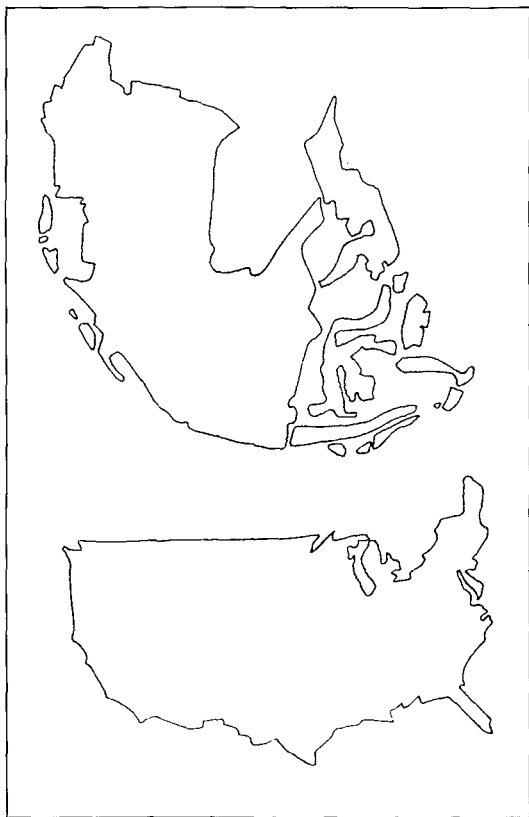

Case Study 4 — Thailand

House on Stilts, Pointer to South East Asian Cultural Origin

Sumet Jumsai

The entire region of West Pacific's "water front", that is to say Southeast and East Asia, as well as parts of South Asia, has, underneath the stylistic variations, definite cultural common denominators which point to common identity and origins in a not so distant past



S E Asia during the Ice Age (above) compared on the same scale to present-day United States of America without Alaska (below)

S.E Asia was truly a continent in its own right, harbouring possibly the majority of humans who escaped the cold spell in the northern latitudes

In this paper I shall discuss one of the several common phenomena, namely the house on stilts, using case studies in Siam to compare parallels on a regional scale, meaning, through this discussion, to uncover the common origins of South East Asians and people of the West Pacific as a whole.

Houses on stilts are found in an arc of more than six thousand kilometres across the Equator, from Melanesia and Indonesia to Japan. On the Asian continent the same house type covers an area starting from the foot of the Himalayas in Nepal and the Naga hills in north east India to South East Asia and South China. The Canton museum in South China contains models of houses on stilts amongst those of typically Chinese ones resting squarely on the ground excavated from ancient tombs. From Kuming down to Sumao on either side of the railways there are still numerous settlements consisting of thousands of *pilotied* houses.

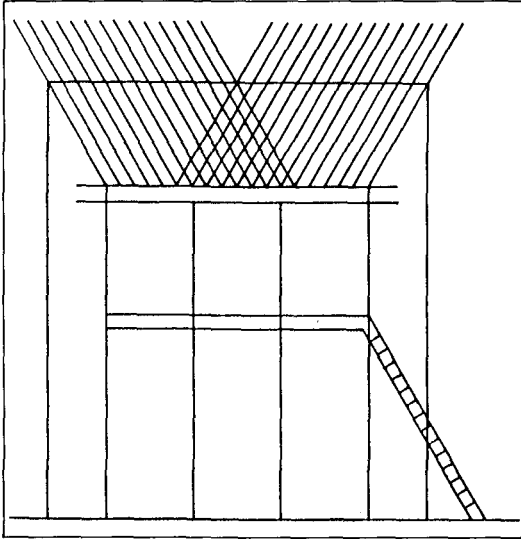
Attempts have been made to explain the raised dwelling and the space underneath: security, protection from wild animals and seasonal floods, good ventilation and a useful place to work and to store implements. The reasons forwarded are true enough for many cases, but not all. They do not, for example explain why in Burma exactly the same wooden house is sometimes raised and sometimes completely down on the ground in the same locale, and why a tropical house on stilts should find itself in latitude 35 degrees and become an essential part of Japanese architecture to the misery of its occupants winter after winter. The real reason behind all this of course lies in the amphibious and equatorial origin of the house.

