

RHINO EXPLOITATION

The Trade in Rhino Products
in INDIA, INDONESIA,
MALAYSIA, BURMA,
JAPAN & SOUTH KOREA

**ESMOND
BRADLEY
MARTIN**

Preface by LEE M. TALBOT

Introduction by ELSPETH HUXLEY

WWF  **WORLD WILDLIFE FUND
HONG KONG**

世界野生生物香港基金會

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Published by World Wildlife Fund Hong Kong

Production by PPA Design Ltd.

Designed by Debby Carter and Maggie Brown

ISBN 962 7095 01 X

Printed in Hong Kong.

ACKNOWLEDGEMENTS

From the time I began studying the trade in rhino products, the World Wildlife Fund (WWF) and the International Union for Conservation of Nature and Natural Resources (IUCN) took a direct interest in my work. It is due to their support that I was able to carry out research in Asia, and I wish to thank both of these conservation organizations for their funding of my work and their efforts in disseminating the information I have gathered.

I especially want to express my great appreciation to WWF Hong Kong for publishing these most recent reports and to three Hong Kong people who made special contributions — Maggie Brown (and the staff) at *PPA Design* for professional publishing assistance, Debby Carter for her time as designer and coordinator of the project, and Shann Davies for assistance in editing and proofreading. In addition, a special thanks to Elspeth Huxley for her continuing dedication to the cause.

Many, many thanks are due to these people and to others not named here, for help in a project we sincerely believe will help conservation of the world's rhinos.

PREFACE

Historically, conservation has been a process of reaction. A threat to a species or an area was perceived and conservationists reacted to the threat. Consequently, reactive conservation focusses on the effects, not on the causes — therefore it usually treats the symptom, not the basic illness; it emphasizes cure, not prevention. The reactive approach has been responsible for most of the substantial accomplishments of conservation to date; however, the reactive approach alone is not sufficient to meet the conservation challenges of today and it is totally insufficient to meet the awesome challenges of tomorrow.

What is needed is an approach which deals with base causes, not just symptomatic effects; which focusses on long-term prevention rather than short-term cure; and perhaps above all, which emphasizes the essential link between conservation and human welfare.

This principle is particularly well illustrated in the history of attempts to conserve rhinos. Most conservation endeavours have focussed on documenting the status and decline of the animals, efforts to protect the animals from poaching and efforts to protect the animals' habitat.

The major threats to the rhinos are loss of habitat and the commercial demand for rhino horn. The two factors, of course, are intimately interrelated. As the area of habitat is reduced the number of animals which can be supported is reduced, and the remaining animals become increasingly vulnerable to poaching pressure.

To date, the most visible conservation effort has gone into anti-poaching to protect the rhinos in the field. Attention has not been focussed on the potent factors which cause poaching. As a result, poaching continues, and the animals continue to decline.

Dr Esmond Bradley Martin's endeavours represent a change to this approach. As such, they constitute a uniquely important contribution to the conservation of rhinos. Maybe more significantly, they are a concrete contribution to the new directions which conservation must follow if it is to succeed.

Dr Martin's approach has been to focus on the factors which ultimately result in rhino poaching, i.e. the uses of the products and the international trade which these uses drive. He has travelled extensively in the Asian countries where the horn and other rhino products are used. His investigations have ranged from the end-users through the pharmaceutical and medical establishments involved to the retailers, wholesalers and international trade. In addition to reporting on the current status, he provides an invaluable historical perspective on changing patterns of use and trade, and for each area concerned he

provides a set of recommendations for practical conservation action directed at the cause of the problem, the effect of which is the loss of the rhinos.

The investigations on which he reports were supported by IUCN and the World Wildlife Fund. IUCN is particularly pleased to see these reports published because of the contribution they make to the conservation of the species involved and also because of the contribution they make to the essential new directions in conservation.

Lee M. Talbot
Director General, IUCN, 1980-1982.

INTRODUCTION

The 1970s may have been a good period for many in our consumer society, but for the rhinoceros it was a decade of disaster. In those ten years, 50 per cent of the world's rhino population disappeared.

The black rhino bore the brunt of the damage. In eastern Africa, formerly the stronghold of the species, nine out of ten of those cumbrous, vulnerable and endearing creatures were wiped out. Most of the killing was done by poachers carrying out their cruel trade to meet the demand for rhino horn in Asia and the Middle East.

An animal that has inhabited the earth for some 60 million years is now reduced to a few thousands that cling onto survival in little pockets of bush and jungle set aside for their protection. And even there they are being relentlessly hunted, trapped and killed.

Then beginning in 1978 Dr. Esmond Bradley Martin, sponsored mostly by the World Wildlife Fund and IUCN, travelled through much of Asia in order to find out who buys the horn, in what quantities, and for what purposes. He discovered that some of the most widespread preconceptions about the trade were wrong. That rhino horn was used in aphrodisiac concoctions, in the mistaken belief that it increased sexual virility, was the generally accepted doctrine. By questioning the people who actually sold the horn, the pharmacists — nearly all Chinese — of Singapore, Hong Kong, Macao, Taipei and elsewhere, Dr. Martin found out that its main use is not as an aphrodisiac after all, but as a remedy for various ailments such as high fevers, headaches, arthritis and other infirmities. In parts of India it is indeed believed to stimulate sexual performance, but throughout South-East Asia, as well as in China, it forms part of traditional Chinese medicine practised today, much as it was 1,000 years ago, alongside modern treatments using scientifically based drugs.

From the rhino's point of view, of course, it does not really matter whether the protuberance on its nose is believed to be an aphrodisiac or a cure for fevers; in either case, the persecution of the species by the human race stems from a myth. But it is as well to establish the facts before seeking a remedy.

Trade in rhino products is banned by CITES — the Convention on International Trade in Endangered Species of Wild Fauna and Flora — and so every country which has ratified this agreement, and which still imports or exports the horn, does so illegally. Nevertheless a thriving trade goes on, with a host of agents, smugglers, wholesalers, retailers and financiers involved in a loosely linked but highly effective network stretching from the Chinese pharmacist in, say, Singapore or Taipei, to the national park employee in India or Africa who may be

underpaid, inadequately supervised and ill-equipped and so, not surprisingly, an easy target for bribery or intimidation. When one considers that a single horn of an Indian rhino may be worth the equivalent of three years' wages as a farm labourer or hotel waiter, the prevalence of bribery and smuggling is understandable.

Altogether it is a gloomy picture for all five existing species of rhino. The Javan species is down to an estimated 60 individuals clinging to existence in a small reserve at the western tip of that island. Probably no more than 500 of the Sumatran race exist in very small and scattered populations. The Indian species is rather better off; a population of about 1,600 dwells in national parks in India and Nepal, and vigorous measures are being taken by those governments to protect them. The one real success story concerns the white, or square-lipped, rhino of southern Africa. Hunted to the very verge of extinction, it was rescued by the Natal park authorities and, under protection, has built up its numbers to a point where populations have been established in other parts of Africa, as well as in many zoos. It is the black rhino that has been really hard hit. For any animal, there is a point of no return when numbers have so fallen that the likelihood of males and females encountering each other in the bush is virtually nil. This point has now been reached in many parts of a habitat that formerly covered most of Africa south of the Sahara.

While the outlook is certainly grim, Dr. Martin does not think it hopeless, except possibly for the Javan and Sumatran species. Better policing and management of national parks is the first priority. It is easy enough to say this, exceedingly difficult to bring it about. As Dr. Martin points out, the breakdown of law and order is a factor which no amount of support from wildlife organizations and international bodies can remedy.

Nevertheless, in most African countries the parks are being maintained, if not always with efficiency, because their value to the tourist industry is recognized. What is mainly needed is more money. There is also a need for better management techniques.

Dr. Martin believes that a heart-felt appeal to wholesalers who import the horn, legally or illegally, into Asian countries, to cease to do so, and perhaps substitute some other horn like that of the saiga antelope, might not fall on deaf ears. Some may consider this suggestion over-optimistic, but at least it is worth a try.

Dr. Martin has found out the facts, stressed the situation's urgency and suggested measures which, although they could provide no quick or complete solution to the problem, might at least halt the decline towards extinction of this fascinating species, cursed with its myth-encrusted horn. The tendency of large organizations to generate a maximum of words and a minimum of action has not passed by the

world of conservation. Good intentions, like some African rivers, are apt to run into sands of reports, committees, conferences and global strategies, which keep a lot of people busy but do not halt the poacher with his gun or poisoned arrow, the smuggler in his dhow, the importer with his faked documents.

While people pass resolutions, rhinos die.

It is to be hoped that Dr. Martin's study will not only interest and intrigue his readers but will also stir into vigorous action governments, societies and individuals who really want to see the rhino preserved. "Run, rhino, run" — he is approaching the brink but it is still in our power, if only just, to halt his plunge over the precipice.

Elspeth Huxley



THE TRADE AND USES OF RHINO PRODUCTS IN INDIA

OCTOBER 1980

INTRODUCTION

Indian rhinos have been killed for their horn and skin for hundreds of years, but it was not until the nineteenth century that they were killed in very large numbers and began to disappear from huge areas of northern India, their major stronghold on the sub-continent. Their decline was due to two separate causes, the destruction of their habitat in favour of plantation agriculture and the introduction of modern firearms, used by both Indian aristocrats and British military officers to hunt rhinos for sport.

Two of the most prominent sportsmen who specialized in slaughtering Indian rhinos were Colonel Fitzwilliam Thomas Pollok who killed at least forty-seven rhinos in Assam and Bengal towards the end of the nineteenth century and the Maharajah of Cooch Behar who personally shot 207 rhinos between 1871 and 1907. However, the more devastating effect on the Indian rhino in the long run was to be the consequence of tea cultivation in Assam. Beginning around the middle of the last century vast areas of land which were part of the range of the rhino were cleared to plant tea. Roads and a railway were built to link Assam to other parts of India, and many thousands of labourers were imported from Orissa, Bengal, Madras and Bihar to work on the plantations.

Consequently, by 1850 there were no rhinos left in the Rajmahal Hills of Bihar, and in 1878 the last rhino was shot in Uttar Pradesh. According to W.T. Blanford, by 1890 Indian rhinos had become mostly extinct except in southern Nepal, the Bhutan Duars, parts of West Bengal and the Brahmaputra valley of Assam. In fact, as late as 1896 the government of Bengal was paying a bounty of twenty rupees for every rhino killed. Incredibly, by 1908 the Kaziranga area of India, which in the early nineteenth century had had the greatest number of Indian rhinos, was left with only about a dozen of these animals.

In the early years of the twentieth century the Indian government began to act to save the few remaining rhinos. Rhino hunting was abolished in 1910, and soon afterwards state governments began to protect a few of the areas where rhinos still remained. In 1908 Kaziranga had been declared a forest reserve; it became a game sanctuary eight years later and was essentially closed to the public until 1938. Laokhowa, eighty kilometres west of Kaziranga, was established as a forest reserve around 1929. In the neighbouring state of West Bengal, Jaldapara was unofficially recognized as a reserve in 1936 and officially became a sanctuary primarily for rhinos in 1941. Today it has West Bengal's largest rhino population.

