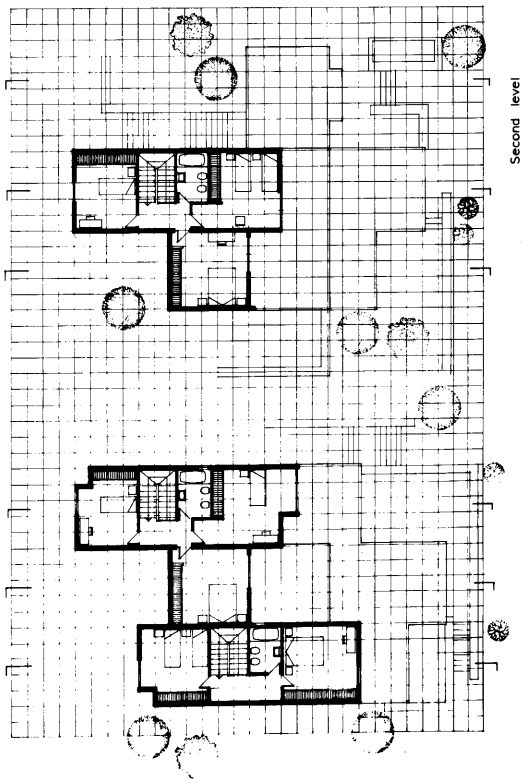
TERRY S. HARTZIDES
MAY, 1972



First level



Ground level



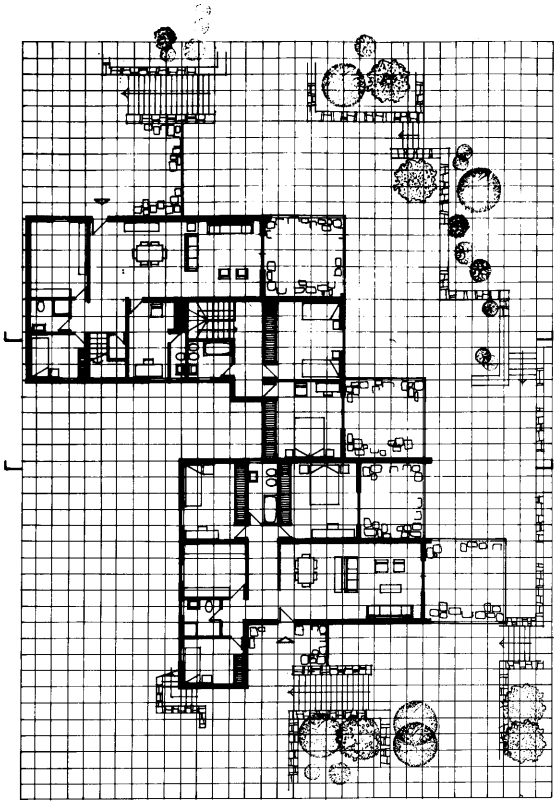
Second level

A. 2-family prototype unit
B. 3-family prototype unit

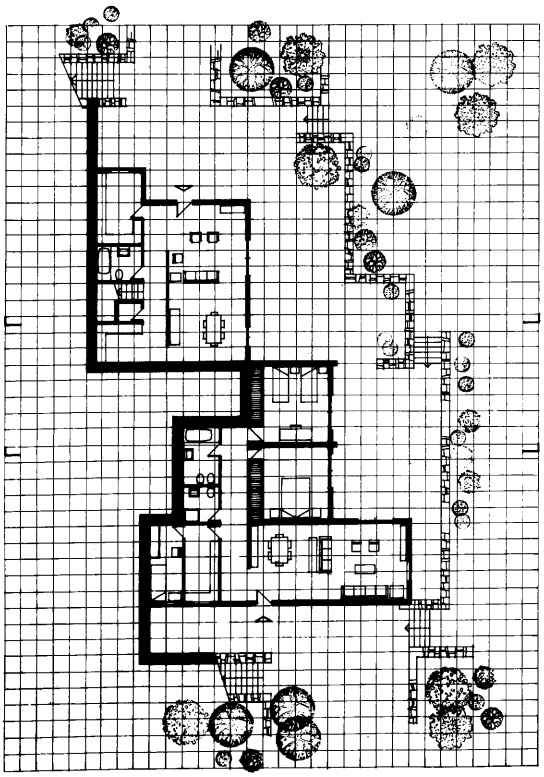