When Austronesians¹ implanted their first houses in Japan, the stilts were as long as any standing in water on the shores or in the lagoons of South East Asia. The long intervening centuries and the strong cultural influence of the pre-dominantly land-based Han people progressively shortened the Japanese stilts until the floor is only about two feet above the ground. Comparing a typical Thai house to that of the Japanese and then the Chinese is to see clearly an interesting sequence of architectural transformation.

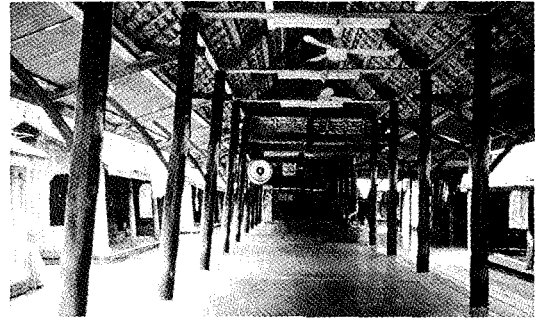
Besides the above differences in the region, the raised dwelling also reflects the varied beliefs and environments within Siam itself so that not only do styles and plans change from one part of the country to another, but stilts also decrease in length from those of the migratory villages (recently extinct) to their average dimensions in the Central Plain and the relatively shorter ones on higher grounds and in the North. However, in spite of the variations, the houses have a number of features in common.

Common features

The avoidance of static perpendiculars in the structure is one. Whether it is the 'truncated' A-frame of the Central Plan dwelling or the inverted A- or V-profile of the northern house, the structure is visually and physically dynamic. This is further enhanced by the fact that the building is based on a system of pre-fabrication with wooden joinery or flexible tie jointed wicker lathes holding structural frames and panels



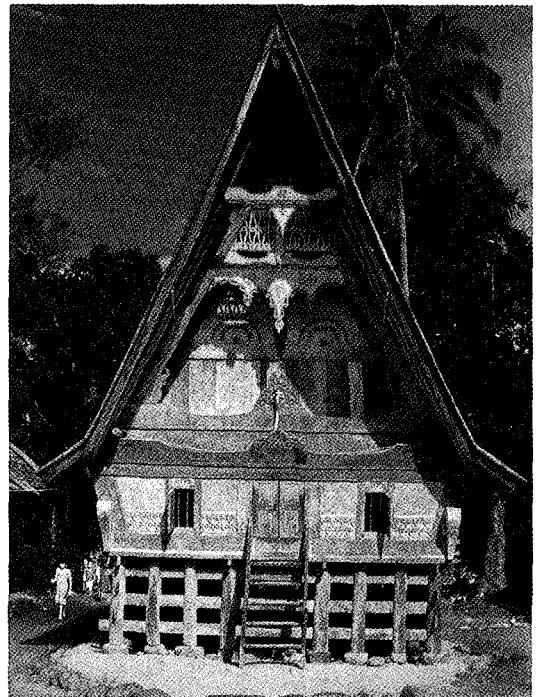
Takayuka house of Japan
Dating back to more than 2000 years, many early Japanese houses had very tall stilts reflecting their Austronesian origin



"Sala" or open pavilion at Wat Amphawan, Samut Songkhram, east of Bangkok
The columns leaning inwards illustrate the A-frame structural principle



Northern Thai house
Kamthieng House at Siam Society, Bangkok



House at Tomak, Toba Lake, Sumatra
Outwardly inclined walls illustrate the V-structural principle

- The panels themselves are like diaphragms set in innumerable framed sub-divisions, thus further demonstrating a strong tradition in component design.
- The pre-fabricated technique referred to is common to both the northern and central house type. In fact, the word traditionally used for house building is “prung”, meaning “assemble”. It follows that the house that can thus be quickly assembled or dismantled and transported to another site for re-assembly.
- There are interesting parallels between Thai and Japanese houses. To some extent, dwellings in Japan are structurally flexible (although this is more related to earthquakes), and the fact that they are partly modular with demountable wall panels strikes a familiar note. But perhaps nearest in structural concept to the Thai house is the Javanese dwelling which seems to be completely demountable

Chief characteristics of the Thai house

Concerning ourselves now with the architecture of the Thai house, here are its chief characteristics:

