逢魯太古國
中國外貿業
BLAKANG MATI PROJECT

By Michael J. Blee A.R.I.B.A.

Submitted in partial fulfillment
of the requirements for the degree
of Master of Architecture at the
Massachusetts Institute of Technology.

August 1958.

To,

Lawrence B. Anderson
Head of Department.

Signature of Author
August 19th, 1958.
Singapore has now become the 'Nodal Point' of South East Asia; the centre of commerce, tourism, cultural activities, cosmopolitanism at its most complex. It is therefore an excellent example of the fully functioning modern city representing more than a limited geographical region, embodying as it does the confrontation of East and West.

The project seeks to realise a 'potential future' by attempting to concretise this Nodal Concept, not as a 'kopter and super highway Utopia' but as a limited organic structure. What is sought is an expression of the new conditions consequent upon the confluence of Eastern and Western environment forming patterns, a respect for indigenous culture and specific modes of life but a full utilisation of Western technology.

The problem is divided into two parts allowing an approach at different scales and dealing with different aspects.

Part One is concerned with the creation of a cohesive village environment which seeks to achieve a degree of integration of the three main racial groups - Chinese, Malay and Tamil. An attempt is made to recognise specific modes of life that are peculiar to each group and to create an environment where a continuance of that unconscious self expression which characterises all so-called 'backward peoples' is still possible.

Part Two approaches the 'Nodal Concept' more directly by seeking to fuse representative functions of both East and West into a close knit and clearly defined community which itself is capable of standing as a comprehensive symbol. The choice of building functions and of site location were dictated by this somewhat abstract consideration in conjunction with actual planning requirements of the city at this time. The fact that this community is in effect a Tourist centre provided with rather more 'local colour' in the form of shops, entertainment etc. than is normal, is therefore not the result of seeking to establish a project on a lavish Beaux-Arts scale but again a recognition of the function of the city which is to express the complexity of its situation in a comprehensible manner.
The locations chosen for this development are the islands of Blakang Mati and Tekukor to the south of Singapore. Blakang Mati is approximately 4,400yds long by 1,400yds at its widest point and is oriented north-west to south-east on its long axis. The island is separated from the main island of Singapore by a shipping channel 440yds at its widest. The main shipping berths for Cunard, Lloyd Tristino, President Lines etc. are between 800 and 1000yds from the north shore; these are approximately two miles from the City Centre. Tekukor is a much smaller island lying 2000yds off the south-east tip of Blakang Mati and is about 2000yds long and 60yds wide at its narrowest point, with cliffs varying from 30 to 60feet high on all sides.

The islands are at present used by the Military and are only sparsely developed for about one Anti-Aircraft battalion. Though fortified prior to the last war they proved of no use in the defense of the City, the Japanese invading from the north of Singapore Island across the Johore Strait. In terms of modern warfare therefore they would be equally useless in defense; in fact any form of nuclear warfare would place little strategic importance upon such a location. It is not unreasonable therefore to consider both islands ripe for development especially since they command a unique position geographically. A Military authority has confirmed this assumption though in fact there is no anticipated evacuation of troops. The Singapore Improvement Trust do not include the area in their long term planning program.

The two types and areas of development are selected from six areas which would form the total utilisation of both islands. Part One (which is area 3. in the total development plan) consists of 'Kampong China', a village for 1500 mixed Chinese, Malays and Tamils including all social facilities. The village provides a 'dormitory' for the main Tekukor development and would also support a few light industries and fishing. Part Two (which is area 5. in the total development plan) is the main development and covers the whole of Tekukor Island. Facilities include: European Hotel for 300 with all ancillaries and services, Asian Hotel for Chinese and Malays, Chalets, Small Movie Theatre for Western and Eastern movies, Games facilities including squash, badminton and golf, Museum displaying representative collection of all cultures, a single Apartment Block, Small T.V. station with two studios, Chinese Shop-Houses, provision for small traders, certain 'harbour' facilities. The development would also cover provision for anti-erosion, planting, layout of quays, bathing facilities etc.

The growth pattern in terms of the way of life, climate and specific site conditions is the primary concern of this project. Detailed planning has been undertaken only at specific points where closer consideration of functions is necessary to determine the nature of such a growth.
Dear Dean Belluschi:

In partial fulfillment of the requirements for the degree of Master of Architecture, I wish to submit herewith my thesis entitled, "Blakang Mati Project."