Despite the efforts to protect rhinos and their habitats in India, poaching continues to be a problem. Kaziranga, with the world's largest Indian rhino population, has its whole history marred by poachers. At the time when it was a forest reserve, one forest officer came across forty rhino carcasses, all having had their horns removed. The poachers then were Mikirs, a tribal people living in the hills of the same name just to the south of Kaziranga. Forest officers often gave chase to them on foot, and in their attempts to grab hold of them, they would reach for the ends of the Mikirs' embroidered loin cloths, but the Mikirs would be quick to take out a sharp knife and cut off their "tails" to facilitate their escape.

When Kaziranga was opened to the public, poaching incidents declined. By the late 1960s an average of eleven rhinos were killed each year. This dropped to only three per year for the entire 1970 decade, when the permanent staff of the park was increased to around 200, half of whom being continuously on patrol, in vehicles, on the backs of elephants and on foot. The 425 square kilometres of Kaziranga are divided into forty different blocks, each of which has its own camp for the forest guards who start their day looking for vultures, which may indicate a rhino carcass. Extraordinarily well trained for sensing smells, these patrolmen are also able to locate a dead animal without the help of vultures. To keep a regular check on the places where rhinos tend to congregate during the day, there are paths to them through the swamps from the patrolmen's camps.

In 1968 a poacher killed one of the park's men with a bullet, and he was never caught. Immediately afterwards the highest ranking official of the park, Range Officer R.N. Sonowal, arranged for many more guns for his guards and gave them authority to shoot at poachers whenever there was a possible threat to their own lives. From 1969 to 1978 four poachers were officially killed by forest guards on their patrols in Kaziranga, and several others were severely wounded. The poachers soon realized that they really were risking their lives when they went after rhinos.

Another deterrent for the would-be poacher is that the prison sentence for killing a rhino has increased from three to six months. This doubling of the term occurred for the first time in Assam in early 1980. In years past the forest authorities have had difficulties in getting poachers convicted of their crime because the courts wanted absolute proof, with witnesses, that the accused carried out the killing. A lone poacher caught standing by the carcass of a rhino was sometimes not jailed because the Forest Department could not prove that the man had indeed been responsible for the animal's death.

Times are changing now. Magistrates have suddenly learnt that the poachers are being paid higher sums than ever before for rhino horns, and that poachers are all kinds of people, not only tribal men but also Assamese and even Nepalese. Furthermore, they are killing the rhinos because of the increased value of the horn on the black market, and not simply because they are hungry and want the meat. It has taken some time for the courts to realize how the matter stands, but they do now agree with the park authorities that stricter measures must be taken against poaching.

The most common poachers in Kaziranga are still the tribal Mikirs who both shoot and trap rhinos. Shooting has certain disadvantages: to be caught in the park with a gun in hand is sure to mean a prosecution which, although it may not lead to a conviction, can be quite awkward. And, if a poacher does shoot a rhino, he has to be very wary of the possibility of being heard by a patrolman. Moreover, poachers do not own their own guns and have to make arrangements to hire one from somebody. They usually deal with farmers who have licences to possess shotguns; heavy bore rifles are impossible to obtain. Farmers generally demand between 200 rupees (\$25) and 500 rupees (\$65) from a poacher who wants to borrow a gun for two to three days. The poacher then makes his own, special heavy bullets and packs them with extra gun powder. Once ready with a gun, he enters the park at night, when the risk of detection is least. At first light the poacher makes his way to a mud hole favoured by rhinos or to a recently burnt area. Forest guards regularly set fire to the tall grasses from January to March to prevent the emergence of trees, which rhinos do not like. The fresh, new grasses that come up afterwards are especially palatable to the rhinos, and such areas are ideal for the poacher, who can lie in ambush in the surrounding tall grass and bide his time until a rhino comes along to graze, hopefully when it is still very early in the morning. If the poacher is lucky and kills his prey, he rushes up to it and hastily removes the horn with a knife. Although a rhino's skin is also valuable (worth \$500 a kilo retail in Southeast Asia in 1979), the poacher usually does not dare to take the extra time needed to remove it; even when he thinks his chances of escape are relatively good, the

raw hide is very heavy to carry and must later be dried out in the open. So, the general rule for the poacher is to grab the horn and run. He makes his way out of the park as rapidly as possible and heads for a nearby village to make contact with a middleman to whom a quick sale of the trophy may be made.

All three of the rhinos found poached in Kaziranga between January and March 1980 were killed in pits. Pit building is also carried out at night when two or three poachers join forces to dig them two metres deep, one and three-quarters metres wide and four metres long. The poachers always try to make more than one before early morning and they camouflage them with grass spread across the tops of them. Then they wait for two or three days before their return to check whether a rhino has fallen into one. More often than not when a hapless rhino ends up this way, he will die as a result of thrashing about to try to get out, so it is rare for the poachers to have to spear him when they find him.

An average Indian rhino horn weighs 720 grams, and in early 1980 a poacher could expect to receive 7,000 rupees (\$875) for one; its wholesale value in Southeast Asia and the Far East ranged in mid-1980 between \$6,000 and \$9,000 per kilo, a considerable rise from the average \$4,200 wholesale price in 1979. It is because of the increase in price that poaching, despite the greater risks now, appears to be on the increase again in 1980. After all, an honest man working as a farm labourer or as a waiter in a Gauhati hotel would need to work three years to earn as much money as a poacher makes from a single rhino horn. The middleman who buys the horn from him sells it, with his own profit on the undertaking, to a trader who in turn transports it to Calcutta or elsewhere to pass it on to another person for export. There is a whole chain of people involved, which is typical in India where syndicates operate in most illegal enterprises in order to ensure that if one person is caught by the authorities he will not identify the others. In the first place, he only knows the individuals next to him in the ring and, secondly, the syndicate will usually pay whatever fine is assessed and will also help support his family if the offender is sent to jail. Moreover, should an arraigned poacher talk too freely with the consequence that some of his colleagues are caught, other members of the syndicate will certainly take revenge on him.

The park authorities have tried to break up poaching gangs by paying informers, but so far these people have only disclosed the names of poachers, and the fear of what may happen in the long run counters a poacher's desire for leniency in the courtroom. He would much prefer to go to prison, knowing that his family will be cared for, than having to face the penalties that his syndicate may exact from him.

Poachers only operate in the dry months when the rhinos are

easier to locate in the park. During the heavy monsoon rain in July and August, Kaziranga becomes flooded and many rhinos come out to search for food, often cultivated rice and other agricultural crops. It is rather ironic that at the time of year when rhinos wreak havoc on the farmers their lives are least at risk, but in a populated area there are too many potential witnesses to the killing of a rhino and too much jealousy over the prospect of easy money from a horn.

It is not only the horn from poached animals that is sold in India. Forest guards in Kaziranga and Manas Sanctuary, also in Assam, are encouraged to collect the horns of the animals that die of natural causes and also those pieces broken off during rhino fights. In their eagerness, the forest guards dig through mud wallows and dive into deep pools to retrieve such horn. Range Officer Sonowal believes that almost all of the horns from dead animals are collected by his patrolmen. At Kaziranga headquarters, when rhino horn is received, it is weighed, marked and locked into a safe in Mr. Sonowal's office until time for an auction at Gauhati, a town 220 kilometres away, where all rhino horn from the state of Assam is legally sold.

Technically, the horns are offered for "tender" which means that the Chief Conservator of Forests does not necessarily have to accept the highest offer, but in practice the person who puts in the highest bid gets all the horns at that particular auction. Auctions usually take place annually, but none was held in the financial year April 1968/March 1969. The Forest Department puts a lot of effort into organizing one, and it is a thankless task due to the disputes arising from the potential buyers.

From the financial year 1972/3 to 1979/80 the total number of horns put up for tender by the Forest Department in Gauhati was 283, weighing a total of 205 kilos. The Forest Department grades the horns into three qualities depending on the condition of each horn; new horns without any defects such as cracks and holes command the highest prices. From 1972/3 to 1978/9 the price for the first quality horn gradually increased from \$1,800 a kilo to \$1,950. However, for the thirty-nine and a half kilos offered for sale in 1979/80 the highest tender was \$7,800 a kilo.

The sharp increase in price is not due to less supply. In fact, the amount of horns at auctions has increased during the past decade, from seven and a half kilos in 1972/3 to a record amount of forty-five and a half kilos in 1978/9, as a result of the overall increase in the rhino population of Assam and the efficiency in collecting horn from deceased animals in Kaziranga.

Most of the bidders for rhino horns at the Gauhati auctions are traders from Calcutta, but not a single one of them has tendered the highest bid since 1964/5. From 1965/6 to 1975/6 a Nepalese from

Kathmandu bought all the horn. For 1978/9 and 1979/80 he was outbid by a merchant from Manipur, a small Indian state southeast of Assam.

The only other Indian state which has rhinos is West Bengal, but none of the rhino horn held by the authorities there has ever been sold. It remains in safe-keeping with the Forest Department, except for some individual horns that have been given to museums. There is not very much anyway. The rhino populations in both Jaldapara and Garumara, a tiny reserve of only eight square kilometres, are very small. In 1964 the Forest Department carried out its first official census of the rhinos in Jaldapara and came up with seventy-two in number. Only two years later Juan Spillett made a census of all the animal species in that sanctuary and estimated that the total rhino population was between fifty and sixty individuals. The Forest Department's census in 1978 recorded less than half this number. Most of the deaths of rhinos there are attributed to poaching; the Forest Department estimates that just within the years 1967 and 1972 some thirty-seven rhinos were illegally killed in Jaldapara and Garumara. According to the Conservator of Forests (Wildlife) of the West Bengal government, Mr. B.K. Bardhan Roy, one single gang is responsible for almost all of the poaching in Jaldapara, but its syndicate is so well organized that despite searches of the houses near the reserve (in which rhino horn has been discovered), not one member has been convicted of rhino poaching. This syndicate has refined its operations more intricately than that of the gangs in Kaziranga. For example, when a poacher kills a rhino in Jaldapara, he himself does not remove the horn. He instead immediately leaves the reserve and informs another person of the exact location of the rhino, and he then sends someone else to collect it. With each member playing a very limited role in the syndicate, it is an almost hopeless situation for the authorities to handle.

Whilst the number of Indian rhinos killed already in the early months of 1980 remains small, its percentage increase is alarming and can be directly related to the prices paid for the horn, both illegally in West Bengal, where two rhinos from Jaldapara have been poached, and in Assam, where the price at the legal auction was almost four times higher than twelve months previously. The remaining rhino population in Jaldapara is down to twenty-four, a barely viable breeding group; and there are only six rhinos left in Garumara. Even with 950 rhinos in Kaziranga and approximately 200 in other sanctuaries, there is no complacency among the officials who fear that because of the very high demand for rhino horn in Southeast Asia and the Far East poaching threats are going to be greater in the 1980s than ever before.

PAST AND PRESENT USES OF RHINO PRODUCTS

In my study of the Chinese medicine shops in Singapore, Hong Kong, Taiwan and Thailand in late 1979 I found that the Chinese do not consume rhino horn as an aphrodisiac; in fact they never have done so historically, even though they do use a lot of different types of "love potions". One reason for my going to India was to ascertain how widely used rhino products are today. I also wanted to confirm or reject the belief that Indians, in particular the Gujaratis, use rhino horn as a sexual stimulant. In India, as in Southeast Asia, it was the pharmacists who deal in traditional medicines who were able to provide me with the most reliable information on this subject, since they are the ones who make their living from catering to the demands of the public for aphrodisiacs.