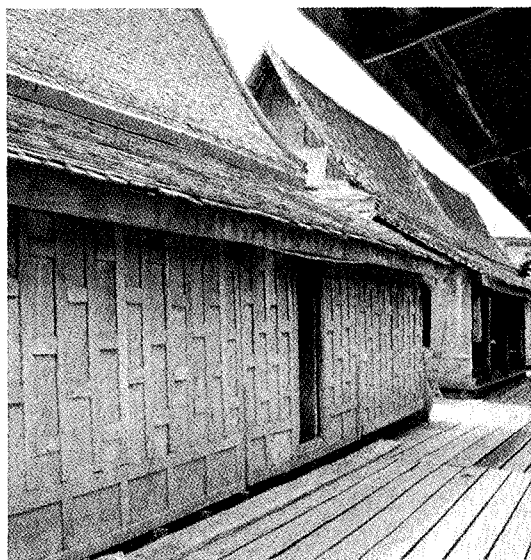
- Stilts and the typical space underneath the house for domestic activities as well as for storage, and during the flood season for mooring boats.
- Extendable bay units from one to six bays or more, and then doubling-up on the end elevation
- High gable ends to provide room height for heat

convection and long projecting eaves to protect the house from heavy tropical downpours.

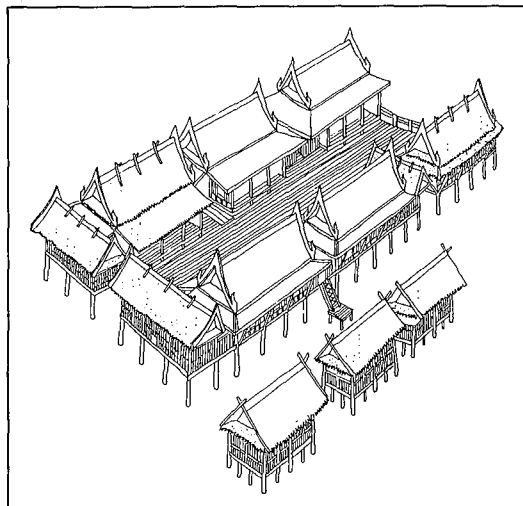
- Diaphragm walls which slope inwards on all sides along with the structural members. Permeable walls and floors for ventilation, especially in the kitchen.
- Large verandah, parts of which are under cover, averaging 60 percent of the total floor area.

The above also apply to the monks' cells which are often houses presented to the monastery by well-to-do families to become the monks' living quarters. Being on stilts, of course, the building can be as conveniently located on land as on water. In either case the method of ascending it is the same, which is as if it were always in the water. Typically the front consists of one or two platform levels for high and low floods. These are often pavilioned so that they can also be used for receptions or long social chats. Even on high ground, the same arrangement is kept. Naturally, in poorer homes, a simple flight of steps is all that is needed.

The verandah is similar to a huge raft elevated on stilts. In larger homes the number of bedrooms merely multiply without the addition of any other type of rooms, except for perhaps a separate altar cubicle where Buddha images are kept. Besides cooking and sleeping which require walled areas, the rest of the daily activities take place out in the open in the verandah. Its covered parts are used for eating, entertaining guests and sometimes for keeping an aviary, while the remaining open space is used for ceremonies, feasting, drying food, gardening in pots and in the evening, in a discreet corner for taking showers.



“Diaphragm” prefabricated walls of the monks living quarters at Wat Amphawan



House of Thong Ketthong, Ratchburi, southeast of Bangkok (After Ruethai)

It illustrates the Thai longhouse with a large and long verandah in the middle. See also photograph at left.

The whole process of house building from ground breaking to its assembly and moving-in by the owner is a complex and lengthy ritual involving 'naga', the water symbol which permeates the entire West Pacific region and South Asia. (What Naga is to the Indianised part of Asia, so is the Dragon to the Sinocised regions) This water symbolism is indispensable in the architecture of the region.

