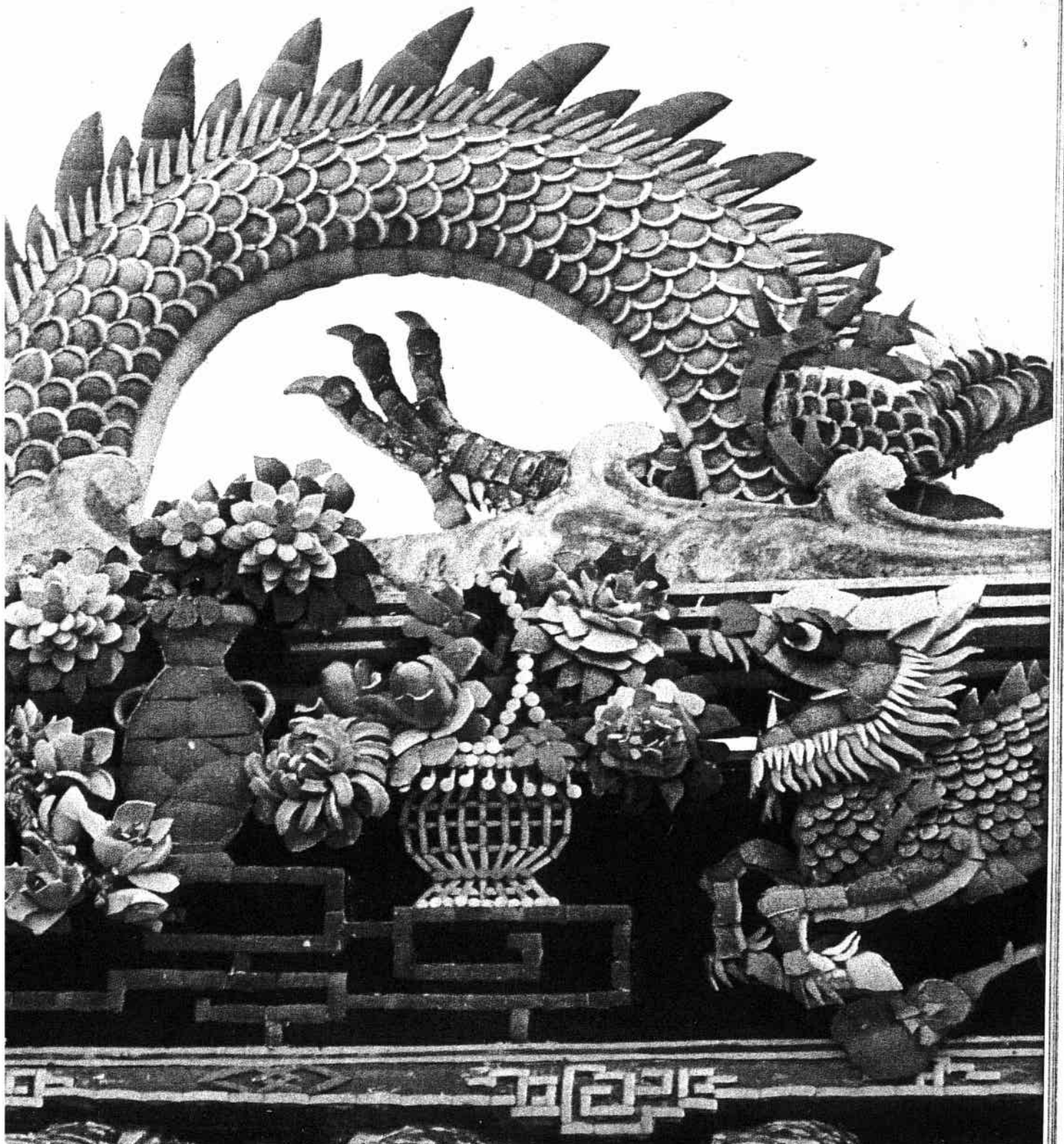
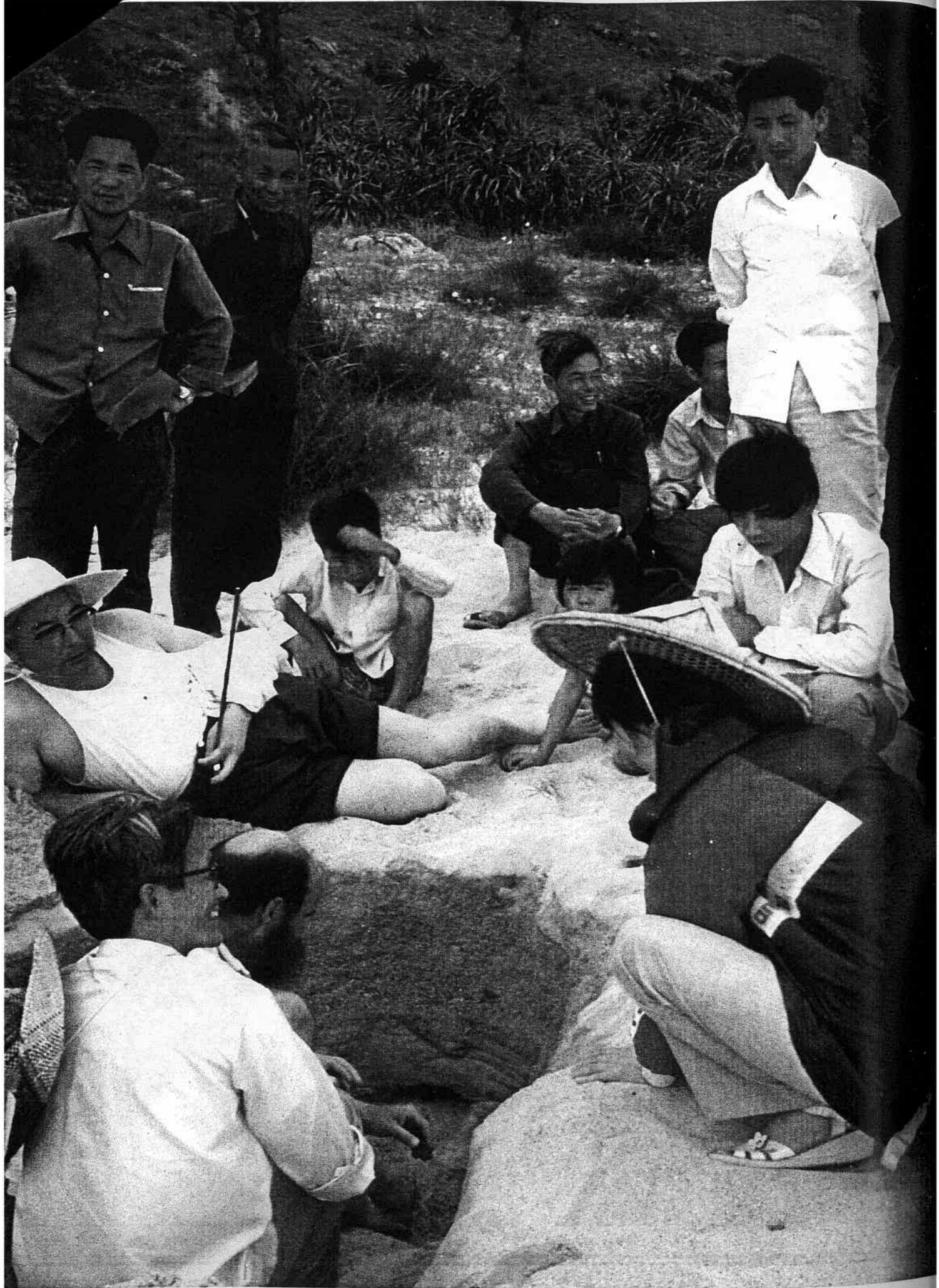