Very truly yours,

Michael J. Blee
VIEW OF BIAKANG MATI ISLAND.
taken from the north west with Mount Siloso (area 6) in the foreground. Keppel harbour lies to the left entered in the foreground. Tekukor lies just of this photograph in the top right hand corner (part of the beach can just be discerned.
SINGAPORE: THE NODAL POINT OF SOUTHEAST ASIA.
Vangrove Swampland.

Paya Lebar Airfield.

Residential Singapore.

Metropolitan Singapore.

Blakang Mati Island.

Tekukor Island.

MAP OF SINGAPORE ISLAND.
Road north through Johore State to Kuala Lumpur and Siam.

Main Road North

Singapore City

Bekang Mati

Tekukor

Raffles Lighthouse.

MAP OF SINGAPORE ISLAND.
This sketch is not to scale: max width East-West 25 miles
max dist. North-South 13 miles.
Basic TOPOGRAPHY.

Brown represents high land from 25 feet up to 300 feet. Green represents low lying ground and mangrove swampland. The hourglass shaped green belt runs parallel to the projected diagonal cross-island road to the link across sea to Tekukor.
MAIN AREAS OF DEVELOPMENT

(1) Jardines Steps on Singapore Island
(2) Reception on Blakang Mati.
(3) Kampong China development.
(4) Yatch club development.
(5) Tekukor Island development.
(6) Mount Siloso development.
MOVEMENT AND APPROACH
(A) From Singapore City by road and ferry.
(B) From Europe by boat.
(C) From Paya Lebar airport by helicopter.
(D) To Australia, Japan etc.
(E) By boat from Collyer Quay Singapore.
(F) From Singapore river and other ferry points.
The SOUTHWEST MONSOON.

This is the main climatic factor in Singapore where there is no clearly defined Monsoon season as in India. Rainfall is heavy and occurs almost daily for a brief period usually in later afternoon and is nearly all from this south west direction.

Singapore's climate is tropical with average temp. in the region of 90 - 95 degrees and with a humidity usually above 80%. At such high humidities the only effective method of cooling is by keeping the air moving as opposed to shutting it out as in warm dry climates.
The North - West South - East Tekukor axis if projected runs diagonally across Blakang Mati roughly on the line of the road development and through the reception area (2) and Jardines Steps area (1). It is divided here at approximately 2,000 foot intervals.
PART ONE

Being the development of Kampong China on the island of Blakang Mati, AREA 3, in the total development plan.

Analysis of primary planning considerations.
Choice of location.
Development of typical Chinese living complex.
Of the six areas designated for development in the report of May 1958 and numbered on the accompanying plan, only two—numbers three and five—have been subjected to detailed study and of these area five comprises the bulk of this report contained under Part Two. While area three is not strictly part of the Thesis yet it forms an essential part of this development and is here briefly described covering as it does a different aspect.

ANALYSIS OF PRIMARY PLANNING CONSIDERATIONS.

Kampong China was conceived as a 'dormitory' settlement providing manpower for Tekukor and supporting a few local industries, shops etc. with a village governmental system, school, places of worship and entertainment. The population assumed was in the region of 1000 though the type of growth pattern would allow for expansion as necessary. The racial breakdown was taken in the ratio of 8:3:1 for Chinese: Malay: Tamil. Official figures differ for Singapore City itself but the type of community is basically different.

A number of considerations were deemed of prime importance in the development of this kind of community which do not necessarily coincide with normal planning criteria but which had a considerable effect on the final form. These are summarised below:

A The need for the closer integration of the racial groups while maintaining as far as possible their in-group cohesion and activities.

B The need for the development at all points of a close urban cohesion reflecting a corresponding social cohesion and ensuring a recognizable and easily assimilated social pattern; in other words a village structure maintaining an overall integrity each part being considered in terms of the individual—his race and way of life, his position within the society—always in constant reference to an overall conception.

C The need to recognise certain indigenous solutions to the problem of forming an environment, which are characteristic of particular racial groups and particular economic strata.

D The recognition of existing site conditions which, allied to climate—prevailing monsoon winds etc., dictate orientation etc.