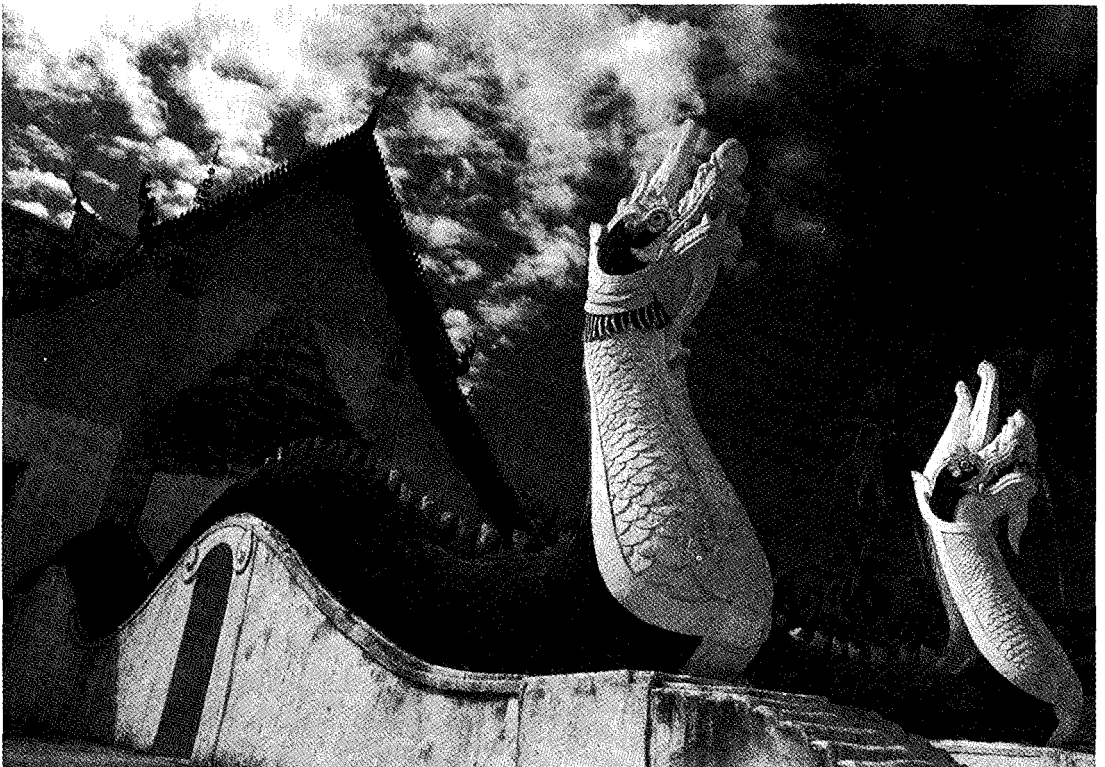
Attention has so far been focussed on the house on stilts as a single unit. Now perhaps something should be said about its collective character.

In the traditional extended family system in Siam, one basic house unit can be added to another as the family size increases and the children grow and need their own living cells. The architectural system allows for growth with an extendable platform. Thus many houses have become noticeably longer as more and more living units are added on. An example is the house of a man with five daughters and three sons. As each girl married, one more living unit complete with kitchen would be added to the platform, so that eventually there would be six family units accommodating the five married daughters and the parents. The three married would likewise move to their in-laws'. If one daughter dies the son-in-law would remove his rooms to another place if he remarries.

The above, no less a description of a long house, was formally a normal sight in both old Siam and Laos. Nowadays it is almost a rarity. Looking for parallels outside Siam, in Japan such group living must have existed in the old baronial mansions where several living units were arranged on single raft-like platforms, a tradition which has continued albeit for a different purpose, in the monasteries. In Siam the best existing examples of communal housing on platforms are the monk cells where religion prescribes group existence. A typical monk's living quarters layout consists of two long lines of cells flanking a central open or semi-open area. In a big monastery where the number of monks can be considerable these living quarters can be a very long structure.

Another interesting comparison is the congregation hall in Thai, Lao and Cambodian monasteries. Although it is not a dwelling and contains no internal subdivisions, it nevertheless, frequently holds the entire community on its single "raft" platform. Besides sermons and ceremonies it is used for classes, village meetings, festivals and feasting. In the flood season its value is unmistakable since it is the largest single wooden structure on stilts in the countryside.