There are two main schools of Indian traditional medicine, Unani and Ayurvedic. Indian Muslims adhere to the former, which has close links with Persian and Arabian medical theory; and Hindus follow Ayurvedic which, unlike Unani, rarely makes use of animal products, relying more on minerals, herbs and chemicals. Both schools produce aphrodisiacs, and from interviews I soon discovered that aphrodisiacs are common in most parts of the country, although the products used for this purpose vary considerably, due to local customs.

Traditional medicine shops, especially in urban areas, make a large proportion of their income from selling sexual stimulants to all classes, except the very wealthy, who seem to rely entirely on western-oriented medical practice. Older men are the main clients, and they told me that it was considered a terrible failing to allow ageing to impair their skill and frequency in performing sexual intercourse. Consequently, they consume innumerable tonics, tablets and concoctions in ardent hope — rather like western women who indulge in every new cosmetic to try to disguise the onset of middle age. Moreover, love potions are just as prominently advertised and displayed in Indian traditional medicine shops as Revlon ranges are in American drug-stores. They are not kept hidden under counters and brought out only when a customer in a hushed voice asks for them. Once when I was in a taxi in Old Delhi, my driver passed a bus bearing a huge sign in English, reading: "Do you have sexual problems? Do you wish to have more strength and vigour?" Underneath, for the convenience of those whose answer would be in the affirmative, was the name and address of a Hakim (doctor) who would remedy the problem.

I was interested primarily in aphrodisiacs made from animal products, so I mainly went to Unani medicine shops. The most

expensive one I saw was deer musk, retailing for an incredible \$625 per ten grams in a shop in Bombay. Some of the less expensive love potions found in this city are monkey glands, goat bile, the penis of a rabbit, a special gland from the crocodile and the bile of a whale. Most of these Unani medicines are manufactured in pharmaceutical firms in Bombay, Ahmedabad and Delhi, and are packaged in the modern way with a full list of their ingredients, often written in the English language.

In Baroda, Gujarat, two of the more popular aphrodisiacs are worms and land slugs. The dried worms, crushed into a powder and mixed with other ingredients, are made into little pills that sell for 75¢ per hundred grams. The purchaser mashes them and mixes them with oil for external application to his penis. The slugs, being much more difficult to obtain because they are available only during the monsoon months, sell for ten times as much as the worms. They are also crushed and mixed with oil and applied in the same manner.

In West Bengal there are additional animal-based aphrodisiacs, and one of the most common is made from red ants. During the monsoon when these ants move about in the open, they are caught, mashed and turned into an oily substance for application to the male organ. The price for ten grams is only 50¢. A similar type of oil is made out of leeches and sells for 75¢, which is the same price as tiger fat, also manufactured for external use. A dried bull penis is sometimes mixed with what are reputedly strong herbs and then made into tablet form to be swallowed. The pharmacists who showed me samples of the product all said that it increased "vitality and vigour". The sand fish is one of the more expensive aphrodisiacs used in West Bengal. It is either made into an oil for external use or processed into a tablet to be taken internally. It retails for \$15 per ten grams.

Rhino horn powder is not as widely used as an aphrodisiac as it was in the past. There are two reasons why: firstly, it has become so expensive since 1975 that it is out of the economic range of most Indians. Moreover, those who deal in Indian rhino products do not want to place them on the Indian market since they can make more profit by smuggling them out of the country for hard currency. Secondly, the Indian government has made trade and possession of rhino products illegal without a licence, and it is not an easy matter to obtain one. In some states customs and wildlife officers have confiscated illegally held stocks. Under the circumstances, I doubt if more than fifty kilos of rhino horn are consumed on an annual basis in India now. This is a minute quantity in comparison to world market demands for rhino horn as dagger handles and as a fever-reducing medicine.

The main places in India where rhino horn is still used are

Bombay and the state of Gujarat, which have good trading connections with East Africa and have traditionally obtained supplies from there. Generally, the owners of Unani shops dealing in it purchase small quantities from traders and smugglers and then grind the horn down into powder form. They mix it with herbs, which they say render the horn more effective, but in effect such a practice allows them to keep their expenses down. A wholesaler who had in Bombay a five-kilo horn told me he would sell it for \$6,000; but I suspect that since few people would buy it whole, he actually intends on keeping it as a sort of financial security. In one particular medicine shop in Bombay, the pharmacist admitted to me that he mixes his rhino horn powder with herbs in a one-to-six part ratio. Even so, a kilo of this heavily diluted mixture was priced at \$313. When a customer buys the standard amount of ten grams, he may mix it with honey, cream, butter or ghee before swallowing it. He takes an average dose of two grams before breakfast and after dinner daily. In one of the main shops in the Muslim Pydhoni area of Bombay, I asked a pharmacist how long it would take to sell the entire contents of his large jar of rhino horn mixture, and he replied that it would be finished within a year. However, even when full, the jar probably held less than a half kilo of rhino horn, and this shop was the most popularly known for dealing in rhino horn.

As an aphrodisiac, rhino horn in Unani medical practice may be mixed with a variety of additives and prepared in several fashions. One of the most famous Hakims in all of India, H.M. Mohsin, who lives and works in Ahmedabad, burns rhino horn and mixes its ashes with saffron and cardamon, then adds honey to make the concoction palatable; he recommends a twice daily dose.

Although the majority of rhino horn consumed in India is for aphrodisiac purposes, some people still take it to relieve the pain caused from lumbago, polio and arthritis. There is a long tradition of its use as a cure for haemorrhoids. The patient must sit on a chair with a large hole in it. Smoke rises up from a burning rhino horn placed underneath. Remaining in this precarious position for a quarter of an hour for each treatment cannot be easily accomplished without an expert tending the fire, to make certain that it was hot enough to keep the horn burning but not so hot as to cause injury to the patient's buttocks. I can imagine the awkwardness in implementing this treatment, and understandably it is rarely practised today.

In order to attract attention to the plight of the black African rhino, a wildlife society a couple of years ago sold stickers with a picture of a rhino bearing the inscription, "My Horn is my Dilemma". True enough, but the rhino's hide is also a valuable commodity and in the past some people have slaughtered rhinos solely to obtain the skin, and

not at all for the horn. In such cases the people wanted the hide for making shields. The thickness, pliability and attractiveness of rhino skin are the qualities which have rendered it desirable among Asians, Africans and Arabs for making shields. There may also have been in the past a magic belief about rhino hide in India which led people to think that they were better protected when using rhino hide shields. Still today Indians consider the hide "lucky", and tiny strips made into rings are worn in Bombay to keep away bad spirits. One can buy for \$1.50 a piece of hide in a traditional medicine shop for making such a ring.

I have seen magnificent rhino hide shields in museums in India, made by Rajasthanis in the early eighteenth century. They are painted with black lacquer and decorated along the edges with elephant and tiger hunting scenes superimposed in gold gilt. In the middle of the shields a royal personage of Rajasthan is depicted, also in gold. Since the kings were believed to have descended from the heavenly body of the sun, they are usually stylized in a manner similar to the emblem of Louis XIV of France. On the front of the shields are usually four bosses to hold the two straps of embroidered cloth; these bosses are made of ivory, silver, gold, copper or steel, and sometimes they serve as mountings for gemstones. The best of the Indian shields were made in Udaipur around 1720 but very attractive ones were also made in Jodhpur and Bikaner. Obviously, only the wealthiest aristocrats could afford such a luxury, although plain rhino hide shields were used in Gujarat, parts of northern India, Burma, Nepal and Pakistan by military personnel. Most likely, Indian rhinos provided the shields made in the north of the Indian sub-continent, but Rajasthan has not had rhinos for more than five hundred years. One can only speculate on the origin of the hide for these shields, but my guess would be that it came from Africa. Despite the distances involved, there was an extensive trade between Gujarat and East Africa, expedited by monsoon winds which would take only a month to carry the Indian sailing craft to Africa. To obtain imported rhino hide from traders in bordering Gujarat would certainly have been easier, and probably cheaper, than sending out expeditions from Rajasthan to obtain Indian hide from the places where it was available.

In Indian traditional medicine, rhino hide does not seem to have very many uses. According to Ali Mohamed Jivabhai, a highly regarded Hakim in Bombay, some people used to wear rhino skin rings to try to cure haemorrhoids, certainly a less risky method than sitting over a burning horn! Occasionally in the state of Gujarat, an oil is extracted from rhino hide to rub on cuts and scrapes and to treat some skin diseases.

Although, as stated above, Hindu physicians rarely prescribe

medications made from animal products, George Watt in the nineteenth century noted that some of them considered boiled rhino meat mixed with ghee as a remedy for advanced stages of typhus fever. He also said that rhino meat was recommended for people suffering from "disorders of the wind" and urinary problems. In Dr. K.M. Nadkarni's classic two-volume medical encyclopaedia entitled *Indian Materia Medica*, Indian rhino meat may be used as a cardiac stimulant and to alleviate nosebleeds, but Hakim Mohsin does not believe that Indian Muslims ever eat rhino meat because it is generally believed by them to be bad for their health. On the other hand, Gujaratis have been known to drink rhino blood as a tonic, and some of them have also mixed rhino blood with groundnut oil to apply externally to the male organ to stimulate sexual desire. According to some Gujaratis, dried rhino faeces can cure bumps on the skin when mixed with oil and applied directly to the affected area. Hakim Mohsin also told me that rhino dung, when combined with eucalyptus oil, can be rubbed on necks to relieve stiffness.

Hakims obtain their supplies of dung and urine from various zoos in India. However, a number of zoo authorities denied this when I asked them, and some said they prohibited their staff from selling these wastes, including the Honorary Curator G.B. Gaekwad at the Baroda zoo whose staff I found were indeed involved in making money on the side from rhino dung. On the other hand, Calcutta zoo officials openly admit they sell rhino urine and they proudly told me that they made \$750 from it in 1979. Every morning, Hindus and Muslims, originally from Orissa, Bihar and Uttar Pradesh, as well as some Nepalese come to the zoo to purchase rhino urine for 44¢ a litre. To supply this demand, regularly at 7:00 a.m. a keeper goes into the cage of a tame rhino and pours buckets of cold water over her rump to induce her to urinate into a container placed under her. Officially, the keeper is supposed to give the entire amount to the one person authorized to sell it. Rhino urine is the only animal product ordinarily sold in the Calcutta zoo, and the demand for it has remained roughly the same for the past five years. The Gauhati zoo in Assam also marketed rhino urine until their two tame rhinos were sold in early 1980. It cost more: about 80¢ for a full whisky bottle, but included a six per cent state sales tax! Most of it was bought by the Nepalese.

In the Delhi zoo the director looked aghast at me when I asked him his price for rhino urine and he vehemently decried the suggestion, saying that he would not allow his animals to be disturbed. Nevertheless, I sent my Sikh assistant around to the rhino enclosure to talk to the keeper who told him he sold some every week. When I later appeared, the keeper offered to sell me a full litre bottle for \$3.00, inclusive of delivery charges to my hotel!