Scale 0 1 2 5 10m

11 M.I.T.

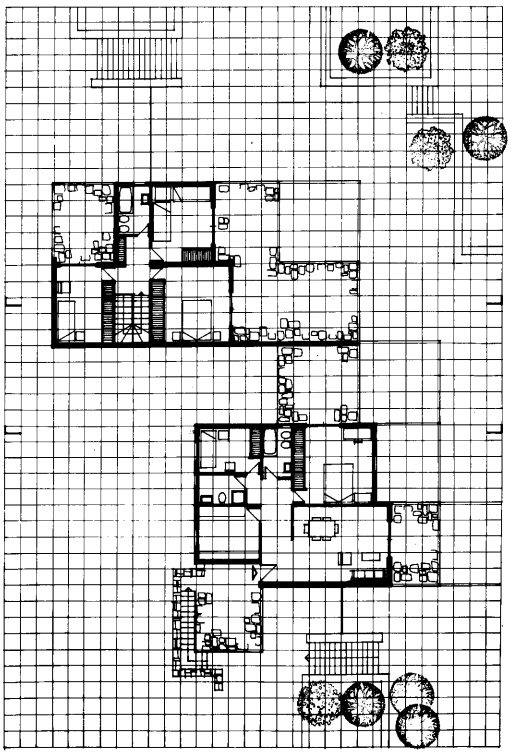
TERRY S. HARTZIDES
MAY, 1972



First level



Ground level



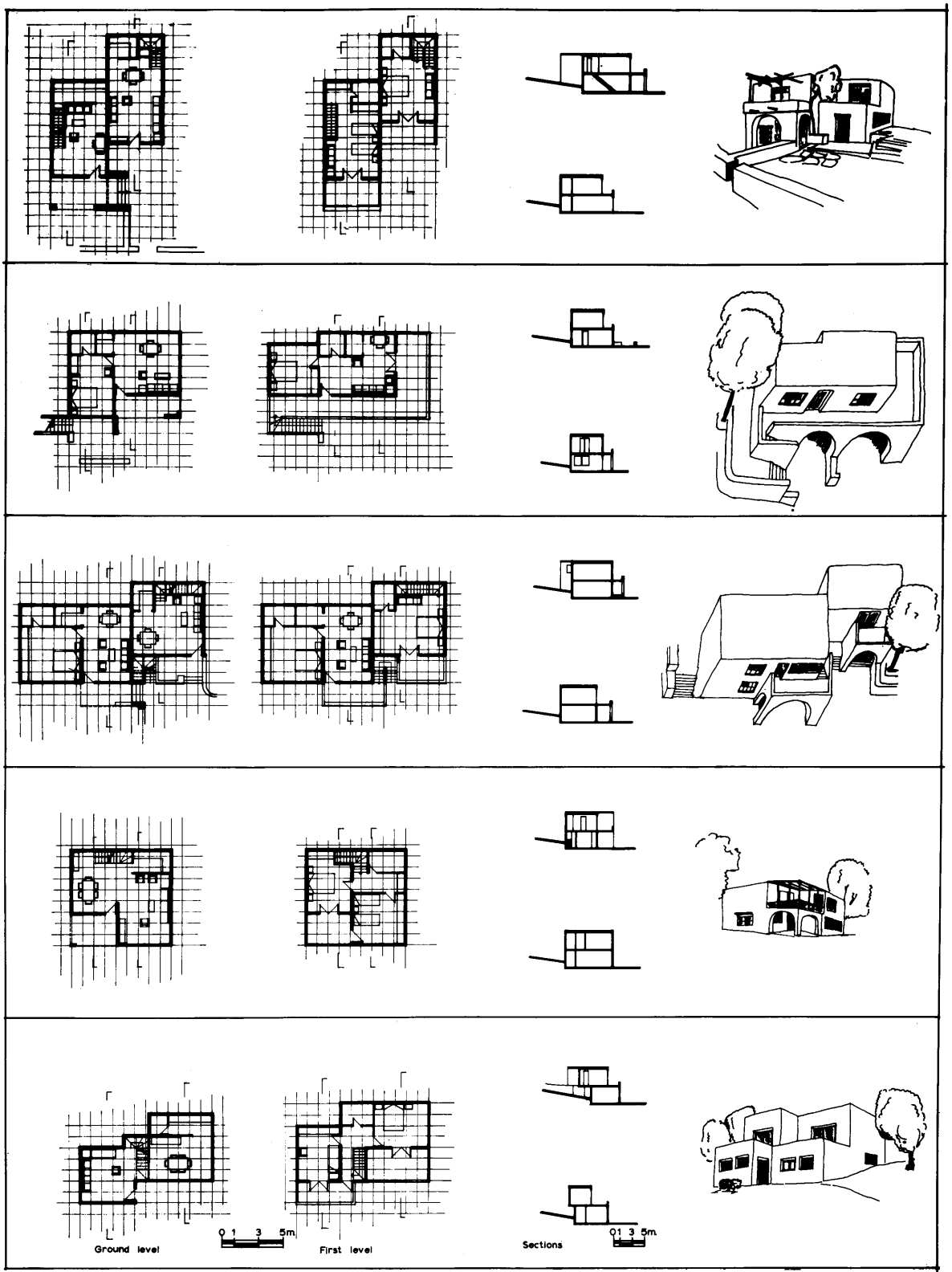
Second level

5 - family prototype unit

Scale 0 1 2 5 10m.

(12) M.I.T.