E The recognition of the pedestrian as autonomous and therefore dictating the scale relationships throughout the development.
The importance of fully developing the symbolic significance of certain village functions not by an overconscious manipulation of forms but by the correct location, interrelationships etc.:
The 'connection with the outside world' or village contact, the village centre, the square, the tree, the water source, each part of a total 'physiological' pattern.

The creation of an environment of sufficient strength to enable or allow for the self expression of its occupants without disruption, capable of containing the richness and the complexity of the life which is characteristic of the peoples of the East.

The establishment of certain minimal standards of hygiene, density etc. based on statistics and other objective data which is the extent of most developments of backward areas is here regarded as totally inadequate. Man is accepted as a figure in a total ecology and this condition is allowed to dictate all planning considerations.

CHOICE OF LOCATION

The choice of location was dictated both by the need to be in a position as close a practicable to the causeway link to Tekukor and a number of the considerations enumerated in the previous section. The south east corner of Blakang Mati being heavily wooded it became apparent that with the correct disposition of buildings the pattern would become one of clearings between tree shadow. The site chosen was able to make full use of this and allow for the village centre to be both on higher ground and in close proximity to the shoreline. Thus the main village building automatically becomes a focus from within the village development and from sea. The acknowledgement of location also dictated the orientation of the blocks to allow for maximum through ventilation from south west monsoon winds. Thus the pattern grew directly from the site — even to the apparent contradiction of the village 'centre' being to one side.
DEVELOPMENT OF CHINESE LIVING COMPLEX.

While the total village pattern may be generated from certain overall considerations its detailed configuration is finally determined by attention to particular problems. A follow through of such a progression from the particular to the general pattern was undertaken only with the Chinese element in the community and this is briefly covered by notes and sketches contained here.

The final result may be likened to the complex patterns evolved under conditions which are intuitive and primitive but in fact the complexity represents a 'decay' of broad concepts in terms of the individual and his way of life and is therefore of a different order.

The progression (which may be followed diagrammatically) from the particular to the general - from the single living cell to the whole village - may be abstracted as follows.

A. The single cell: unidirectional walls on a sixteen foot module, spanned by precast concrete roofing units. One wall handled plastically as 'backdrop' for family living, cooking etc.
B. Grouped cells for larger families.
C. Grouped cells forming living complex for about fourteen families. Provided with through pedestrian walk-way, gathering place with shade tree and water source, form-focus of village shop two stories high.
D. Four such complexes gathered around communal playing area and joining up with Tamil and Malay units.
E. Two such super clusters at present providing the total village community
F. Total village focus, rows of shop houses, community centre, market, school.
G. Links from this nucleus to the outside world by road and to the sea by jetty.
SINGLE CHINESE LIVING CELL, being stage A, in the progression from particular to general village considerations.

- Cooking
- Sleeping
- 'Tokonoma'
- Living
- Outdoor living
- Expansion cell

Unidirectional caste in situ concrete walls at sixteen foot centre, spanned with precaste concrete roofing units. One wall treated plastically and carrying all services - the focus of family life.
GROUPED CHINESE LIVING CELLS
being stage C. in the progression.

Single cells (A) are grouped to provide accommodation for approximately fourteen families or a population of between eighty and ninety people. The complex is provided both with a spatial focus in the form of an internal square and a formal focus in the shop house - the only double storey structure: B. and C. respectively. Additional elements (D) could provide for small shops that serve outside the particular complex.

All such complexes are similarly oriented to allow for through ventilation. The depth of the living cells while appearing excessive in terms of the ideal of one-room thickness (they vary from thirty to fifty feet) allow for modulation in light intensity which is further enhanced by additional roof ventilation at the centre of each cell allowing additional light also.
GROUPED CHINESE LIVING CELLS.

By particular grouping of cells the maximum diversity of spatial experience is generated. From the open condition outside the complex (A) into the narrow and winding alley (B) to the centre square (C) with its attendant shaded area (D), which replaces a normal living cell, and the frontage to the shop (E) with provision for itinerant traders. A narrow straight alley, the result of the shop being one and a half cell units wide, would complete the impression of 'sanctuary' on entering the complex and emphasise in-group living but not to the exclusion of the wider social relationships allowed by the next stage in complex grouping.
GROUPED COMPLEXES
being stage D. in the progression.
Four Chinese complexes (A) are grouped round a central communal play area (D) where they 'meet' with Malay (B) and Tamil (D) living areas.