Having discovered that Gujaratis use most rhino products for aphrodisiac purposes, I was prepared to accept this as the major reason why they wanted rhino urine, but I admit I was amazed when I found out that some men who have difficulties in becoming sexually excited, soak porous leaves in rhino urine and tie them tightly with string around their sexual parts until the desired effect takes place. Others mix two parts groundnut oil to one part urine and dab the mixture onto the male organ. A further use for rhino urine is to cure coughs and sore throats; some people mix it with honey and water and drink it at night before going to bed and in the morning before breakfast.

And finally, the stomach and fat of a rhinoceros are occasionally in demand by Muslim doctors. Sometimes a Hakim will buy an entire rhino stomach and bury it in a refuse dump for a few days. When he digs it up, it is invariably infested with live worms, and these are treated in a complicated process for the purpose of obtaining a very special oil that the Hakims sell as a remedy for skin diseases. Hakims also make an oil from rhino fat. I saw some in a pharmacy in Bombay; it was very thick and light yellowish in colour. Its price was \$1.25 for ten grams and I was told that people suffering from polio and other kinds of paralysis smear it on their limbs to try to restore them.

THE TRADE IN RHINO PRODUCTS

For many centuries the Gujaratis and other Indians from the west coast have imported African rhino horn for domestic use while Indians in the north and northeast have relied on horns from Indian animals. Regrettably, the official trade statistics of India have never recorded rhinoceros horn as a specific trade item; thus we do not know how much rhino horn from Africa and elsewhere has been legally imported into India.

Between 1949 and 1971 official exports of rhino horn from East Africa to India amounted to only thirteen kilos, according to the statistics from Kenya, Uganda and Tanzania. But, what is officially mentioned and what is not are two very different matters. Quite large consignments of rhino horn came into India during this period. One of the major ivory importers in India told me that at the time when independence was being granted to Kenya, Uganda and Tanzania, many Indian residents who decided to leave took ivory and rhino horn with them for sale to traders in Bombay and in the state of Gujarat. In the 1970s, however, the smuggling of rhino horn out of East Africa for the Indian domestic market practically ceased. Rhino horn was by then too expensive for the traditional medicine shops; and, furthermore,

rhino horn imports and exports were made illegal in India in 1972, in order to try to cut down on the poaching of Indian rhinos. Whilst Indians have their ways of circumventing customs, the selling price for African rhino horn in India is too low to warrant the effort of smuggling very much into the country.

When I studied the traditional medicine shops in Bombay, Baroda, Ahmedabad and Delhi, I found very little rhino horn or skin on sale. The shopkeepers were forthright in their discussions with me, freely admitting that not so long ago they did buy rhino horn which must have been smuggled into the country, but that in recent years little has been offered to them by traders. Besides, since it is so expensive now, they do not care to tie up their capital in it, especially since they can prescribe substitutes to serve the same purposes as rhino horn; and, in general, their clients do not seem to be bothered by the fact that there is little rhino horn on the market — they probably have just as much faith in other products.

Even in northern parts of India and West Bengal, where Indian rhino horn is available, there is little to be found in the traditional medicine shops now. In the past, however, there was a strong demand for it, and in the late nineteenth century a Major Cock saw some African rhino horns in Calcutta which were much cheaper than Indian ones in Assam. Knowing that Assamese paid quite high sums for bits and pieces of Indian horn, he thought he would be able to make a small fortune from the African horns, some of which were more than three feet long. He bought all of them and had them transported to Assam. To his utmost disappointment the Assamese would not purchase a single one because they did not believe they were genuine, being so different in appearance from that of the Indian species. Some time later, Major Pollok saw the horns Cock had purchased lying about on the floor of a teahouse in Gauhati, completely abandoned.

Because of the astronomically high prices that Indian rhino horn commands in the Chinese pharmaceutical trade, due to the belief that it is the finest horn, there is a great temptation for buyers in India to export it. No one can take rhino horn out of India legally, but the Nepalese buyer from Kathmandu who bought most of the horn sold by the Assamese Forest Department in the 1970s would not have been able to dispose of it without loss for domestic use in India. Whether he re-sold it to Indians who have connections with smuggling syndicates or actually was buying it in his name for someone else, I have no idea. Whatever the circumstances, nonetheless, I do not believe that the horn remained in India. When Indian traders buy rhino horn from the Assamese Forest Department they receive official receipts and transit passes which permit them to transport the horn to other states in India. Occasionally the authorities will later check to see what has happened

to legally purchased rhino horn. The buyer, if he no longer has it in his possession, may claim that his family has personally used it for medicinal purposes or he may produce a fake receipt showing that he sold it to another trader in a far-away part of India.

Earlier I mentioned the operation of poaching syndicates in India. Far more intricate are the smuggling syndicates, based in the large cities of Bombay, Delhi and Calcutta with international airports and/or large seaports. The main city for syndicates specializing in smuggling out wildlife products is Calcutta which is relatively close to the huge forests of Assam and other places in northeast India where wildlife habitats have been preserved. Calcutta is advantageous to the syndicates also because of nearby borders with Bangladesh and Burma. Wildlife Preservation officers claim that the wildlife smuggling syndicates in Calcutta are headed by Gujaratis and Sindhis, not indigenous Bengalis. The Gujaratis are in fact the country's most notorious smugglers and do not confine their activities just to moving out wildlife products. A senior government officer employed to combat smuggling in Bombay told me that most of the illegal movement of silver out of India was organized by a Muslim Gujarati living in Damao, a former Portuguese colony on the west coast of India. This man, despite being known by name among the law enforcement agencies, has been able to avoid conviction because he has such a successful network of underlings to do his work that no proof can be established against him.

Other than rhino horn, syndicates export reptile and tiger skins, according to a World Wildlife Fund representative in India. In 1979 some \$625,000 worth of snake skins was intercepted by government authorities in Calcutta, destined to be flown to West Germany. There are many different ploys used by the syndicates to get wildlife products out of India. Sometimes they persuade airline crews, during their rest-stops when they are put up at the international hotels, to carry contraband in their luggage when they leave. Diplomats are not immune to the pressure of smuggling syndicates, either. When all else fails, contact can be made with dhowmen in and around Bombay who will take wildlife products to Dubai for re-export to consumer countries.

As far as I am aware, and I did talk to several senior officers concerned with smuggling, the Indian government has been unable to prosecute a single rhino horn smuggler in recent years. When a small package of rhino horn was discovered by the authorities on its way to Japan in 1978, there was much ebullience, and hopes were raised that at last it might be possible to crack one of the links in a smuggling syndicate for, to their delight, the package had a return address. But when they went to find out the exact location of it, they ended up inside one of Calcutta's large cemeteries.

Unlike many Third World countries, India's government has sincerely tried to stop the smuggling of wildlife products. However, with so much profit to be made on the international market from these commodities and such well co-ordinated syndicates in operation, it still goes on unabated. In 1972 the government passed the Wild Life (Protection) Act which prohibited, except under very extraordinary conditions, export of all rhino products. Soon afterwards, the government introduced Wildlife Preservation officers who are now under the Ministry of Agriculture and Irrigation. They are posted in the main cities of Bombay, Delhi, Calcutta and Madras, the only places from which any wildlife products can now be legally exported. It was thought that by only allowing these cities to handle such exports there would be adequate trained manpower to investigate shipments. Co-operating with customs officials and local state authorities, the Wildlife Preservation officers do what they can, but insofar as Indian rhino horn is concerned, an average one weighs under three-quarters of a kilo and can be easily camouflaged. Persevering in its efforts to combat smuggling, the Indian government ratified the CITES regulations in 1976, and in 1979 passed a law stating that "every consignment of wildlife and its products will be subject to verification by the Regional Director of Wildlife Preservation". Nevertheless, laws and regulations — no matter how abundant — are useless without enforcement. Smuggling is a livelihood for thousands and thousands of Indians and the illegal movement of wildlife products is just a small worry for the authorities in comparison to other priorities. Then, too, there is the problem that because so much money is involved in smuggling — hundreds of millions of dollars annually — corruption of public officials becomes inevitable. Prosecution of dishonest businessmen is also difficult, since absolute proof is necessary to convince a judge and jury of an individual's guilt. India is not a police state, and for anyone to be convicted of an offence a proper trial must be held.

Since the majority of Indian rhino horn available to smuggling syndicates is that which is sold legally by the Assamese Forest Department, not from poachers, certainly illegal exports of it could be significantly decreased if the Forest Department stopped their sales. From 1965 to 1975 Japanese traders imported 180 kilos of horn from India and from 1973 to 1977 South Korea imported 49 kilos from India, according to these countries' own official import statistics. I saw more Indian rhino horn for sale in Taipei's pharmaceutical shops than anywhere else, but it was also widely available in smaller quantities in Singapore and Hong Kong during my visit to Southeast Asia in late 1979. Because importers are willing to pay astronomical prices for Indian rhino horn as a cure for high fevers, as long as it is openly sold in Assam, people will smuggle it out of India in return for hard currency

and a profit, no matter what obstacles the Indian government tries to set up.

TABLES

The Trade and Uses of Rhino Products in India

TABLE I

The Assam State Forest Department Sales of Rhino Horn by Tender from 1965/6 to 1979/80

<i>Financial Year Ending 31 March</i>	<i>Kilos Sold</i>	<i>No. of Pieces</i>	<i>Price per kilo (in Indian rupees)</i>
1965/6	Sound: 29.34	42	7,333
	Defective: ?	4	?
		46	
1966/7	Sound: 15.34	19	9,151
	Defective: 6.70	14	4,715
	22.04	33	
1967/8	Sound: 11.97	17	8,701
	Defective: 2.42	4	5,101
	14.39	21	
1968/9	Nil		
1969/70	Sound: 8.10	8	10,001
	Defective: 2.73	4	5,801
	3rd Quality: 1.89	6	5,201
	12.72	18	
1970/1	Sound: 7.16	5	10,501
	Defective: 2.48	5	6,501
	3rd Quality: .80	1	4,001
	10.44	11	
1971/2	Sound: 14.84	16	10,001
	Defective: 7.06	13	6,001
	21.90	29	
1972/3	Sound: 5.51	9	14,201
	Defective: 1.59	4	9,001
	7.10	13	
1973/4	Sound: 15.26	15	13,001
	Defective: 1.77	4	9,002
	17.03	19	

TABLE I *continued*

<i>Financial Year Ending 31 March</i>	<i>Kilos Sold</i>	<i>No. of Pieces</i>	<i>Price per kilo (in Indian rupees)</i>
1974/5	Sound: 8.89	12	14,010
	Defective: 16.78	20	9,005
	3rd Quality: 5.93	8	6,001
	<u>31.60</u>	<u>40</u>	
1975/6	Sound: 13.19	12	14,100
	Defective: 2.83	5	9,010
	3rd Quality: .11	1	5,001
	<u>16.13</u>	<u>18</u>	
1976/7	Sound: 18.06	27	11,651
1977/8	Sound: 30.04	42	16,001
1978/9	Sound: 45.33	63	16,001
1979/80	Sound: 39.49	61	62,501
Total Kilos: 318.57		Total Pieces: 441	
Average weight per piece: 722 grams (The largest single horn sold weighed 2.215 kilos.)			

Source: Assam Forest Department, South Kamrup Division, Gauhati.

TABLE II

Number of Rhinos Poached for their Horns in Kaziranga National Park from 1965 to 1980

<i>Year</i>	<i>Number</i>
1980 (up to 10th April)	3
1979	2
1978	5
1977	nil
1976	1
1975	5
1974	3
1973	3
1972	nil
1971	8
1970	2
1969	8
1968	9
1967	12
1966	6
1965	18
Total: 85	

Source: Rhino Death Register, Kaziranga National Park.