Sea turtles in the land of the dragon

Text and photographs by Jack Frazier





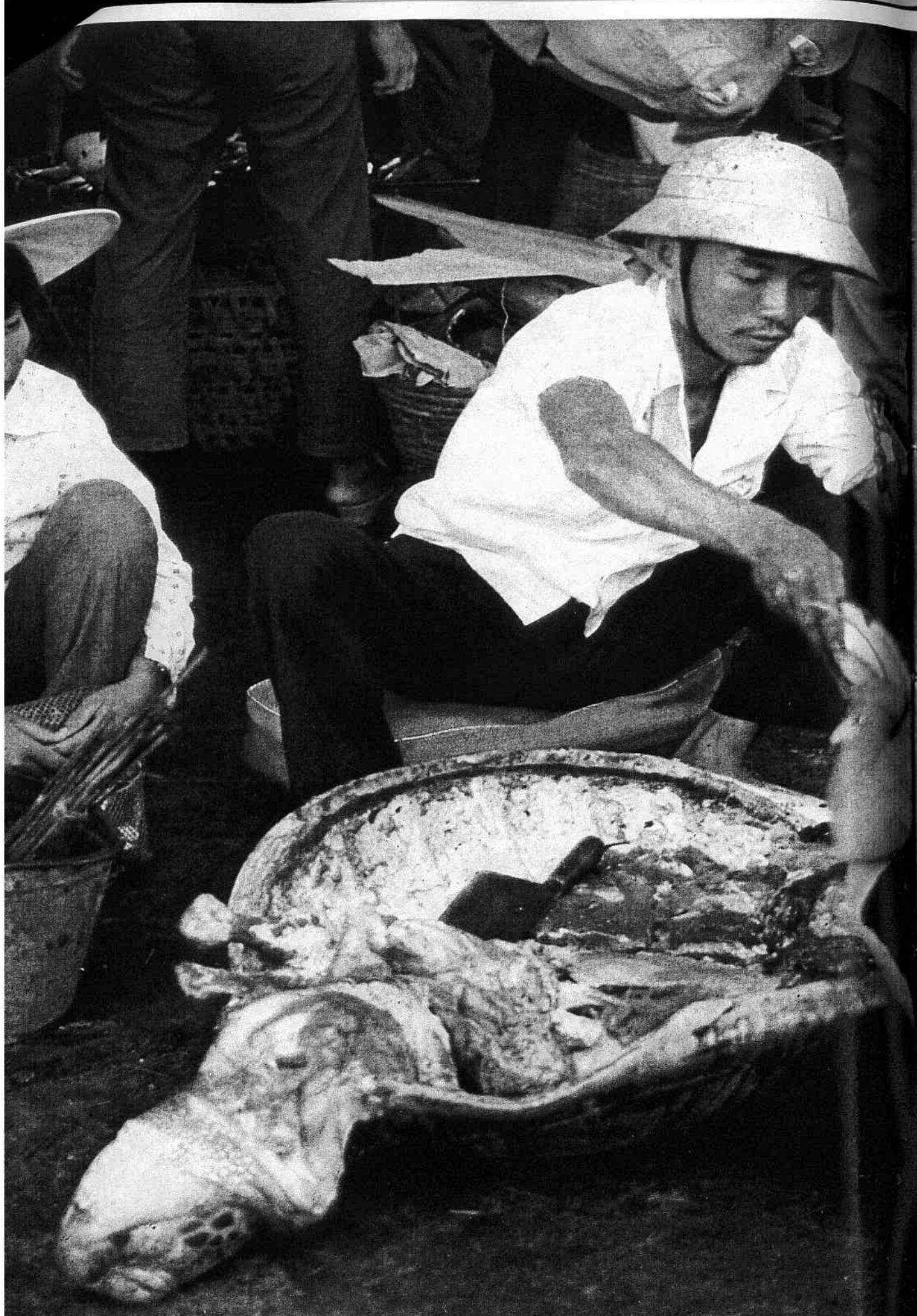


It is a comparison that is often made: the eggs of sea turtles are like table tennis balls. Yet, in this case there is greater relevance in such a well-worn simile. The so-called "table tennis diplomacy" of the Nixon administration resulted in the normalising of relations between the Peoples' Republic of China and the United States of America. Those ricocheting little white balls soon led to a variety of cultural, technical, and scientific exchange programmes, and in 1983 I was lucky enough to be awarded a grant by the National Academy of Sciences in Washington to do a basic study of sea turtles in China.

As in India, (see *Sanctuary* Vol. V. No. 1, 1985), five species of sea turtles had been recorded from Chinese seas, and there were several scattered reports of nesting; otherwise, few details had been reported in the scientific literature. Unfortunately, there has long been confusion between the identification of loggerhead and olive ridley turtles, and it was not until 1983 that the problem was finally resolved in mainland China. Compounding the lack of information is the immense length of the Chinese coast which extends from nearly sub-arctic to tropical conditions. The logistics of working in this vast area are complicated by the languages and customs which change not only from province to province but often from county to county. When Susana and I boarded the steamer to sail from Hong Kong to Amoy in May 1985, these were the thoughts which challenged us—manipulating chopsticks for five months was the least of our concerns.