In keeping with the indigenous building traditions of the Malays their homes would be raised on stilts providing contrast to the sprawl of the Chinese areas. The Tamil homes would be similarly treated with formal modifications found in their present environments.
GROUPED 'SUPER CLUSTERS'
being stage E. in the progression.

At this stage two clusters each with their foci (A) are provided with the more general amenities of the village centre (C) including the village 'green' (B) which is the larger equivalent of these foci.
TOTAL VILLAGE
being stage F. in the progression.

Full village amenities focused upon the village centre (colour light red) which is located on the highest ground and is directly related to the road link to the 'outside', to the market area where external goods are 'processed' for internal distribution and the reverse (coloured lavender) to the open air Wayang theatre and to the main square. The chinese shop houses define these relationships and group to underline the particular 'sea relationship' of the village which is the reason for the asymmetry of the development. The school (coloured yellow) is also closely related with this grouping but is readily accessible to the living clusters.
PART TWO

Being the development of the island of TEKUKOR off the south east tip of Blakang Mati. AREA 5, in the total development plan.

Description of the island.
Method of linking with Blakang Mati.
Program of main building forms.
General design approach.
Specific growth structure.
Description of submitted drawings.
DESCRIPTION OF THE ISLAND OF TEUKOR

Tekukor Island lies three thousand feet off the south-east tip of Blakang Mati with a long axis of orientation running south-east to north-west. It is approximately two thousand feet long on this axis and only 150 feet wide at its 'waist'. (This is the position of the elevator tower of the hotel.) The maximum height above sea level is 87 feet. (At this point the T.V. mast is located.) There are cliffs on all sides nowhere less than thirty feet above sea level and in places over sixty feet high. The geological structure is white limestone which is considerably eroded especially along the south west line of cliffs. (This is in the location of the Chinese shop houses and retaining walls etc. would be an integral part of the development.)

Vegetation consists mainly of lalang grass with scrub and a few trees. In places this breaks down the cliff face. (At one such re-entrant the open air theatre is located.) There is much surface erosion. (Grassing of the large Recreation Area and of the hotel grounds would check this.) The shore line is composed of broken rock, white sand, mud and coral in that order from the cliff base to the three fathom line. (This is the area of blue on the presentation drawings.) Rocks occur especially off the north west tip and again at the mid point of the long axis off the north east and south west shores. (These last locations coincide with the Tennis courts and the lower plaza respectively.)

The island is ideally oriented with its long axis lying across the prevailing monsoon winds from the south west, and with views in that direction of numerous islands towards Sumatra. The main buildings of Singapore City Centre provide a skyline of condensed building forms clearly visible to the north. The predominant impression both from the shape and the location is of a large ocean liner moored in a perfect position in the Singapore Roads.

The particular character of this island is so strong and its dimensions so restricted in terms of the type of development envisaged that it must insist on a full acknowledgement of location at all stages in the growth. The embodiment of the 'Nodal Concept' in terms of a cohesive pattern is therefore admirably suited to the place chosen and there is a very real opportunity for expressing the 'spirit of place', which in this instance is the spirit of the tropical location, without any affectation of 'pseudo romanticism.'
Admiralty charts reveal that apart from eddies and a short stretch of relatively deep water, the two thousand feet stretch between the island and the low tide mark of Blakang Mati presents no difficulties in the building of an elevated road link of pile construction. This is consistent with the Fish Trap erection practiced by the Malays, tenuous structures of wood poles found all along the coast and stretching up to two miles out to sea; their presence indicates the tidal and storm complications are relatively non-existent.

This link would be integral with the Blakang Mati development which commences as Jardines Steps - area one on the overall plan. At this point multi level garaging would be provided and jetties for ferries and shipping. Reception facilities on Blakang Mati would be covered in the development of area two; since it is assumed that all island transportation would be under public ownership and comprise buses, rickshaws, tri-shaws and taxis, waiting rooms and canopies etc. would be provided. The routing and planting of the diagonal road link across the island is of prime importance and would endeavour to allow relative privacy for the Kampong China development of area three, not making the direct and obvious contact but linking from the tip of B.M. at Tangong China where the road crosses to Tekukor. Taking the road diagonally through the heavily wooded section of the island would it is hoped provide a dramatic contrast to the subsequent 'sea crossing' to Tekukor.