TABLE III

Prices of Various Animal Products used for Medicinal or Aphrodisiac Purposes in India in 1980 (per ten grams)

<i>Animal Product</i>	<i>Purpose</i>	<i>Price (in U.S.\$)</i>
Dried worms	aphrodisiac	.08
Sambar horns	to cure coughs	.37
Dried red ants	aphrodisiac	.50
Dried leeches	aphrodisiac	.75
Dried slugs	aphrodisiac	.80
Elephant ivory powder	to cure barrenness in women	1.25
Tiger fat	to cure arthritis	1.25
Rhino fat	to relieve pain from lumbago and polio	1.25
Rhino skin	to cure haemorrhoids	2.50
Rhino horn powder mixture	aphrodisiac	3.13
Dried sand fish	aphrodisiac	15.00
Pearls	heart tonic	62.00
Ambergris	general tonic	88.00
Cow bile	to cure common colds	125.00
Gland from a goat's stomach	aphrodisiac	125.00
Deer musk	aphrodisiac	375.00-625.00

Source: Interviews with various retailers in traditional medicine shops.

TABLE IV

Various Zoo Prices for Indian Rhino Urine

<i>Location of Zoo</i>	<i>Legality</i>	<i>Year</i>	<i>Price per one Litre Bottle (U.S.\$)</i>
Calcutta	Legal	1975	.22
	Legal	1976	.38
	Legal	1980	.44
Delhi	Illegal	1980	3.00
Gauhati	Legal	1980	.80
Bombay	Legal	1976	7.60
	Legal	1980	(free on demand)

Source: Interviews with zoo officials and rhino keepers in 1980.

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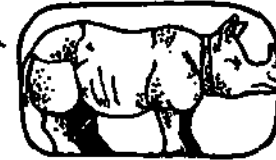
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THE TRADE AND USES OF RHINO PRODUCTS IN INDONESIA, MALAYSIA AND BURMA

OCTOBER 1981



INTRODUCTION

Indonesia, Malaysia and Burma all have minority populations of ethnic Chinese who are mostly urban businessmen. Except in Burma, these Chinese play a very prominent role in the commercial life of the major cities. Generally, the Chinese are wealthier than the indigenous peoples in these Southeast Asian countries; they also continue to maintain a separate culture. Similarly to many countries with overseas-Chinese residents, there are distinct quarters which are commonly called "Chinatown", and it is in these areas where most of the traditional Chinese pharmacies which sell rhino products are located.

Rhinos have existed in Indonesia, Malaysia and Burma since earliest times; and the Indonesians, Malaysians and Burmese have had their own uses for rhino products. However, their demand today for the more expensive ones is far less than that of the Chinese, perhaps to some extent because the thousand-year-old Chinese belief in the beneficial qualities of the rhino to serve medicinal needs is more strongly entrenched, but in the main because the Chinese have more money to purchase what they want. Consequently, when a middleman buys rhino products from a poacher who has killed an Asian rhino in the wild, he will take the horn, hide and hooves to a Chinese trader in one of the larger cities. He can be certain that he will make the most money from selling them to a Chinese.

Although local people will buy the less valuable rhino products such as dried blood, dung and urine for medicinal purposes, it is due to the demand of the Chinese for the horn in particular that rhinos are being killed. Most of the manpower and financial resources of conservation agencies and government wildlife departments allocated to the protection of rhinos has been spent on combating poaching and maintaining the natural habitat of rhinos. What is now required is an

additional protective approach: to find ways and means of lessening the Chinese demand for expensive rhino products. It is urgent to tackle the trade because the cost of living has greatly risen in all countries where there are rhinos in the wild, making it more tempting financially now than ever before for a poverty-stricken person to poach a rhino.

INDONESIA

Indonesia, with its four major islands and at least 3,000 smaller ones, has the largest land mass of any country in Southeast Asia. Its population of 145,000,000 is greater than that of all the other Southeast Asian countries put together. It is also the home of the two rarest of the five extant rhino species, the Javan and Sumatran.

Products from these animals have not only been traded within Indonesia for hundreds of years, they have also constituted valuable exports to other Southeast Asian countries and to mainland China. In the early 13th century, when Chau Ju-Kua was Commissioner of Foreign Trade in Fukien Province, China, he recorded that one of the main commercial products of Java island was rhino horn, sold primarily to China. It was carved into works of art and used as a medicine.

The trade in rhino horn appears to have continued unabated until well into the 20th century, although we have no official figures on it. Not even when the Dutch occupied Indonesia were statistics kept on the quantity or value of rhino horn exported. Information is limited to what a few individuals have written on the subject, in particular Dammerman who noted that from 1919 to 1927 344 kilos were exported from Sumatra, mostly to Singapore but also to mainland China. From 1919 to 1922 an additional 210 kilos of Sumatran rhino horn left Borneo. J.H. Westermann and Nico van Strien have said that these figures must be considered as minimum estimates for the country's exports, since rhino horn was taken from Indonesian islands other than just Sumatra and Borneo. Even so, these two figures alone give an annual average of ninety kilos of rhino horn leaving Indonesia between fifty and sixty years ago.

It is therefore not surprising that by the 1960s the numbers of Javan and Sumatran rhinos in Indonesia had declined to such low numbers (an estimated 28 Javan and probably under 300 Sumatran). The export of rhino horn had already been declared illegal, but by then it was no longer necessary to sell it overseas for the highest profit margin. Of the nearly 3,000,000 Chinese living in Indonesia at that time, there were enough traders among them who were able to offer the same prices as the Chinese in Singapore or Hong Kong. Moreover,

there was much less risk involved in selling rhino horn at home than abroad.

In the late 1960s, earlier in Indonesia than in other Southeast Asian countries, the cost of rhino horn began to escalate. This was because the market depended on that produced locally, and it was becoming increasingly difficult to obtain since the animals were so rare. In 1963 and 1964 about ten Javan rhinos were poached in the Ujung Kulon Nature Reserve, the only place in the world where this species remained. However, beginning in 1965 the Indonesian government, with support from IUCN and the World Wildlife Fund, made a concerted effort to protect rhinos there, and only about six are known to have been killed since then. Their population is believed to have increased to at least 55 today.

Regrettably, it has not been so easy to provide protection for Indonesia's Sumatran rhinos. Those that exist outside reserves are in dire threat of being poached, and even in Gunung Leuser Reserve at least three and perhaps as many as six were poached in 1975. The following year six were illegally killed. According to personal communication from Nico van Strien, the poachers operating in Gunung Leuser at that time may have received as much as \$3,000 a kilo for the horn. Markus Borner, as well as van Strien, believes that the horn was moved to the Sumatran cities of Medan and Palembang where Chinese traders would have bought it from Indonesians. Some of the horn may have been consumed there, but it is very probable that some of it was sold to pharmacies in Djakarta.

Djakarta, being the largest city in the country, probably also has the greatest concentration of the Chinese population (most of whom now hold Indonesian passports). Because my time was limited, I chose to carry out most of my study of the trade in rhino products here. In Djakarta's Chinatown, also known vernacularly as "Glodok", are found the majority of the most important Chinese medicine shops, (in terms of turnover and variety of products available).

These shops all have signs over their entrances reading "Toko Obat", which literally means "medicine shop" in the national Indonesian language. Nevertheless, at least 90% of their clientele consists of ethnic Chinese, and their appearance and atmosphere are practically the same as in Chinese medicine shops anywhere else in Southeast Asia. Chests of up to a hundred or two hundred drawers line the walls. They are filled with traditional herbs, minerals and animal products, a few of which are obtained locally, but most are imported via Hong Kong from China. On shelves all around are the typical blue-and-white Chinese porcelain jars, also containing raw ingredients for medicinal preparations. There is always a large counter in front of which customers queue up, and where they carefully watch the

pharmacists while they measure all the ingredients for a prescription and place them neatly in little piles on top of it. Each ingredient is measured on a hand scale, using the traditional Chinese weights: fen (.375 of a gram), chien (3.75 grams) and liang (37.5 grams). Usually, the ingredients are mixed in a mortar and pounded into a fine powder with a pestle. The pharmacists carry on a conversation with their clients but it is often limited, due to the noise created by the continual pounding and recorded music from radios and cassettes. After a prescription is prepared, its price is calculated by adding up the cost of the ingredients on an abacus.

One reason why the indigenous Javanese do not frequent toko obats is because they have their own traditional medicine, "jamu", which is made mainly from herbs and roots. It is usually dried matter that one pulverises, then stirs into warm water and drinks. However, some manufacturers in Djakarta are now producing tablets which can be simply swallowed with a cup of tea. In the large shopping arcades of Djakarta there are usually three or four jamu shops where tablets, powders and tonics, attractively packaged, are sold without a doctor's prescription. The manufacturers of these traditional Javan drugs have submitted them to the Department of Health and have had them registered under trade names, but jamu medicine remains unique to Java and is not much used by the other islanders of Indonesia. One of the larger manufacturers, P.D. & Industri Jamu, produces a great assortment of pills to cure rheumatism, asthma, leprosy, high blood pressure and skin diseases. It also has a specialty line of medicines "for the health and well-being of the female sex", including "Blusterin Special" for developing "firm and full breasts" and "Extra Super Venus" which "helps greatly towards tightening the conjugal bond between husband and wife". Other female medicines ensure the continuance of good health during pregnancy, "retard the process of old age", etc.

I interviewed pharmacists in 26 toko obats in Djakarta, including ones in the main open market and the new port area in addition to those in Glodok. "Rhinoceros horn" was for sale in seven shops; five had solid horn and two had rhino horn shavings. The solid rhino horn was from Javan and Sumatran animals, although I was told that it was sometimes possible to buy African rhino horn. The retail price for a kilo of Asian horn averaged \$12,634, with a range from \$10,753 to \$13,978. However, it is extremely important to note that only a few grams are sold to a customer at a time; therefore, converting to one thousand grams is slightly misleading. The pharmacists who have rhino horns do not take shavings from them until a customer asks for some, whereupon they show him the horn, assuring the buyer that he is getting the genuine article. This is the usual practice throughout Southeast Asia. It

is always difficult to ascertain the authenticity of ready-made shavings, since other kinds of horn can be cut in such a manner as to look the same as rhino. The pharmacists who sell purported rhino horn shavings in Djakarta have purchased them from wholesalers who have imported them from Hong Kong, and they are so cheap in comparison that I doubt that they are actually rhino; in both the shops which sold them the price was \$215 a kilo.

Most of the customers buying rhino horn in the pharmacies come with a prescription for it from their doctor. However, there are some who do not, but simply tell the doctor that this is what they want. There are still others who, in the course of describing their ailment to the pharmacist, lead him to believe that rhino horn would be the best cure and he in turn suggests that it is what should be purchased. The major affliction for which rhino horn is used to treat is high fever in Indonesia, but in this country rhino horn has been traditionally also used by the Chinese for typhus and to clear the body of poisons.

Asian horn is considered to be superior to African, and I was given the same explanation why every time I asked in Djakarta: its smaller size means that its curative properties are more highly concentrated. Furthermore, some of the pharmacists stressed that Javan horn was better than Sumatran because the former animal is less contaminated by the presence of other animals in its domain! I also think that the scarcity of Javan rhinos adds to the value placed on this type of horn.