Our counterpart and host was Professor Ding Hanbo of the Fujian Teachers University. Accompanying us on the survey were Mr. Zheng Ji, one of his students; Mr. Huan Chu Chien, from the Institute of Zoology in Beijing; Miss Lu Ling, our translator; and several technicians and drivers. Two months were spent driving from village to village along the coasts

The author, with friends, excavating a sandy beach in search of a turtle nesting site in the Fujian province.



of I
Ma
Tai
cen
the
cap
cha

Alt
ma
ten
Pro
Chi
of t
to
We
Dy
not
of
use
wh
nec
wri
cha
rep

V
spe
ridl
had
itse
pro
cos
hav
exc
fou
sou
hav
ted
lea
coa
hav
sou

Hy
tur
"h
an
—
All
jec

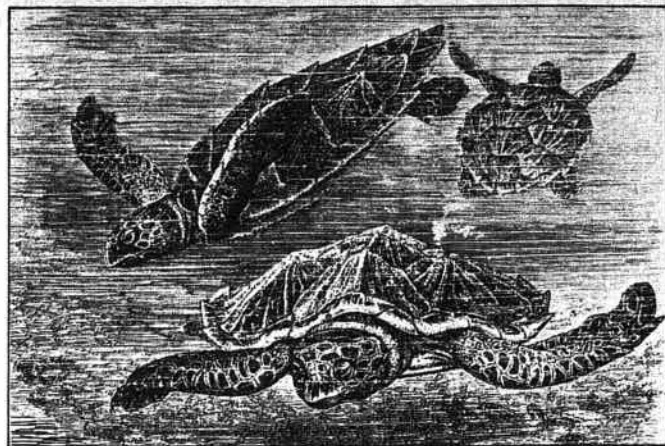
of Fujian and Guangdong in a university van. Many villages in Fujian, directly across from Taiwan, had not seen foreigners for half a century. We were more strange to them than their dragon-covered temples, misty hills capped with pagodas, and complicated characters and language, were to us.

Although there is a lack of detailed information about Chinese sea turtles, unique written records exist. According to the studies of Professor Ma Weng Chang, one of the great Chinese herpetologists, the writings of Er Ya of the Zhou Dynasty (770-486 BC) clearly refer to sea turtles. The detailed lexicon of Shou-Wen-Jie-Zi of the Xu Shen Period of the Han Dynasty (58-147 AD) had characters that not only described sea turtles, but two species of turtle were distinguishable. The characters used in these early writings are pictographs which illustrate the turtle's body, legs and neck. Nowadays, the characters used in writing are highly stereotyped, and the character for 'gui' (turtle) is not obviously a representation of the turtle.

Within several days of having started the survey we found our first specimen—the dried carapace of an olive ridley turtle, all that remained after the meat had been eaten. This pattern was to repeat itself throughout the Fujian and Guangdong provinces. We found all five species of the cosmopolitan sea turtles: ridley, green, hawksbill, loggerhead and leathery. With the exception of the hawksbill, these turtles are found from Hainan island in the extreme south, to the Yellow Sea in the north; the hawksbill is a species that is normally restricted to tropical waters. Ridley, loggerhead and leathery turtles are most commonly caught in coastal Fujian and further north. Green and hawksbill turtles are most common in the south around Hainan and the Xhi Sha islands.