Such is the ease with which over-sea development may be carried out, that subsequent expansion might well include the development of the link itself providing for restaurant, chalets etc over the water much as existing Malay Kampons - there is one such on the island of Brani between B.M. and Singapore.
DETAILED RELATIONSHIP OF AREAS THREE AND FIVE, KAMPONG CHINA AND TEKUKOR ISLAND.
PROGRAM OF MAIN BUILDING FORMS.

HOTEL.

This is the main building on the island and therefore provides the principle growth pattern and generates the main lines of subsidiary development. Its location and development in terms of the island itself was therefore considered of prime importance since if managed effectively it should serve to enrich the particular characteristics of the island itself as well as fulfilling its function as a hotel.

The 150 bedrooms are located in a single block 250 feet long. This is so located that it runs with the long axis of the island terminating with elevator tower at the narrowest point of the island. This tower provides the pivot of the scheme, to the north-west lie the hotel public rooms and the remainder of the island given over solely to hotel recreational functions, around its base swings the access road after its ascent from sea level, and the remainder of the island to the south east is considered as open to the public, road lines serve further to underline this demarcation.

The public rooms consist of reception area and sunken bar at ground area, together with normal hairdressing, beauty parlour and small shop concessions as amenities. This space is spanned clear from the abutting service areas and looks out into Plaza A: towards the vertical totem of the swimming pool diving tower. Stairs from the reception area provide access to the two raised wings of lounge and restaurant located to provide maximum views over the access road ramps, to give shade at ground level in the vicinity of the swimming pool, and to catch breezes so that air conditioning would not be essential. These two areas are linked by a bridge running over the bar making it unnecessary to descend to ground level to move from one to the other. Service areas to both of these rooms bridge the access roads and are then linked vertically to storage, workrooms etc located in the two 'battlements' which rise from shore level. Beyond the swimming pools badminton courts are screened by walls to cut down breeze interference. Writing and reading rooms are positioned on the other side of the elevator pivot and replace a limited number of hotel rooms, this underlines the two distinct noise zones and the reason for the otherwise attenuated access to the further hotel rooms; for with the emphasis on through ventilation rather than air conditioning it becomes essential to separate all potential noise sources from these rooms. It is for this reason also that no detailed site development other than grass planting is envisaged on either side of the hotel room spine.

The night club provides the sole exception to both these points. It is located on the roof at the further end of the spine with its own access and with suitable acoustic insulation as well as being closed and air conditioned.
APARTMENT BLOCK.

This block extends from the hotel spine south eastwards and benefits from the same orientation. There are eight apartments with three to four bedrooms in each. This block would provide accommodation either for hotel executives or persons willing to commute from the mainland. Together with the T.V. station it serves to generate Plazza B. focusing on the high point of the island where the T.V. mast is located.

T.V. STATION.

The scaling for this block is based on a small station planned in Singapore which has not as yet been passed by the government. Provision was for two relatively small studios, and its functioning was in conjunction with an existing hotel. In this location there appear to be a number of advantages from such an alliance, especially the ready provision of accommodation of visiting stars and entertainers. It is assumed that this building would be wholly air conditioned. (The resulting formal contrast is noted elsewhere and expressed in the presentation ground plan.) An accompanying mast 360 feet high serves also to locate the highest point of the island.

MUSEUM.

This five storey pyramidal structure is sited on the extreme tip of the island and it is intended that it would serve also a pseudo symbolic function similar to the Corregadore Bataan monument. The museum would represent the cultures of south-east Asia, those countries which gather about the 'node' of Singapore. It is divided into two parts: access 'tunnels' in which mostly graphic presentation would be employed, and the main floors circling a central well lit by light reflected indirectly from the underside of the inverted pyramid on the top of the structure. Progression would be achieved by ascending first to the top floor by elevator and descending by staircase.

CHINESE SHOP-HOUSES.

This is a traditional building form where the shop stretches through the ground floor and families live above. These are located at the base of the cliffs and below the hotel rooms; they define one side of Plazza C.