In Djakarta, a single prescription of rhino horn for an adult, whether it consists of imported shavings or freshly scraped from an actual horn, is between five fens (1.9 grams) and one chien (3.75 grams). When prepared in front of a customer, the pharmacist makes the shavings with either a knife or a rough piece of glass. The medicine is taken home, where some of it is placed in a small pot of water and brought to the boil. The patient is given the strained liquid. The same shavings may be boiled a second time for another dose, but this must be done within 24 hours of the first boiling. Patients may be treated with a dose of rhino horn three or four times a day up to five days. Consistent with the belief that rhino horn is one of the most potent drugs, nothing else is added to it when taken in this manner; although, generally, I found that medications prepared in Chinese pharmacies in Djakarta usually included many more ingredients than elsewhere in Southeast Asia.

On the other hand, when manufactured into tablet form (and several varieties of pills containing rhino horn are imported indirectly from China to Djakarta), it includes quite a lot of other things. For example, there are laryngitis pills which include "10% rhino horn, 30% borax, 28% *Rhizoma coptidis*, 10% toadcake, 7% bear gall, 7%

pearls, 5% cow-bezoar and 3% musk". The retail price for 30 such pills (minute in size) is \$1.40. Another manufactured medicine containing rhino horn in toko obats, which I had not previously come across elsewhere in Southeast Asia, was "Dendrobium Moniliforme Night Sight Pills", produced by the Tsinan Peoples' Medicine Works, Tsinan, China. These pills are dissolved in water before being taken; they are supposed to improve eyesight for not only those who suffer from night-blindness but also from myopia. They have in them 50% honey, 4.8% ginseng, 1.2% rhino horn and many different kinds of herbal matter. The retail price of six grams of these pills, which come encased in a protective wax ball, is only US 83 cents. While shavings and rhino horn per se were not widely available in the pharmacies I examined in Djakarta, more than half offered manufactured medications with rhino horn as one ingredient. Moreover, I found greater varieties of imported Chinese medicine containing rhino horn than in any other country I have visited in Southeast Asia.

Aside from the horn, rhino hide is widely used by the Chinese for medicinal purposes. In Djakarta it is mainly taken by people with skin diseases. It, too, is boiled in water, then strained and the liquid drunk. A prescription of rhino hide consists of ten to twenty grams. I only saw "processed" hide for sale in Djakarta. This is made in Hong Kong, from dried raw hide that is boiled and cut into thin strips and packaged. When thus prepared it is almost as difficult as shavings to authenticate. Quite often, water buffalo hide is substituted for rhino. In 35% of the toko obats processed rhino hide was available; the average retail price was \$22.20 a kilo, with a wide range from \$8.60 to \$43. Because processed hide may be made from other animals, Chinese elsewhere usually prefer to buy plain dried hide; I found it very curious that none of this was for sale in Djakarta. However, I was told by one pharmacist that the present wholesale price for it is \$270 a kilo.

Having had the opportunity to examine the hooves of the stuffed Javan rhino on display in the Zoological Museum at Bogor, I was keen to find out if rhino hooves sold in Djakarta pharmacies would be of this species. Rhino hooves, which cost less than rhino horn, are often used by Chinese who cannot afford to buy rhino horn as a fever-reducing drug; but, to my surprise, only one of the Chinese traditional medicine shops in Djakarta offered hoof for sale. The proprietor of this particular pharmacy told me that his hoof (which was identical to those of the stuffed Javan specimen), along with some others, had been obtained by his predecessor fifty years ago. He had not sold very much from the remaining one, but said that a prescription would be one chien for an adult and two to three fen (.7 to 1.1 grams) for a child. His price was \$215 a kilo, practically half of the average price for rhino hooves in Singapore, where they sell for \$400 a kilo. Interestingly, there

does not seem to be any more potency ascribed to Asian rhino hide or hoof than African, although everywhere there is clearly a major distinction made in respect to the superior curative qualities of Asian rhino horn over African.

Upon completion of my survey of Chinese pharmacies in Djakarta, I decided to visit a medium-sized town on another Indonesian island, to test my hypothesis that wherever there are Chinese in Southeast Asia, even in relatively small numbers, rhino products will be for sale. I chose to go to Denpasar, the capital of Bali. Today there are only perhaps 5,000 Chinese left on that entire island, as a result of the communist purges in 1965 and 1966. There is, consequently, just one pharmacy remaining in Denpasar in which prescriptions are filled, using traditional dried products, although one can find ready-prepared imported Chinese drugs in a few other shops. In the pharmacy, which was very small, there was horn, processed hide and even plain, dried hide. The horn shown to me was only a very small piece, from which extensive scrapings had already been taken, and I was unable to ascertain whether it was from an Asian or African species. The retail price of it amounted to \$12.903 a kilo. The processed hide, of which an average of 600 grams a year was sold in the pharmacy, came from Hong Kong (if genuine, it probably originated from South African white rhinos) to Surabaya, (the second largest city of Indonesia, with a very large Chinese population). Surabaya, being much closer to Denpasar than Djakarta, was the city from which the owner of the pharmacy obtained most of the ingredients for the medicines he prepared. The raw, dried hide in this shop obviously came from a Javan rhino, due to the unique rosette pattern on the skin. It was, however, less expensive than I would have expected: based on eleven grams per prescription, it was just \$440 a kilo. He told me that he bought it from a wholesaler in Surabaya one year ago.

Of course, none of the rhino horn or actual hide I saw in Djakarta and Denpasar was legally owned or sold. All the shops dealing in raw rhino products were breaking the law, although those which sell manufactured medications purporting to contain rhino horn may technically be allowed to do so since the horn contained in them is not readily identifiable as such.

For several decades Sumatran and Javan rhinos have been fully protected, on paper, in Indonesia. The Game Ordinance of 1931 prohibited hunting either species and possession, sale or export of their products. Moreover, upon ratifying the Convention on International Trade in Endangered Species of Wild Flora and Fauna in 1978, the Indonesian government banned the import of horn, hide or hoof from any rhino species, Asian or African.

I visited the Dinas Perlindungan Dan Pengawetan Alam

(Directorate of Nature Conservation, usually referred to as the PPA) in Bogor. This governmental department is directly responsible for enforcing the laws concerning the trade and possession of wildlife products. I spoke with a senior PPA official and asked him if any of his men had investigated the Chinese pharmacies in Djakarta or elsewhere within the last year or two to see if there were rhino horns in them. I was told that this was not done. It is not necessary for me to document herein the massive illegal trade in wildlife products which originates in Indonesia; the World Wildlife Fund Indonesia Programme in 1980 produced a major report specifically on this subject, entitled "The Animal Trade in Indonesia". Suffice it to say only that in the summary of findings is this: "The illegal trade continues to be unrestricted and highly profitable." In conclusion, the authors state that one of the reasons for insufficient control is "the lack of sufficiently trained and motivated customs officers, field supervisors and field personnel".

In openly selling Sumatran and Javan rhino products, the Chinese medicine shops in Indonesia encourage the poaching of these animals, thereby placing such pressure on them as to threaten their very survival.

MALAYSIA

Malaysia is quite a large country in area but it has a relatively small population of 14,000,000. Compared to Indonesia, there is a much higher percentage of resident Chinese, close to 38% of the total. I worked in two cities, Kuala Lumpur, the capital and largest city in the country; and in Georgetown, the largest city and the capital of the state of Penang. In both of these cities well over one-half of the population is ethnically Chinese, and there is a major demand for traditional Chinese medicines.

In Kuala Lumpur the main concentration of the large Chinese pharmacies, and some of the wholesalers as well, are mainly located in Chinatown, especially in and around Petaling street, which is within a short walking distance from the main railway station. The pharmacies are similar to the ones found in Djakarta, but they contain many more animal products, such as musk pods, "tiger" penises, fur seal penises, geckos, seahorses, deer tails, deer antlers and antelope horns. I also visited some of the pharmacies outside Chinatown in the downtown area and on the outskirts of the city along Bintang, Pudu and Pasar roads. The pharmacies there are usually smaller than the ones in Chinatown; nevertheless, they are still called "medical halls", the prestigious name given to almost all shops dealing in traditional Chinese medicine in Malaysia.

Of the twenty-six pharmacies I visited in Kuala Lumpur in January 1981, nine sold rhinoceros horn, purchased mostly from Hong Kong and Singapore. One might think that because some Sumatran rhinos still occur in the wild in peninsular Malaysia, more Asian rhino horn would be offered for sale in the country's capital. This, however, is not the case because the few that there are exist mainly in the relatively well protected reserve of Endau Rompin, where poaching has not been an acute problem. Moreover, officials from the Malaysian Department of Wildlife do occasionally check Chinese pharmacies in Kuala Lumpur for illegal sales of products from the country's own endangered wildlife species. Perhaps because it is well known in the Chinese community that rhino horn is a risky commodity to sell, the prices for it — even those for African species — are, in some medical halls, the highest in the world: one pharmacist in Chinatown was offering it for the equivalent of \$48,930 a kilo and two others in that same area were selling for \$36,697. The average price in Chinatown was, however, much higher than in other parts of Kuala Lumpur: \$25,810 vs. \$8,971. I suspect that the difference in prices was due to several factors, not just that medical halls in Chinatown are subject to more official scrutiny than elsewhere, but because the horn offered here was of higher quality, consisted of larger (more easily identifiable) pieces and that these halls catered to the wealthier Chinese.

There is, in fact, chicanery going on among both wholesalers and retailers of rhino products in Kuala Lumpur. Some actually paint rhino horn with India ink in order to maximize their profits since it is generally believed that the blacker a horn the "fresher" it is — with substantially greater curative qualities. One wholesaler showed me his entire stock of rhino horns, pointing out that he could double the price of the best ones that he had painted. As for ready-made rhino horn shavings, only one medical hall in Chinatown marketed them: these cost \$24,465 a kilo, but the average price in the pharmacies elsewhere in Kuala Lumpur was \$2,800.

Regarding rhino hide, the only type sold anywhere in Kuala Lumpur was "processed", averaging \$306 a kilo for that which was locally prepared, with a range from \$183 to \$489. The imported hide from Hong Kong averaged just \$35 a kilo. I estimate that at least 70% of all the purported rhino hide sold in the medical halls was fake. When I suggested to some pharmacists that this might be the case, they replied, "How can you expect otherwise?" A few even stated that if their customers thought that it was possible to buy real rhino hide at such cheap prices it was their own fault that they were tricked! Such an attitude on the part of dealers is quite exceptional in other Southeast Asian countries where, as a rule, the pharmacists act in good faith, and customers do not accept the premise that if you pay the highest price

you are more likely to get the genuine product.

Whatever the origin of "rhino hide" in Kuala Lumpur, it is very commonly used as a medicine, and substantial quantities are sold every year. The Chinese here, however, have developed somewhat different means of consuming it. I was told that they do not like the odour it produces when simply boiled on its own; so, quite often, they cook it with lean pork when they take it to cure skin diseases and pimples. Other ingredients may include a black herb, sungtai. For "purifying the blood", rhino hide is sometimes cooked with seaweed. One pharmacist said that he recommended mixing hide with dried seahorses as a cure for skin diseases.