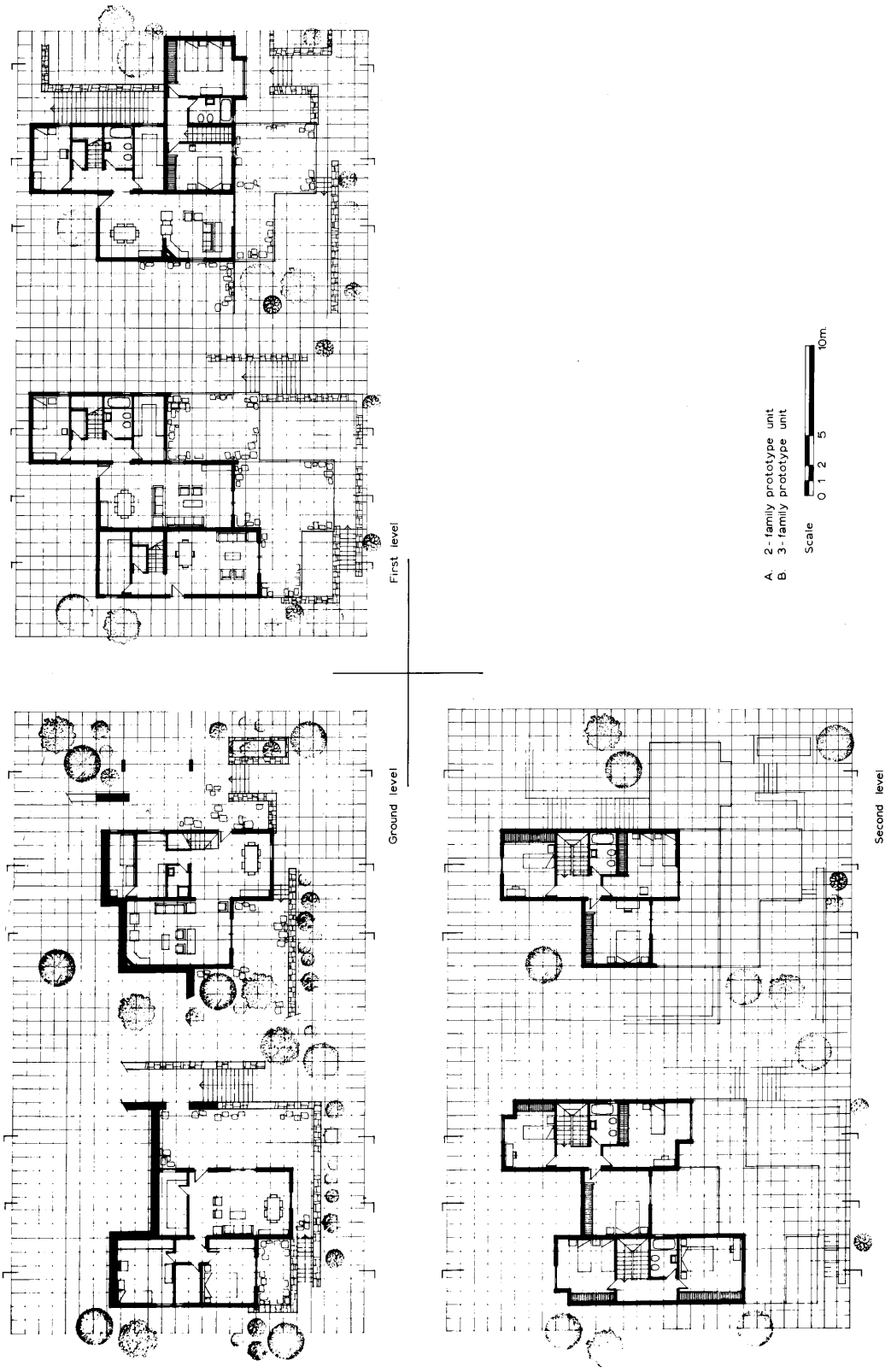
TERRY S. HARTZIDES
MAY, 1972