Asian HOTEL.

This follows the normal pattern of providing dormitory floors and others with low partitions and curtains. The basic structural provision is therefore extremely simple. Three floors of such accommodation is provided with a capacity of about 180.
MOVIE THEATRE.

This provides seating for four hundred in a closed air-conditioned structure raised off ground level leaving open public foyer space and ticket booths as the only function breaking the continuity of the raised podium on which it is located. It provides therefore an 'implied' definition of the plazza space similar to that of the lounge and restaurant at Plazza A.

STREET TRADING BOOTHS.

These are simple single cell structures lining an alley and providing shelter for typical chinese and malay street trading and bartering.

MISCELLANEOUS.

Provision is made for an open air theatre at a re-entrant point in the cliff face where undergrowth descends to beach level. It would be used principally for staging the local Chinese Wayang or travelling theatre.

Three squash courts, two chalets and a small golf house are also located at the same end of the island which is zoned for general public usage. Access to this area is by an extension of the north-east road past the hotel bastion climbing by ramp to the T.V. station level.

Shelters are provided at the jetties both for shade and as possible locations for fish traders.

Reclamation of part of the foreshore is assumed on the north-east coastline to provide flat open area for tennis courts and a contrast to the remaining development which is restricted and less expansive. Differences between high and low tide here are greater than elsewhere and mangrove are already established. (Reclamation on a large scale has already been carried out on other islands owned by oil companies.)

There are two lines of beech huts which would be raised on stilts and provided with stair access to the cliff tops.

NOTE: DETAILED ANALYSIS OF STRUCTURE AND PLANNING ARE NOT PRESENTED HERE BUT ARE COVERED WHERE APPROPRIATE IN SUBSEQUENT SECTIONS.
GENERAL DESIGN APPROACH.

It is necessary to define the self imposed boundaries within which the problem was tackled. These were established of necessity since the main thesis reveals the otherwise unmanageable scale of the project in terms of close detail, and this is further underlined by the program precis given above. Such limits do not however correspond with those normally encountered in projects of a 'Town Planning' nature where public spaces, the disposition of main building blocks with a suggestion of their massing, the main flow lines etc. provide the principle consideration. The difference is implicitly in the nature of the approach which seeks to stress the homogeneity derived from a closer consideration of these same basic aspects but in terms of different criteria.

The selection of the location itself was made in order to permit an attempt at this modified approach in an environment which generates specific forms dictated by climate, indigenous forms, racial characteristics etc. The choice was made therefore in order to allow such an approach rather than to provide an exercise in tropical architecture, though naturally it is impossible to separate the two.

In attempting a microcosmos that would at least be identifiable with the somewhat grandiose and beaux-arts concept of the 'nodal point' the prime consideration then was to develop a cohesive community containing within it the seeds of the various aspects encountered already in Singapore, but through this fusion or balance of parts to suggest the larger concept. It was from this premise, and a knowledge of certain fundamental building requirements still unsatisfied in Singapore, that the breakdown of the program given above was achieved. It was not formulated in order to allow for involved experiments in novel building forms, each element was seen as necessary to the overall intent.

The nature of the island selected and its restricted scale only serve to underline the intention to tackle the problem as one of a limited scale. Again, as has already been pointed out, the program was seen to derive as much from the configuration of the island and the growth patterns that it would allow, so the problem in fact became more than the concretisation of the Thesis concept and it is for this reason that more attention is paid here to the kind of growth pattern that evolved than to the detailed programming of square footages of rooms.

This is the intent; it is not presented here as the achieved goal but it provided the direction of thought and action.
SPECIFIC GROWTH STRUCTURE.

It is fatuous to attempt a concise analysis of the forces which act upon and determine the final form of a design, as well try to convey a symphony by program notes; verbalisation is strictly limited. Yet during the evolution certain points are consciously held, an hierarchy is established; the nature of these to a large extent determines the final form. The object of this particular project has been outlined above; this only can be the justification for the selection of the particular aspects that are covered below as being of fundamental relevance, and the omission of others as being peripheral to the central intent. The fact that these lie largely outside the realm of crisp objective fact and encroach upon more uncertain ground is a risk that is taken.