The Dayak longhouse is of course truly a whole village congregated permanently on a huge raft-



Nagas at the entrance of Wat Phumin, Nan, north Siam, The naga is the water symbol prevalent in S E and South Asia

platform. If compared to the Thai monk cells it is the equivalent of half a section in that it lines up all the cell units in a row on one side and the verandah on the other. Another interesting example is that of the longhouse belonging to yet another Asiatic group living several thousand miles apart across the Pacific — the Iroquois Indians' traditional dwelling. Constructed of bent poles and completely covered with tree bark for protection against the bitter cold winter theirs was the shape of a long boat turned upside down. It had two rows of living units and a central passage running its entire length which is said to range from twelve to over a hundred metres.

In both the Dayak and the Iroquois longhouses, families have little privacy. Whereas in the Japanese and the Thai arrangement, because of their complex social system, each room is quite separate from the next and sometimes occupies slightly different levels on the wooden platform. This permits breezes from underneath the house up through the floor levels.

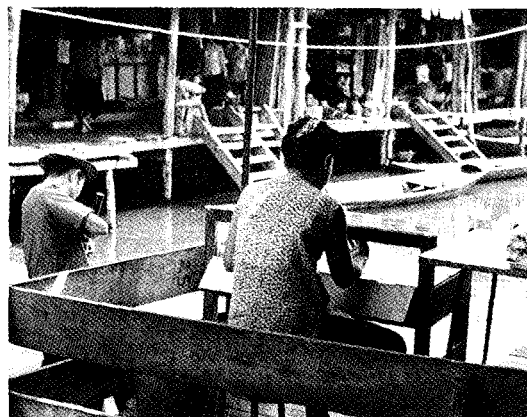
The greatest longhouses I have ever come across are at the town called Bang Li, seventy five kilometres northwest of Bangkok. The town is a complex of longhouses on two levels, all interconnected. Both levels are utilised in a unique way. During the dry season cars roam about the streets on the ground level and the scene is like any other town in the province with the beehive activities of shoppers and shopkeepers.

As the flood season approaches, by some incredible instinct the inhabitants all move their belongings and goods onto the second level, and surely enough, the flood arrives soon afterwards. Cars disappear discreetly, overnight, giving way to a tumultuous boat traffic the following day as business continues as usual. It is most memorable to watch entire markets, barber shops, drug stores, restaurants and even the town's petrol station suddenly appearing on the upper level, the latter continuing to discharge petrol, not into automobiles, but to a waiting queue of water buses and long-tail boats. This brings to mind towns and settlements standing on stilts permanently in water which are still to be found in South East Asia: Kampong Ayer, Brunei; Panyi in South Siam; Port Moresby in Papua New Guinea; and Choluta, a city south east of Bangkok.

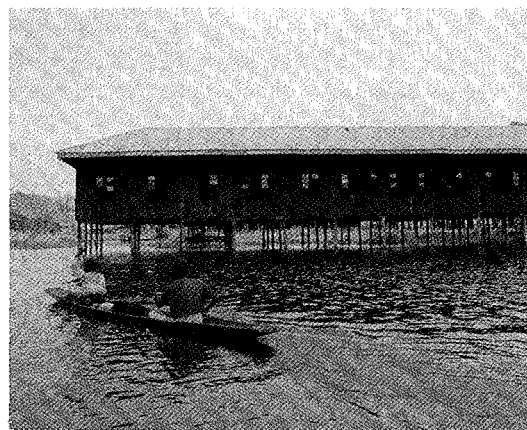
It is probably not a coincidence that cultural historians of South East Asia (Solheim, Soedes, Ph. Groslier) agree on the fact that humans first settled along sea shores and only later moved inland. Some original oceanic migrations are evident there so that Heyerdahl in turn can say with confidence (Early Man and the Ocean) that the first man-made vehicle was the boat, or the raft. At the risk of jumping to conclusions, I will state that the first man-made habitat was the house on a raft, in the sense that it includes its metamorphosis into the house on stilts.



Congregation Hall (Sala Kanpien) at Wat Khanon Tai, Ayutthaya, north of Bangkok



Bang Li, an amphibious town northwest of Bangkok. It represents also the largest complex of longhouses in S E Asia



Long house on stilts on Inle Lake, Burma.