Rhino hooves are relatively scarce in Kuala Lumpur; I only found them in three medical halls. The equivalent retail price for a kilo was very high, \$3,670. The pharmacists dealing in them claimed that they were becoming increasingly difficult to obtain.

Manufactured medicines containing rhino horn are sold in most medical halls. These are the same as those found in other Southeast Asian countries, imported from China; but, in Malaysia, there is a 15% to 30% duty on them. In addition, there are locally manufactured "waters", usually sold in six-ounce bottles retailing for US 25 to 30 cents. Two of the common brands do not specifically state on their labels that they contain rhino products; for example, "Double Sword Linyang Anti-Fever Water" and "Three Rifles Brand Anti-Fever Water", both of which, nevertheless, depict a rhino in full colour on the bottles. Two other kinds, "Three Legs Brand Rhinoceros horn Anti-Fever Water" and "Peal Linyang Rhinoceros Horn Water" claim 5% and 6% "rhino horn exice", respectively. The latter is the most expensive I saw, selling for double the price of the others, US 70 cents. All these waters have the same purposes. The label on the "Double Sword Linyang" bottle reads:

This medicinal water is effective for many kinds of illness, such as Fever, Headache, Toothache, Earache, Eye Diseases and Thirst. Directions: Adults — 1/2 bottle each time. Children — 1/2 or 1/4 bottle each time.

The "Peal Linyang Rhinoceros Horn Water" lists precisely the same uses in the same order; and, although it sells for more, it comes in a smaller bottle. Its label includes not only a picture of a rhino, but also an antelope and a pearl. It is the only anti-fever water with a little sediment in it, which looks like it might possibly be from a minute slice of rhino horn. All the anti-fever waters are tasteless. They appear to be quite popular; and people who are construction workers, traffic policemen or who have other jobs which cause them to spend most of their time working outside in the bright sun, regularly go to medical halls, pay their money, uncap a bottle and drink the entire contents, rather

like they would take a coca cola.

Georgetown, on the island of Penang, is the second largest Malaysian city and was first established as a trading depot in 1786 by the British East India Company. The population of 350,000 is 65% ethnic Chinese. There are approximately 80 medical halls, and I interviewed pharmacists in 22 of them. I found that eight of these sold rhino horn and two "rhino horn shavings". I was able to identify one horn of Sumatran origin which weighed considerably less than a kilo, but in keeping with prices based per kilo, it would have been \$14,679 retail. I did not find any Indian rhino horn, and was told that it was no longer available. The average price for African horn, whether from black or white rhino, retailed at \$6,641 a kilo.

So-called "rhino hide", in the processed form, was sold in 86% of the medical halls I visited in Georgetown. In discussing its origin with the pharmacists, I learnt that almost all of it was imported from Hong Kong; some dealers openly admitted that what they had was made from buffalo or cow hide. Again, there was a tremendous differentiation in prices. However, in the seven shops where the hide may well have been genuine rhino the price asked for it averaged \$220 a kilo, with a narrow range from \$184 to \$245. In the twelve medical halls where I believe the hide was not rhino, the average retail price per kilo was \$33, the lowest being \$18 and the highest \$73.

Rhino horn is consumed by those suffering mainly from high fever, just the same as in Kuala Lumpur, Hong Kong or Singapore; and "rhino hide" is used to treat skin problems. In Georgetown, the latter may or may not be cooked with pork; some patients prefer to boil it with sugar in order to make it palatable.

In five of Georgetown's medical halls (23% of my sample survey), rhino hooves were offered for sale as a fever-reducing remedy. Because the hoof is considered less potent than the horn, the average dose of one and a half grams (usually filed off in tiny slivers) is boiled in water for three hours; it can be taken several times a day until the patient feels better.

In one medical hall in Georgetown I found a rhino product which I had never seen for sale anywhere else in the world. It consisted of undigested leaves, stalks and other food plants taken from a rhino's stomach, then dried. The wholesale price was based on the catty (605 grams), which worked out to \$7.60 a kilo. In the past it was not especially rare in Georgetown, being imported from poached rhinos in Indonesia. I asked the trader how he was able to identify the matter he showed me as rhino stomach contents. He told me that when it is boiled a peculiar odour comes from it, unlike anything else — "a horrible smell" were his words in English. Like rhino dung, this has been used to relieve constipation. It is not in demand now, which is probably why

the wholesale price for what is remaining in Georgetown is so low.

Being an older city than Kuala Lumpur, some of Georgetown's wholesale businesses have a longer history. While those dealing in traditional ingredients for Chinese medicine may not be as important as the ones in Kuala Lumpur now, their proprietors were often more willing to talk to me about the increase in prices for rhino products during the past decade and also about the circuitous means by which they have obtained these products. I was able to confirm that horn from Asian rhinos is rare today, but in 1976 and 1977 small amounts of Indian horn did come in, which most likely originated from the official government auctions held in Gauhati, Assam. The horn was taken to Calcutta where it was transported by ship to the Andaman islands. Some went on to Singapore, and some was smuggled into Malaysia, where it was sold to medical halls at the wholesale price of \$3,247 a kilo. The wholesale price for Indian horn now in other Southeast Asian countries is \$9,000; one of my informants said it would be \$12,000 in Penang and that it is consequently not purchased.

The wholesale price for Sumatran horn has also dramatically increased in Malaysia. In the 1960s and 1970s it originated in Indonesia and was transhipped to Singapore (which to this day has no restrictions on rhino horn imports), then sold to Malaysian dealers who marketed it, in at least one instance, for just \$1,437 in 1970. The price went up to \$2,125 in 1975. Today, new stocks of Sumatran horn coming into Malaysia command \$14,500 a kilo. A dealer in Georgetown told me that because of the prevailing prices for Sumatran horn now, relatively few medical halls purchase any; since he did not want to be left with so much capital tied up in what he had, he sold some of his stock to South Korea and Taiwan. The African horn presently available in medical halls, and which is the most common, has been imported from Hong Kong and Singapore without much difficulty. However, since October 1977, when the Malaysian government ratified CITES, the price for it has gone up accordingly.

In Georgetown I came across one wholesaler who, for the past ten years, has been able to get raw, dried rhino hide from Indonesia at extraordinarily low prices. He paid only \$5.40 for a kilo in 1970, \$23 in 1975 and \$28 in 1980. It is, of course, illegal for him to possess it, let alone sell it. Nevertheless, I think that the suspected genuine rhino hide that I saw in processed form in some medical halls was from this source.

Until the mid-1970s, wholesalers seem to have experienced no trouble in obtaining rhino hooves. A few even came from Malaysian animals; and others were imported from Indonesia, India and Nepal. However, apparently none came from South Africa which is one country which could legally export them until 1975. The most recent wholesale price for rhino hooves that I was able to confirm was \$43 a

kilo in 1977, and I was told that they were rarer than hide or horn today.

Under the Wild Animals and Bird Protection Ordinance of 1955, a poacher convicted of killing a rhino in Malaysia could be fined \$327 or imprisoned for six months. The penalties were increased to \$1,375 and/or two years imprisonment when the Protection of Wild Life Act was passed in 1972. This law also prohibited dealers, including Chinese pharmacists, from selling Javan or Sumatran rhino products, and required anyone possessing such commodities to register them officially within three months or be liable to a fine of \$458 and/or six months imprisonment. Even with a certificate of ownership, if one wanted to sell Sumatran or Javan rhino products one would have to apply for a special licence to do so — but in practice this was impossible to obtain.

However, the law did not include Indian or African rhino products, which could still be legally imported and sold; and investigators who searched medical halls were unable to distinguish Javan or Sumatran horns from the others when they had been cut down into small pieces. Even after Malaysia ratified CITES, the government did not try to halt the sale of imported rhino products that were already in the shops. Traders can often pretend that the stocks they hold were purchased before 1977; and, while attempts are made to stop all new imports, there is ample evidence that rhino horn and hide are still coming into the country.

Nevertheless, it is encouraging to note that the Department of Wildlife and National Parks in Malaysia does take its responsibilities much more conscientiously and seriously than the equivalent government departments in the neighbouring countries of Indonesia and Thailand. The risks of selling illegal rhino products in Kuala Lumpur are high, which is one reason why they are so expensive. If more thorough examinations of wholesale establishments and medical halls were carried out in other Malaysian cities, probably the prices for rhino products in those places would become too high for most customers.

Results of my study indicate that there are limits to what people will pay for rhino horn from Asian species. I believe that if the Malaysian government tightened up controls on the sale of all rhino products, dealers would ask their customers to pay even more than they presently do in order to compensate for their risks. This in turn would lead to a decline in the demand and an appreciable decrease in the trade.

BURMA

In March 1962, General Ne Win overthrew Premier U Nu and imprisoned the President, almost everyone holding a major position in the

government, many of the Shan princes and some members of Parliament. He declared the constitution null and void and set up a revolutionary committee, of which he was the head, to run Burma. Initiating a policy of state socialism, the new government nationalized not only all the large industries, but several small ones and private business enterprises, too; little compensation was given in some instances, in others none. Overnight, many thousands of Indians and Chinese, who had been residents of the country for many decades, found themselves destitute when their shops were seized. Thousands of skilled workers fled and made their homes in other parts of the world. Not surprisingly, some of the indigenous ethnic groups rose in armed rebellion against Ne Win. The Shans and Kachins are still fighting the government to some extent today.

The move towards socialism had disastrous consequences to the whole economy: from 1960 to 1975, according to the World Bank, the economy of Burma on a per capita basis grew .7 of one per cent a year. Today, the per capita income is \$170, while Malaysia's is \$1,400 and Singapore's \$4,000.

The people of Burma are not only poor, they have also lost much of their personal freedom. General policy forbids western dress, criticism of the government and travel abroad, even when one wishes to visit a sick relative in a neighbouring country. Those who do have influence in the government still have to wait six months to obtain a passport. Because so many people have escaped, the government does not dare to risk losing more by legally allowing them out.