Housing

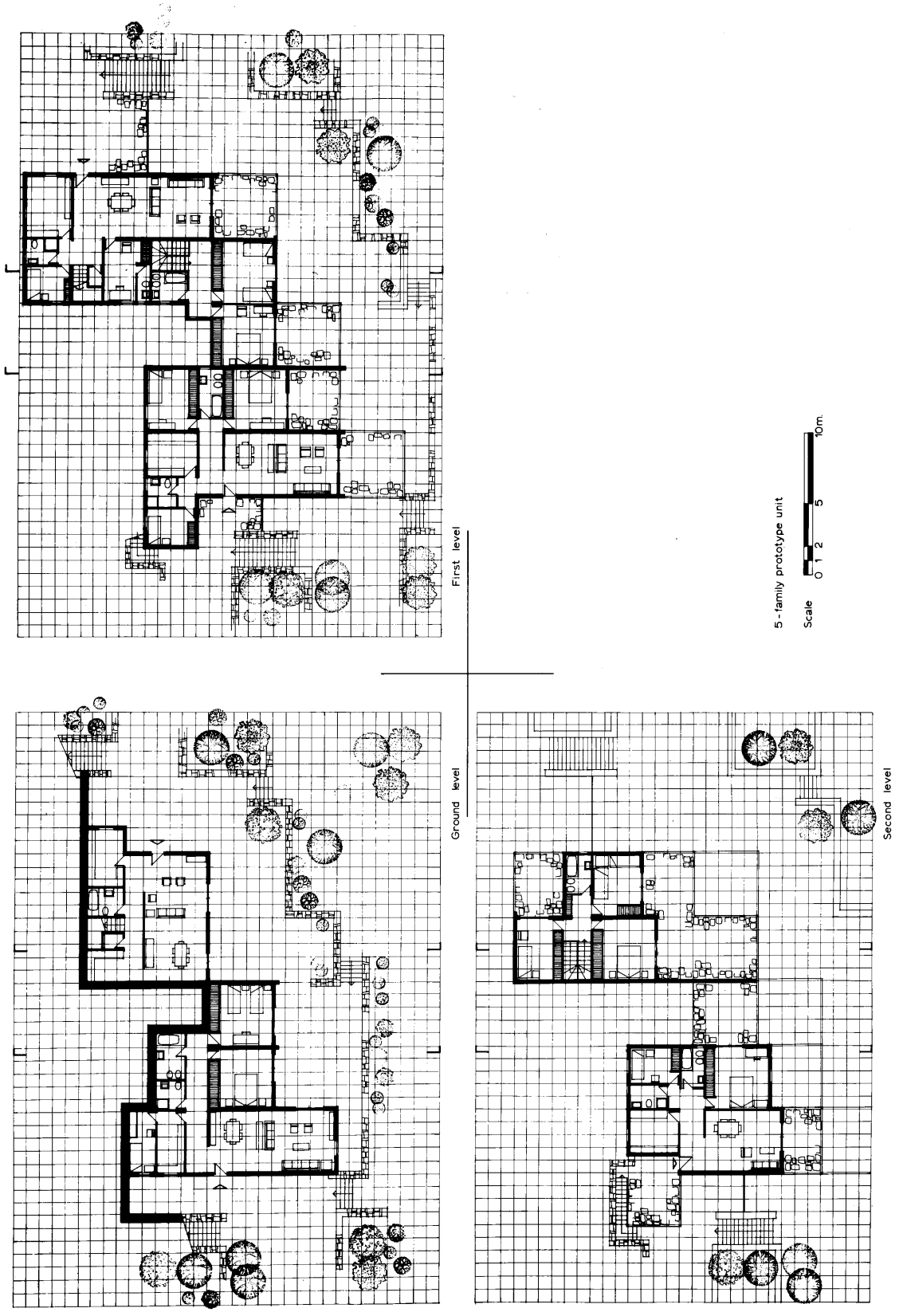
10 M.I.T.