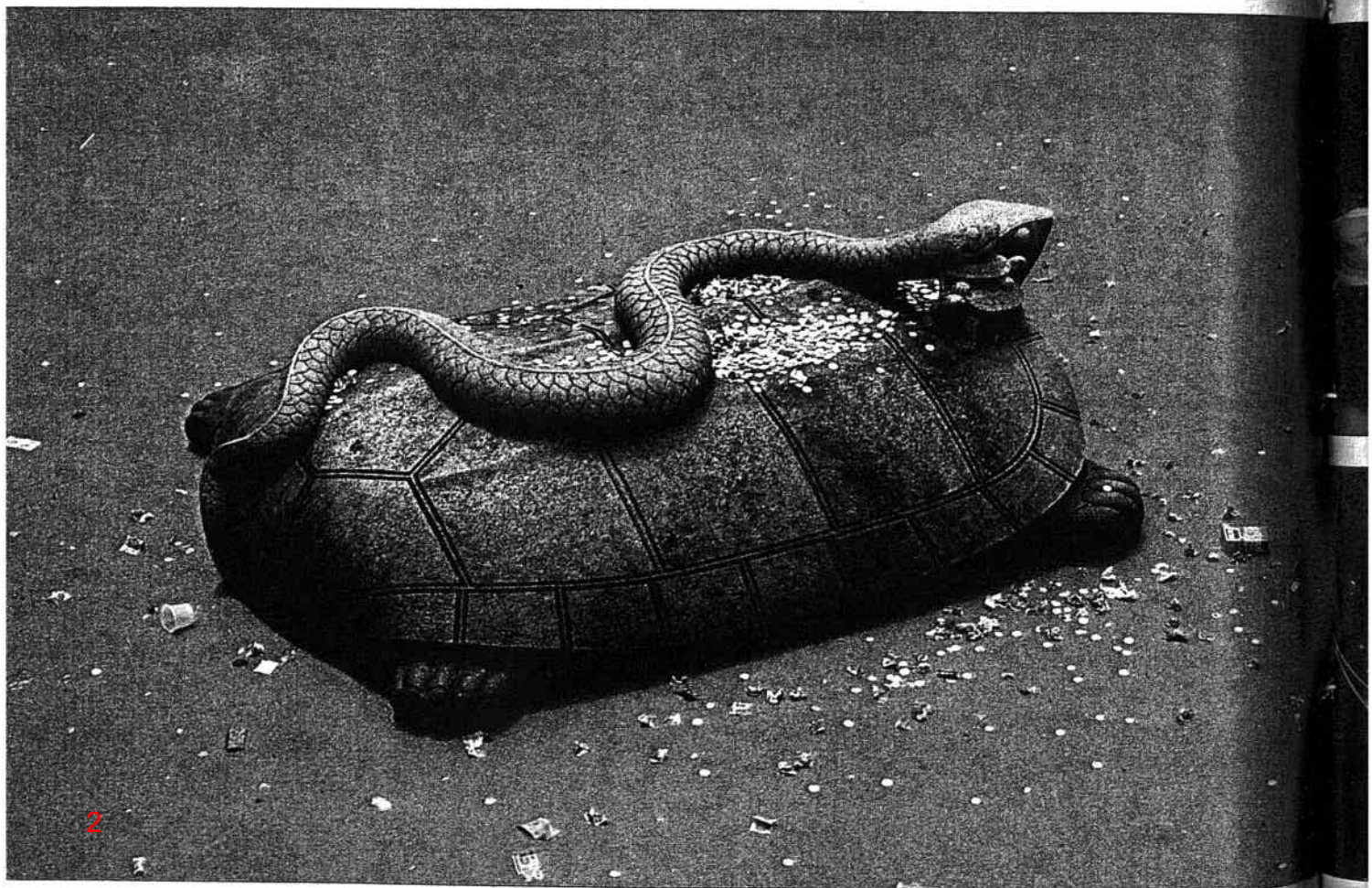
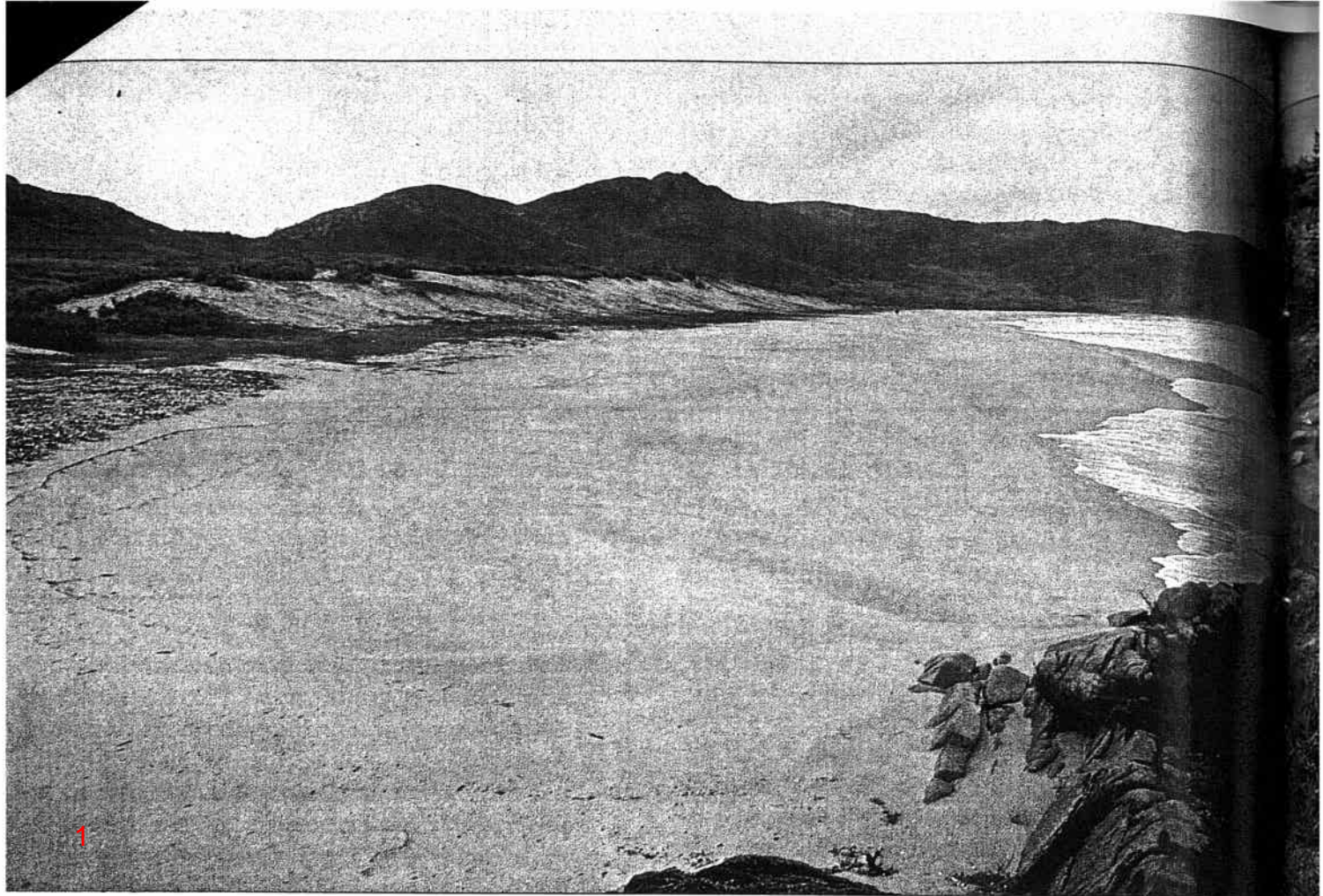
Hybrids between hawksbill and loggerhead turtles may occur in China; we found one "hawksbill" that had some measurements and scales more like those of a loggerhead.