Flow lines and movements
The autonomy of the pedestrian is clearly defined by the sharp definition between between the few roads that enter the scheme and the remainder of the development. These roads serve the main points on the island with the maximum economy and a degree of forcefulness which is intentional. The main road loop ascending and descending the forty foot cliff face, pivoting about the hotel elevator and providing the only high level access at this end of the island, is handled as a strong wedge form abutting onto the blank bastions of the hotel service and workrooms. No service vehicles climb this road, all servicing being effected at the base of the bastions, thus the functions are clearly delimited and the strong expression of the main loop is not confused. This loop breaks away from a continuation of the roads on both sides of the island at sea level. On the south west the road terminates in a parking area at Plaza C. level at the base of a bastion and beside the Asian Hotel; on the north east the road, after servicing the hotel kitchens and the jetty, continues on past the tennis courts to mount to the T.V. station and around finally into Plaza B. giving access to the night club and the apartment block. It is assumed that all other vehicular transportation - for instance to the museum - would be only occasional and following pedestrian lines.

As with the climbing road loop at all points in the pedestrian movement the transition between levels and spaces is directly expressed and used to dictate formal relationships. The potential is especially great in terms of the level differences afforded by the cliffs; steps, ramps and elevator towers all become obvious and dominant elements in the total composition. Ideally it should be possible to discover all movement from an island panorama. With such potential complexity the drama of movement itself negates the need to indulge in visual gymnastics for the sake of 'interest'.
Over-sea road link to
Blakang Mati island

Road ramp to upper
level main Hotel

Parking at Plaza (C)
level and for Asian hotel.

Hotel servicing at
d low level.

Parking at main
d entrance level.

Termination of road at
night club and apart-
dment block.

Parking for T.V. station

Tekukor Island.
ROAD SYSTEM.
Space sequences:
Though it has been argued that the majority of spatial experiences cannot be accurately forecast and that therefore it is 'safer' and more realistic to restrict architecture to a series of simple statements (to the extent of creating a building 2,000 feet long without any definition or interruption) yet because these must in fact form an integral part of the environmental comprehension and are of the very essence of a humane architecture, they must obviously be ordered with the same care as the building masses themselves. Flow lines and movement are naturally an essential part of such sequences. In the same way that form growth must have an integrity so must the sequence of outside spaces. The scheme seeks to achieve this by the establishment of an hierarchy of spaces. The pattern of this ordering may very generally be said to follow the natural need of man for balance - to pass through the narrow alley into the sunlight of the palazzo San Marco, or from the bat gloom of an Ajanta cave into a rock cleft where a shaft of sunlight catches the thigh of a river goddess. The main theme for this treatment is the establishment of three dominant spaces, of plazas already referred to as A, B and C and indicated on the accompanying sketch. None of these is fully defined yet each is strongly implied by the building forms that surround them on three sides: the spatial expansion on the fourth side is in each intentional, yet is focused expressing the growth expansion of the building masses. Plazza A. pivots about the vertical of the diving tower and then expands along the wall lines of the badminton courts to the tip of the island and the small covered arbours scattered there. Plazza B. opens its arms towards the highest point on the island and the T.V. mast, paths project from here to the open air theatre and the museum beyond. Plazza C. gives onto the sea, the complexity of masts, the islands of Sumatra.

The lines of movement between each of these spaces are of prime importance and allow for the development of other and more restricted spaces as a means of contrast and transition. To pass from B. to C. the way cuts between two blocks, descends by a ramp swinging the view rapidly through three hundred and sixty degrees, and drops to the narrow alley between street traders opening finally into the corner of Plazza C.

The museum provides one example of the development of equivalent spatial experiences within a building; it is entered beneath concrete canopies and the restriction of tunnels to the final expansion within the body of the building, then is provided with further small viewing recesses allowing an extrovert view of the seascape and the sudden surprise expansion from the closed exhibits into the bright and startling tropic daylight.

The main loop road passing through and under the hotel provides again an equivalent sequence of restriction and final expansion at the base of the elevator tower.