TERRY S. HARTZIDES
MAY, 1972



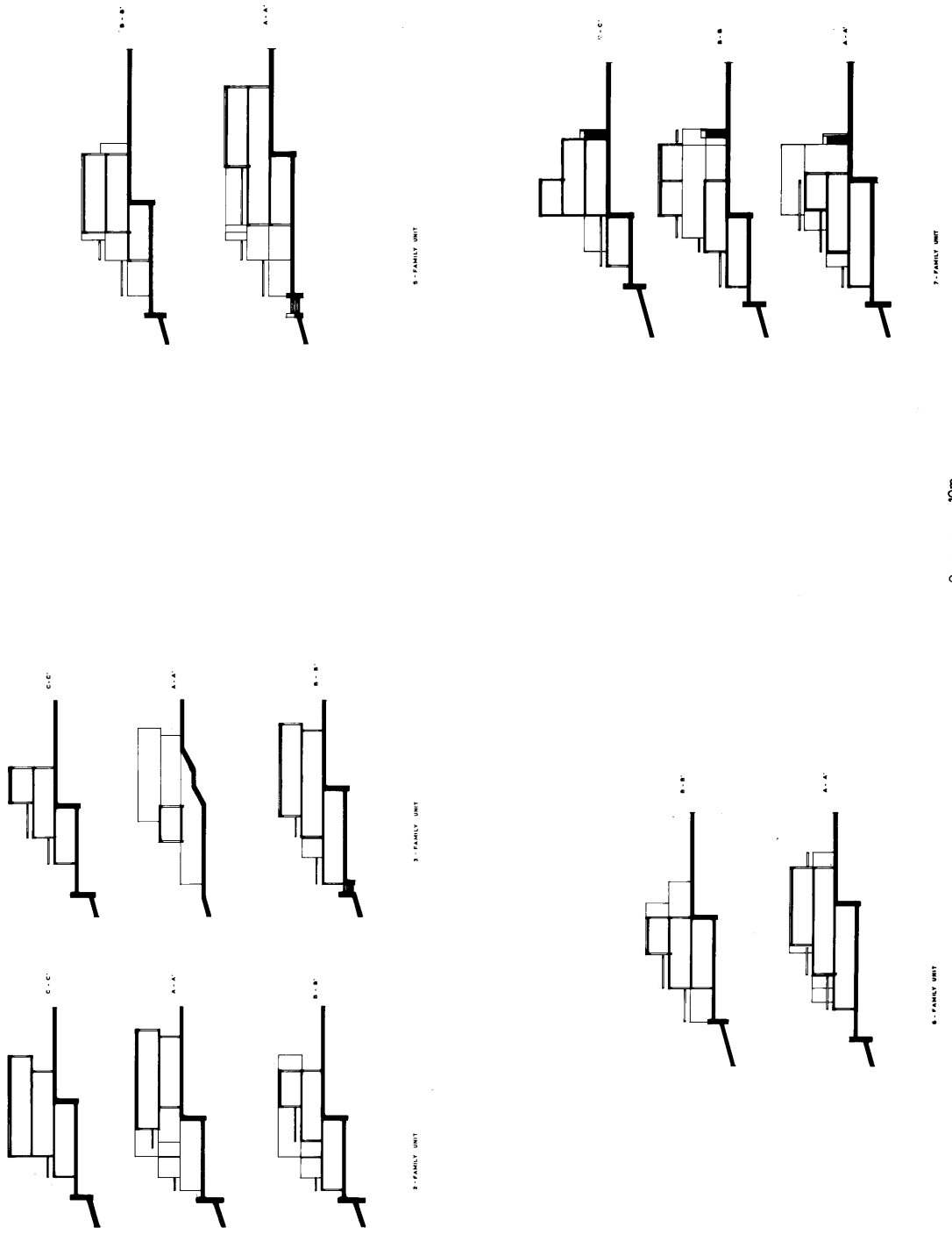
11 M.I.T.