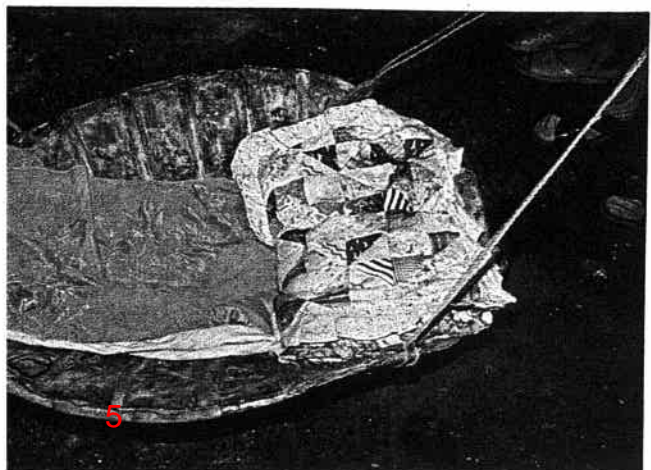
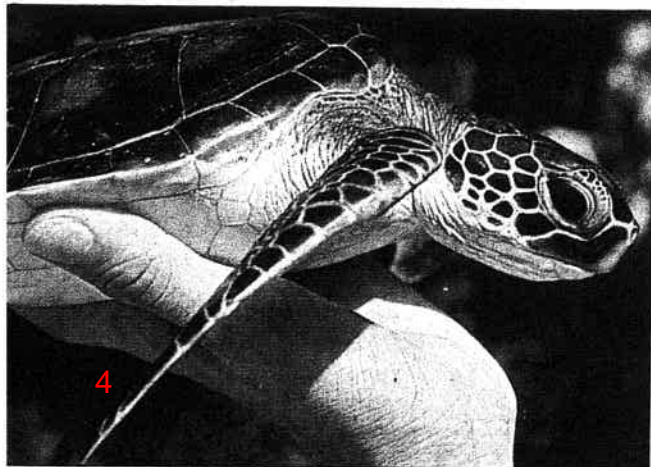
All over the world turtles (facing page) are subjected to intense exploitation.