Though verbalisation is no substitute and there is indeed much that cannot be foreseen, yet considerations of this category are far more fecund than convolutions of detailed planning.
TEKUKOR ISLAND
main spaces defined by buildings.
The detailed intent of the thesis as outlined so far indicates a form growth which could well be so complex that it appeared without order. This is overcome in complex folk communities by an overall unity of structural and constructive techniques — in an Indian village by the ubiquity of rammed earth, in an Aegean community by the crispness of whitewash or stuccoed walls. It therefore seems a reasonable basic decision to think of the total island growth in terms of a single material and structural method; this is also consistent with the limited constructional capabilities of local contractors. For this reason the whole development was conceived as a growth in reinforced concrete providing the 'bones' and the shells, the slabs and the shade canopies. The nature of this growth is revealed somewhat diagrammatically on the ground plan; though its form and complexity varies it does so according to a few imposed laws dictated with direct concern for climatic and site conditions and always in this 'monochrome.' To indicate more clearly the nature of these mutations it is perhaps best to go into detail at a few selected points in the scheme; it will be impossible however to make any clear division between growth conceived in these terms and specific planning considerations as is apparent in the first pattern considered.

The clearest statement of the solid bone growth is found in the hotel spine. Here the service cores containing the sanitary provisions for each room are regarded as structural spines. The hotel rooms and their enclosing shells are regarded as prefabricated units which are simply slotted between these bold vertical members. Here is the bold juxtaposition of in situ growth and superimposed detail, the one a simple statement the other a more complex product provided with sun control etc and constructed in quite different material. The spines are stiffened by the continuous broad access corridors on the north east face; the whole structure being very narrow — only one-room thick to ensure through ventilation. The rooms are virtually held up in the air to catch every breeze available. This is one kind of growth which is repeated for the apartment blocks on a different scale. Imposed units are missed out in places provided breeze-ways for larger hotel suites, and on the skyline the pattern is consciously broken serving to express the individuality of each of the units; it is the individual element as an entity which is emphasised rather than an overall pattern such as is found in the rigid geometric cell repetition of most hotel structures.

Another kind of growth is that dictated by the need for shade and the introduction of drama against the cerulean of tropic skies. It is found most developed in the giant mushrooms which grow from two of the enlarged hotel spines to protect the night club, but is most directly stated in the two wings of the public
Private Hotel recreation area

Hotel 'bastions' servicing and stores, air conditioned

Spine growth for through ventilation

Movie theatre

T.V. station air conditioned

Public recreation area

DOODLE OF GROWTH PATTERN insitu concrete.

Museum air conditioned
lounge and restaurant. Here the stalks of the mushrooms are
used to carry supporting slabs for other superimposed and
prefabricated closure.

Finally in contrast to both of these stand the solidity of all
elements which are air conditioned and therefore need no such
provision for through ventilation or shading except in so far
as roof insulation provides for lower plant loading. These
conditions are found most forcibly expressed in the two so-
called bastions which rise on either side of the island flanking
the hotel entrance lobby and through which the loop road passes.
The T.V. Station, the Museum and the Movie Theatre are further
forms which share this solidity.

The Chinese shop-houses share an expression similar to that of
the hotel spine. The thick structural spines contain vertical
circulation from shop to living quarters above and all storage
and services. Again the infilling would be of a different mat-
erial and quite possibly prefabricated, but the strength of the
main structure would allow of individual development peculiar to
the particular requirements without disruption.

These are the kind of conditions in which it becomes possible to
discover a species of reconciliation between the organic and the
geometric, between the rough and bold hewing of space and the
considered and detailed shaping of particular environment to mans
closer needs. This kind of union would be discoverable for in-
stance in the main public reception space which in toto would be
treated with the boldness of a hanger – to the extent of having
only large electrically operated doors closed when oncoming
monsoon squalls are spotted seawards – while the more specialised
areas of bar or reception would be treated quite differently.

PLANTING.

It need hardly be mentioned that under such climatic conditions
the value of trees both providing shade and as a textural and
colour contrast to the intensity of values generated by a tropic
sun upon all building forms, demands that they be considered as
an integral part of any development and not merely as added
amenities. Further the architectonic quality of palm trees and
many other tropic growths coupled with the rapidity of their
growth ensure an extremely rich design potential for a very limited
outlay. The time/growth design criteria which is the especial
province of the landscapist is here particularly important and all
the considerations such as spatial definition and contrast which
were the concern of the architectural growth are equally appli-
cable here.