TERRY S. HARTZIDES
MAY, 1972



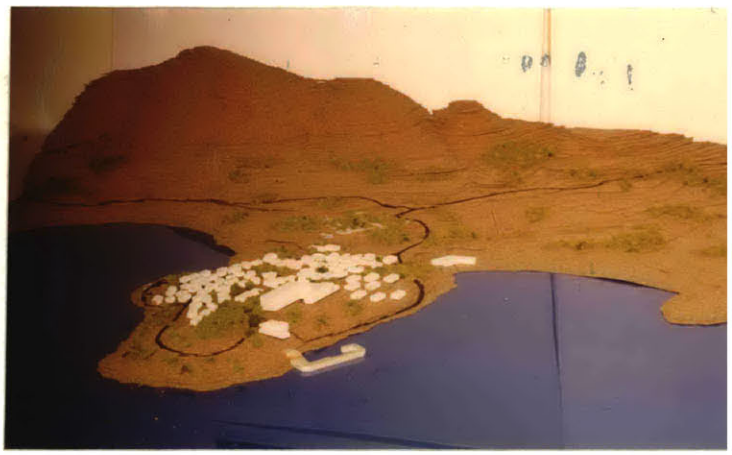
12 M.I.T.

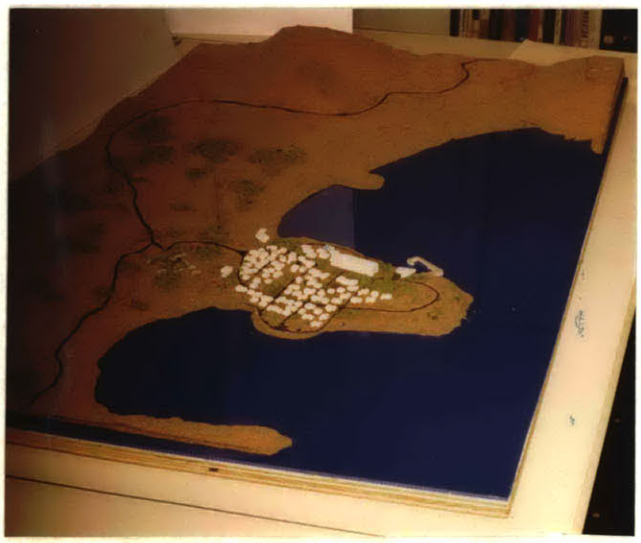
TERRY S. HARTZIDES
MAY, 1972



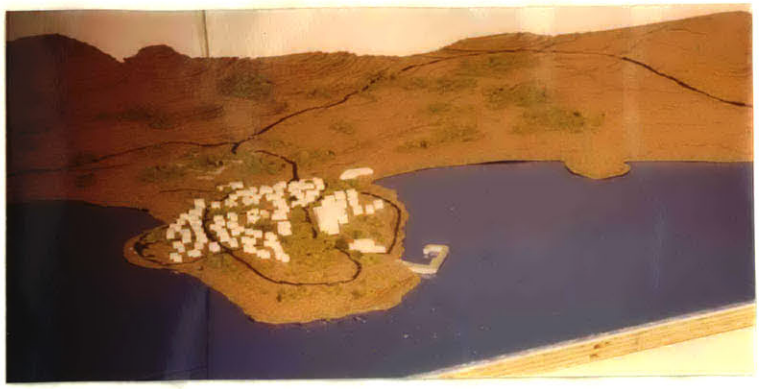
15 M.I.T.

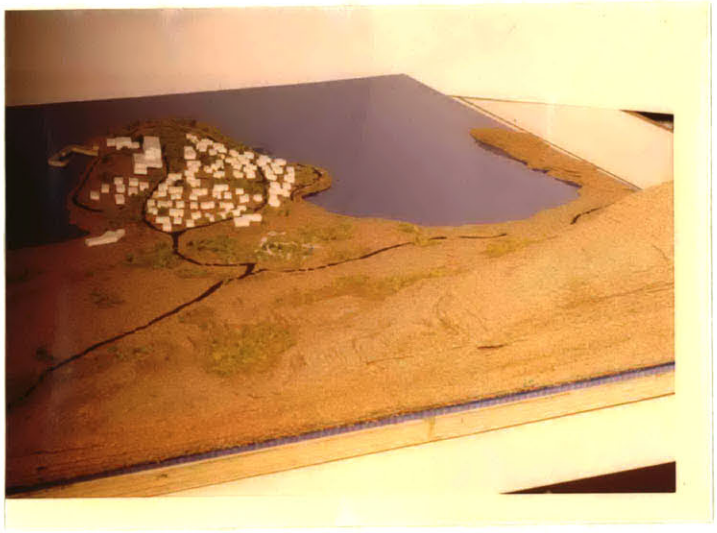
TERRY S. HARTZIDES
MAY, 1972

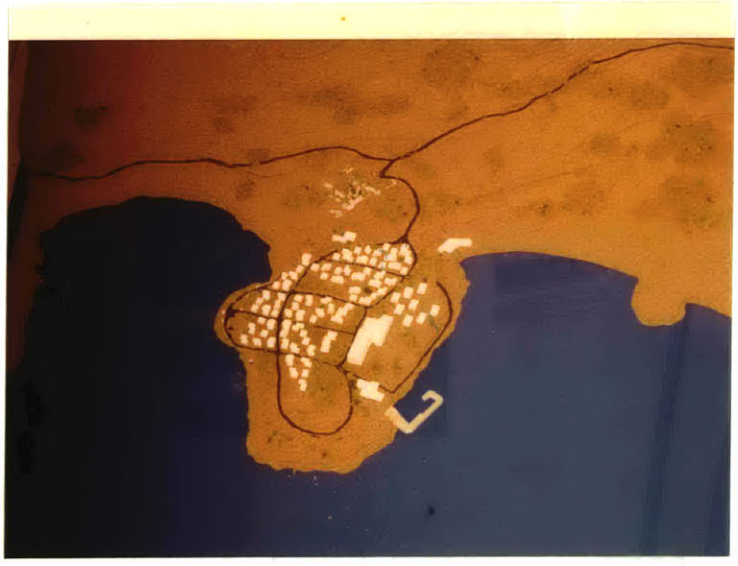




MODEL
PHOTOGRAPHS







BIBLIOGRAPHY

1. Weisskamp, Herbert, "Hotels," an international survey, New York, F. A. Praeger, 1968.
2. Ward, Benjamin Needham, "Problems of Greek Regional Development," Athens, Center of Economic Research, 1962.
3. Tzelepis, P. N., "Elliniki Laiki Architektoniki," Athens, Nees Morphes, 1971.
4. Vagianos, S., "Communication - Transportation - Group Tourism," Architektonika Themata, ed. O. Doumanis, Athens, Aspiotis, 1969.