Hawksbill-loggerhead hybrids have recently been found in Japan; but they are not known anywhere else. Another remarkable feature is that a small proportion of the Chinese green and loggerhead turtles have very heavy infestations of burrowing barnacles. One individual loggerhead had its entire carapace riddled with these crustaceans. Occasionally, a tumour-like growth appears in the shell around the mass of barnacles. In twenty years of studying sea turtles all around the world, I have never seen anything like this, and I have no idea what is causing these heavy infestations. However, aside from possible hybrids and heavy barnacle infestations, Chinese sea turtles are comparable to their respective species in other parts of the world.

There are scattered reports of sea turtles nesting on islands near Hong Kong and in the Xhi Sha islands of the South China Sea; and villagers from Ping Tan island, Fujian, to Hainan island, Guangdong, told of turtles nesting on their beaches. They would also tell, quite openly, of catching and eating the turtles. Considering the number of people in China, it is only to be expected that even the coastal areas are densely populated, and indeed over thousands of kilometres of coastline we saw a grand total of less than two kilometres of seashore that appeared to be natural. True to the generality learned by students of marine biology, the northern coasts are rocky and the southern shores, sandy. Thus, both temperature and beach type are more conducive to nesting in the Guangdong province which is in the extreme south. Yet, the only direct evidence of nesting which we could find along thousands of kilometres of coast was in the Hui Dong coun-





1	3
2	4
	5

1. Sandy beaches are ideally suited to turtle nesting. Thanks to studies and educational films, there is a growing awareness in China of the need to protect marine turtles.

2. Chinese folklore is replete with references to turtles. Here a stone carving depicts a snake 'mating' with a turtle.

3. Relatives created this tomb in the shape of a turtle to enshrine the memory of a departed family member.

4. A young green turtle. Central and provincial laws protect sea turtles in China, but observance of the law is dependent on the attitudes of local authorities.

5. This green turtle shell makes a perfect, swinging cradle. Conservationists are not against traditional use and harvesting of wildlife, however, the slaughter of thousands of green turtles on the Hainan Island is patently wrong and requires control particularly during the breeding season.

ty, at "Hai Gui" (sea turtle) Bay, where China's only sea turtle nesting reserve is located.

Although we visited countless sensitive coastal areas during the survey, there was one place where we could not go—the Xhi Sha islands. Even Chinese scientists do not often visit these coralline sand cays despite the fact that they are under Chinese control, for the islands are claimed by Vietnam, and aircraft attacks have been reported in the last few years. The Xhi Sha islands are reputed to be the most important turtle nesting area in China. Someday, when the world is more tranquil, perhaps a detailed study will be possible there.

Not only are nesting females subjected to intense exploitation, but even turtles in coastal waters, be they adults or juveniles, are caught regularly. As this is incidental to trawling activities, catch statistics for turtles are not kept. In an attempt to get an idea of the rates of exploitation we conducted interviews in all the villages that we visited.

Anyone who doubts that biological conservation is as much a problem of sociology and human relations, as a topic for biologists to ponder should spend two months interviewing Chinese fishermen. Each question asked in English was translated into Mandarin, then into the local dialect. To simply ask, "How old are you?" would require three questions in three languages and the response would be no less tortuous. Even with what appeared to be a perfectly straight-forward topic—a man's age—there were likely to be animated discussions: old age is a source of respect, so a fisherman might add a decade or so to his age for good measure. When we got into more specialised topics, for example, fishing techniques, the delay between the question in English and the response in English increased phenomenally. Often, I could understand from the gesticulations of the fishermen what was meant long before the somewhat confused response made its way up to me via the bank of translators.

In the end it was absolutely clear that turtles are caught along the coast of China during

trawling activities, especially during the summer months. Although the total number caught during a year in any particular village may be but a few dozen, when the total for the entire coast is estimated it is obvious that thousands of sea turtles are caught each year by fishermen. Because motorised vessels, nests of synthetic fibres and other technological features have made their way to coastal China relatively recently, this incidental fishery is a phenomenon of the last few decades only. What is alarming is that unanimously (with two or three exceptions—whose veracity was questionable) the fishermen stated that there has been a decline in the number of sea turtles they see and catch every year.