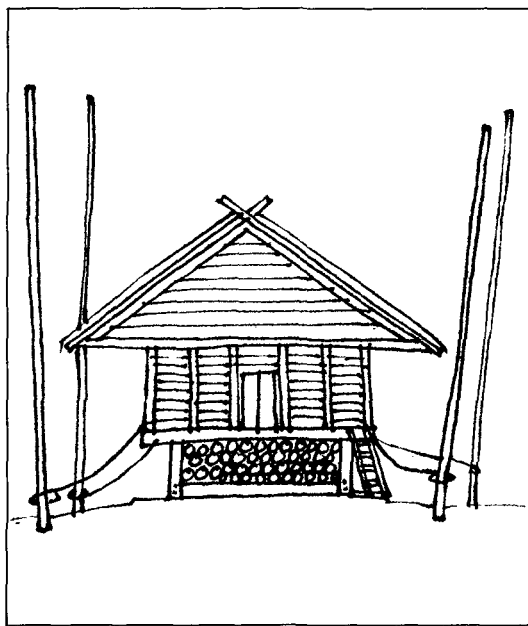
In more recent times the metamorphosis or transformation sequence of the house on raft to one on stilts is well documented. Of the numerous settlements on stilts in Siam, several were actually floating villages until the advent of motor launches. To escape the noise and turbulence which also damages the rafts, floating houses were moved bodily onto the banks where they were simply raised and re-equipped with stilts.

The above illustrates a particular circumstance which forces the transformation of aquatic to semi-aquatic or amphibious architecture. What was probably originally was that the raft houses were simply anchored to the banks, sometimes afloat and sometimes resting on the mud flats without any effort to stand up on stilts.

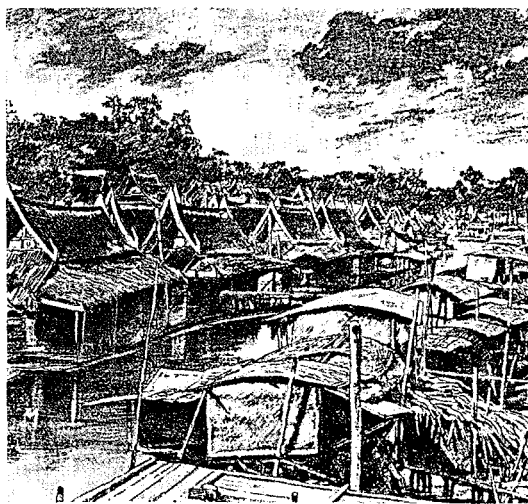
There is a village in the Malay peninsula called Tha Khanon in Surathani province. It is located on a low-lying strip of land stretched along a river which overflows its banks every monsoon, flooding the village to depths of ten to twenty metres. The floods come as suddenly as they recede. The cycle can occur several times during the season, and each flood can last a few days or a few weeks. Confronted by this, the inhabitants have devised an ingenious solution to residential design: their wooden houses are built on stilts which rest on, but without being fixed to the ground. Underneath the house are stacked horizontally, hundreds of bamboos. In addition, each house has four or more wooden poles about twenty metres high driven into the ground at the four corners. Ropes attached to the house are latched onto these poles, which, taken together, present a strange silhouette when the village is viewed from a distance. When the flood comes, the entire community, with its houses, shops, a public pavilion and dog kennels, is automatically afloat, to the complete indifference of its inhabitants.

Not so very long ago, that is, until the turn of the century, Bangkok used to consist mainly of floating houses. The population in mid-19th century was approximately 400,000 and of these some 350,000 lived in floating raft homes along the rivers and canals. The rest lived in houses on stilts on the banks of flooded terrains. Naturally there were masonry buildings sitting firmly on the ground such as palaces and temples, but they were in the main ceremonial and symbolic structures, and not for habitation. It is difficult to think of any other city in the world where pretty well an entire city floated. Bangkok was unique in this sense.

Typically, the floating house is three bays deep. The front, facing the river has removable panels, and is left open during the day for the breeze. The verandah in front, railed to prevent small children from falling overboard, is a bathing area in the morning and even-



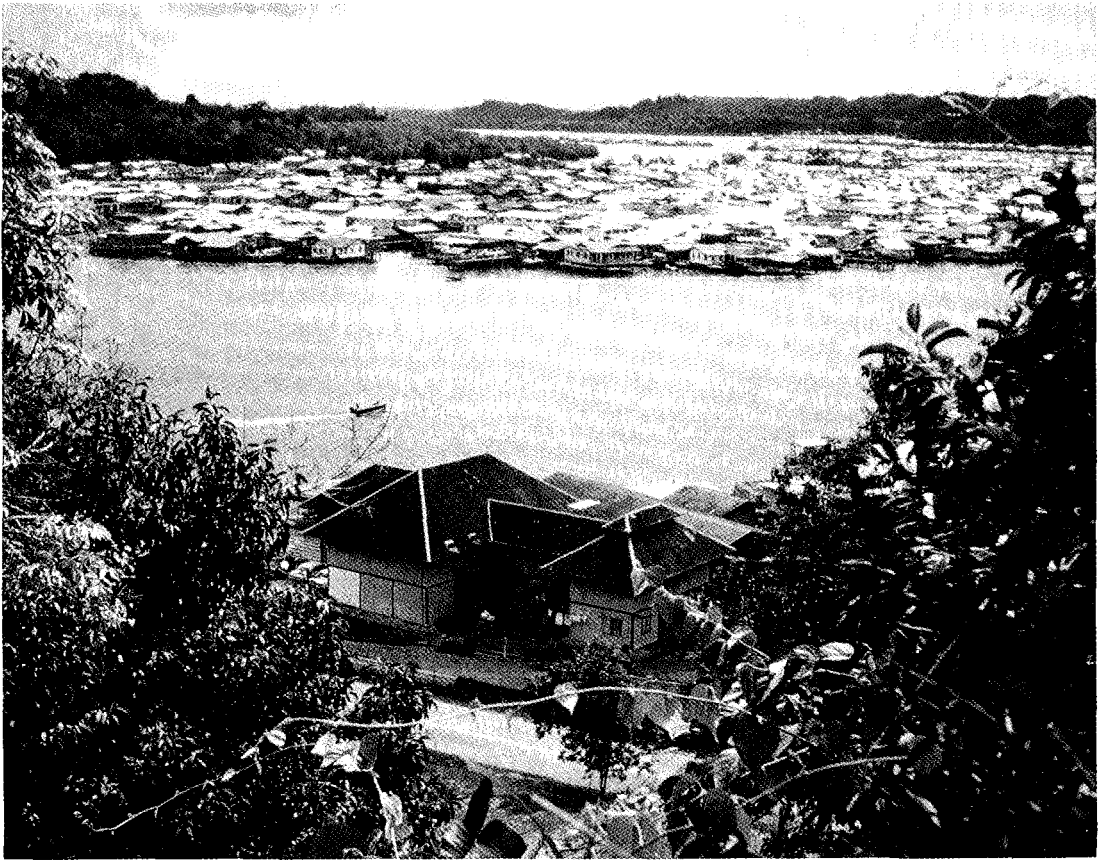
*Tha Khanon Village, Surathani Province, South Siam
The houses rest on the ground on a pile of bamboos and become afloat when the terrain is flooded*



*Bangkok at the turn of the century
It was the greatest floating city of all time.*

ing, and a shop during the day. The middle bay is for sleeping, while the one facing the embankment is for cooking and eating.

Being afloat, of course, made the habitat highly mobile. Indeed from time to time the houses were removed, and it was a curious sight to witness these



*Kampong Ayer, capital of Brunei
This is the most extensive settlement built on stilts standing in water today*

locomotive abodes, sometimes consisting of many apartments, loosened from the cables which had attached them to a particular spot, going forth on their travels to fresh destinations . . . without any inconvenience, and at the will of the owners.

Nowadays floating settlements have dwindled to a small number. The Sea Gypsies' village in Mindanao, some raft communities scattered in central and southern Siam, and the floating houses (and floating gardens) of Inle Lake, North Burma are all that come to mind.

Their days are indeed numbered. Soon they will join those that have already run aground and re-equipped themselves with pilotis to face conditions on terra-firma. But on land, the aquatic instinct remains, so that numerous great stone monuments are adorned with nautical and water symbols.

In West Pacific, particularly in South East Asia, we are linked by this instinct, which transcends the later religious and cultural cross-currents, an instinct which originates from that point in time when our habitats were water-bound.

Footnote

People belonging to a cultural area encompassing Polynesia, Micronesia and Melanesia Island, South East Asia

All photographs and illustrations courtesy of Sumet Jumsai except those on pages 58 by Kambhu and 59 (centre) by Saeng-Arun.