Sea turtles were caught by fishermen even in olden days, but they were always released back in to the sea. Sometimes these animals were inconvenienced: a wealthy person would purchase a turtle, have his name carved into the shell, and release it into the sea in order to gain merits for the hereafter. But, since a turtle is a living symbol of longevity, it was respected and revered—not killed. Even today some communities in coastal Fujian make tombs for their dead in the shape of a turtle shell; the scales may even be painted on to the "shell"

Of course, there are a few traditional uses of turtles: the oil is used for various medicines; the shell of a hawksbill turtle is used for jewelery and charms—it is said to cure arthritis. The most original use which we saw was the dried carapace hung as a baby's cradle; furthermore, mothers and less greasy green turtle shells instead of the more greasy ridley and loggerhead ones.

Today, attitudes about sea turtles have changed. The younger fishermen spoke of eating and selling turtles in a matter-of-fact, unabashed way. The older fishermen would also talk about utilising turtles, but they often spoke of traditional medicines, and they would recount how attitudes used to be in former times. Now, despite ageless traditions, the entire community is caught up in a money-based economy. In some villages, we were even told that the animals' bones are used for

fertilisers and the shell, for making wine! Only the sigh of the turtle is not used. The capitalist spirit is very much alive and well in coastal China. The result is the same pattern seen over and over with the world's natural resources: the intensive exploitation of something which formerly was utilised only with restraint.

Despite the widespread catching and killing of sea turtles in China, there are various laws protecting the animals. These include laws from the Central Government as well as provincial and county laws. However, the observance of such laws depends mainly on the attitudes of local authorities. In the south there is a strong tradition of eating wild animals of all kinds, so there is much less interest in following the laws protecting sea turtles.

Thousands of green turtles are slaughtered every year on Hainan island, and most of these animals are caught in the Xhi Sha islands—evidently while they are breeding. What is even more worrisome is the volume of corals and shells that are shipped from Xhi Sha to government controlled co-operatives on Hainan. The policy of unchecked exploitation of remote islands is a practice which we humans are keen on—whether the local temples are bedecked with dragons, Hanumans, crosses or crescents.

On the one hand, the sea turtles of China seem to be confronted with a gloomy future. But China is much too complex to be able to make such a simple prediction. There is a well-established sea turtle reserve about 100 km. north east of Hong Kong at Sea Turtle Bay. Nearly two km. of sandy beach with associated Pandanus groves are protected; sign-boards at all approaches to the reserve announce that killing or molesting turtles or their eggs is strictly prohibited and that transgressors will be presented with stiff fines. Turtle watchers are stationed on the beach round-the-clock during the nesting season.

Although this reserve is tiny, the will to provide adequate protection is strong, and this project has recently become the focus of national attention. Studies and public education films on sea turtles are now being made here.

Other nesting reserves have also been planned for offshore islands in Sanya county, in the extreme south of Hainan island (not far from the centre of turtle slaughter in neighbouring Qionhai county). With the national programme of the "Four Modernisations" there is a growing awareness of the need to provide protection and rational management for China's sea turtles.

Realistic conservation of sea turtles in China is not simply a parochial problem, but affects a vast area. The best example is provided by the leathery turtle; these animals are not known to nest anywhere in China, yet they occur regularly in offshore waters at least as far north as Shanghai. The fact that nesting females tagged at Trengganu, West Malaysia, have been re-caught in China, Japan and other places in the western Pacific, shows that the range of the leathery turtle in this region covers a tremendous area of the Pacific and the South China Sea.

Each of the other species of sea turtles in China also ranges over immense expanses of these seas. Loggerheads may nest in small numbers in China, but far more nest in Japan where there are several well-established conservation programmes. Green turtles do nest in China, but it is likely that large numbers of the animals found in Chinese waters have bred in the Philippines, Indonesia and other tropical areas. Hawksbills are also most likely to emanate from these warmer seas.

As is usual, the riddle is the ridley turtle. There is no evidence that these animals breed in China, yet they are regularly caught there. For anyone who has witnessed the incredible mass nesting of ridleys at the Gahirmatha beach in Orissa the first thought is that India and China, as well as many other countries in between, may share the same population of ridley turtles.

Sea turtles, perhaps from sheer ignorance, perhaps from a deep wisdom attainable only after millions of years of existence, steadfastly ignore the lines that men draw on maps. The oceans are all part of this planet to them. Perhaps these lowly reptiles could teach *Homo sapiens* a lesson or two. □