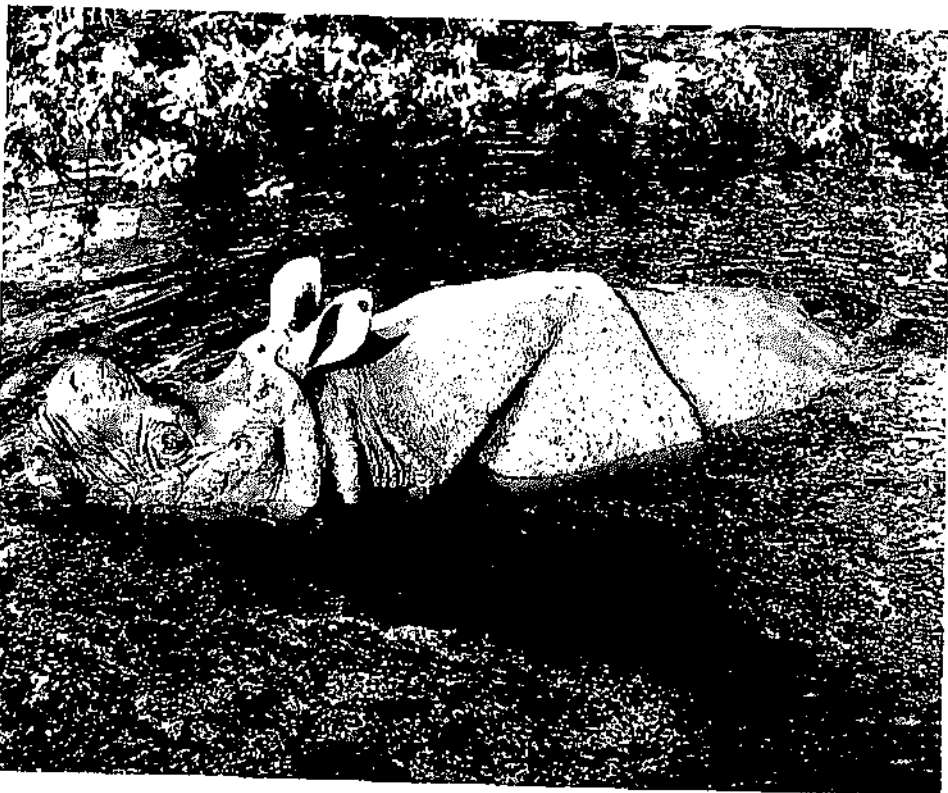
One aspect of the economy does work very efficiently in Burma — the black market. Having refused to allow the import of consumer goods, the government has created a great incentive to smuggle in such goods, especially from Thailand. In recent years, more and more people have begun to make their livelihood on the black market, and in order to stop the illicit operations the government would have to arrest thousands. Such drastic action just might lead to more uprisings, so it seems that officialdom turns a blind eye to much that is going on.

The black market functions almost openly on the streets of Rangoon and Mandalay. You can buy on it a coca cola for \$2 or a small air-conditioner for \$1,050. One businessman approached me in Mandalay to ask whether I had brought in any liquor on the plane from Bangkok; he said he could pay \$19.50 for a bottle of Johnny Walker whisky (I had not, but that price is the equivalent of a month's salary for a house servant). The official exchange rate for the US dollar in travellers cheques is 6.66 kyats; four years ago traders were willing to give a foreign tourist three times that amount. However, it appears that one would receive only nine or ten kyats for a dollar now, which may indicate some improvement in the economy.



Today there are approximately 1,000 Indian rhinos in Kaziranga Park, Assam, the largest number of this species to be found together anywhere.

Below: The Indian rhino enjoys wallowing in water at least once a day. The horn on the Indian rhino averages 720 grams, considerably less than that of the two African species.
Opposite: In Nepal rhinos were hunted by members of the King's family and by the Ranas (hereditary prime ministers) in the Chitawan valley for over a hundred years. In this photograph, which was taken in the 1930s, are members of the Rana family who participated in a hunt.





Because rhino horns are so valuable, shopkeepers in Malaysia and Burma sometimes make fake horns to put on display.

The tip of a rhino horn and an article from a newspaper are displayed here on top of a larger than usual piece of dried rhino hide. Most of the hide on sale in Southeast Asian medicine shops comes from South African white rhinos.



In Rangoon rhino urine is often collected for visitors to the zoo who wish to drink it as a cure for sore throats and asthma.

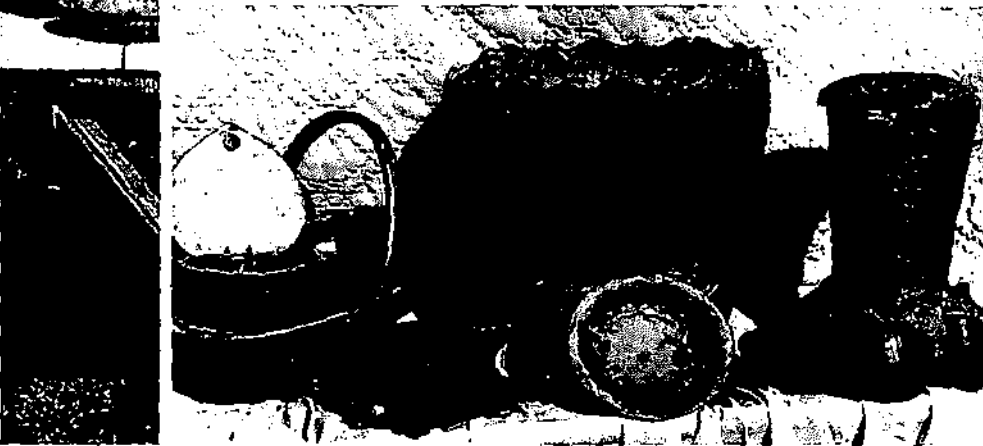


In Malaysia several firms manufacture anti-fever waters, allegedly containing rhino horn. These bottled waters are cheap and are mainly consumed by people who work outside in the hot weather.

In southern Nepal's Royal Chitawan Park authorities remove the horn, hooves and skin from dead rhinos. The horn and hooves are sent to Kathmandu to be kept in the King's palace, and the skin is stored at the Park's headquarters in Chitawan.



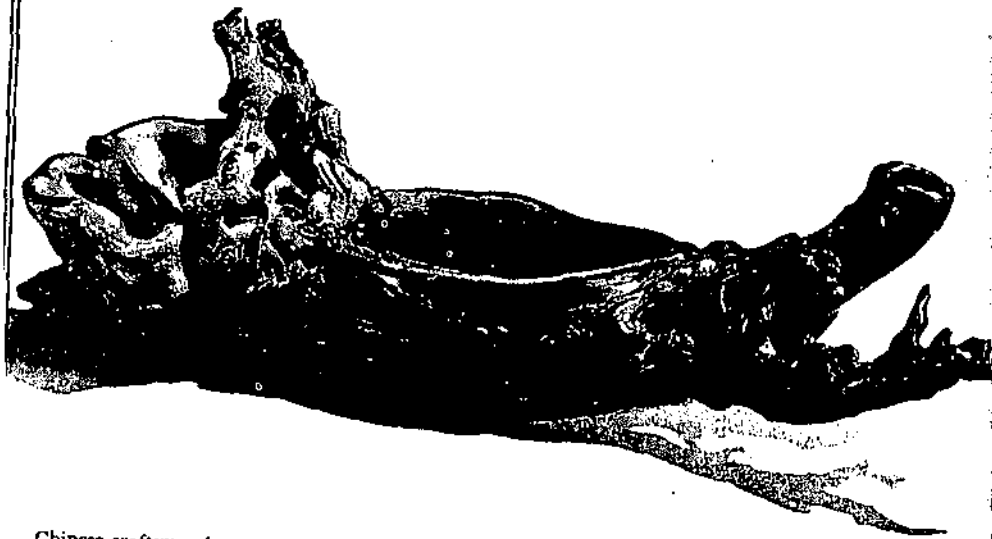
In Kathmandu, a street pedlar holds a small piece of rhino umbilical cord which he is offering for sale. It will be purchased as a cure for stomach upsets or to tie around a child's arm to prevent excessive crying.



General Kiran Shumsher Rana, whose father was a Prime Minister in Nepal, shot a male rhino in Chitawan in 1938. The items he displays here were made from the hide of that animal.

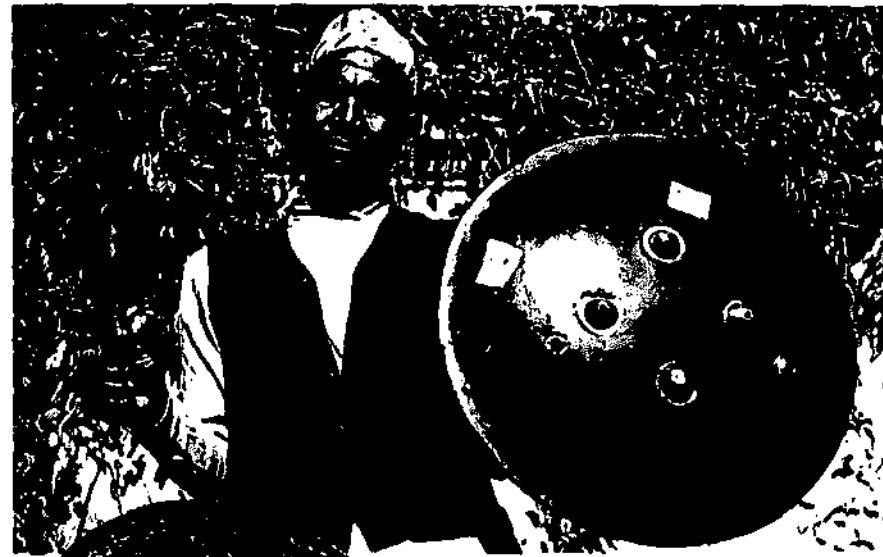


In North Yemen most men wear daggers. The handles of some of which are carved from rhino horn. From 1972 to 1978 40% of all the rhino horn which reached the world market was imported into North Yemen for making dagger handles.



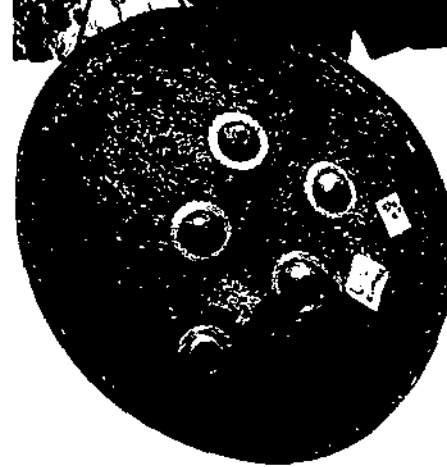
Chinese craftsmen have carved rhino horn into works of art for many centuries. This paint brush holder depicting an old man in a boat was carved during the Ching Dynasty.

Photograph by courtesy of the National Palace Museum, Taipei.



These Nepalese shields of rhino hide were probably made in Patan in the 18th century. Dried rhino hide is very tough and durable, an excellent material for shields.

The majority of processed medicines containing rhino horn are manufactured in China and exported to most countries of Asia. This label from a package of laryngitis pills typically notes in the English language ingredients and directions for dosage.



LARYNGITIS PILLS

Actions: Antiplagistic, antidotal and analgetic.
Indications: For tonsillitis, pharyngitis, furuncles, carbuncle, abscess, infantile acute and chronic convulsions and other inflammation and swelling.

Directions: For administration: Thrice daily.
Children: One year of age, 1 pill each time. Two years of age, 2 pills each time.
 Three years of age, 3-4 pills each time. Four-eight years of age, 5-6 pills each time.
 Nine-fifteen years of age, 8-9 pills each time.

Adults: 10 pills each time.
For external application: Dissolve ten or more pills in a little water or vinegar, apply it to and rub the periphery of the inflammation several times daily and keep damp till the swelling is eliminated, Not to be applied to the inflammation getting suppurated or feasted.

Ingredients: Rhinoceros horn 10%, Pearls 7%, Bear Gall 7%, Cow-bezoar 5%, Musk 3%, Toud-cake 10%, Rhitoma Coptidis 20%, Fined Borax 30%.

Packing: In box of 10 packets, each packet containing 3 tubes x 10 pills.

Caution: Not recommended for the pregnant.

Prepared By
 CHINA SZECHUAN PROVINCIAL PHARMACEUTICAL FACTORY, CHENGDU BRANCH
 Headed By
 CHINA NATIONAL NATIVE PRODUCE & ANIMAL BY-PRODUCTS IMPORT & EXPORT CORPORATION,
 SZECHUAN NATIVE PRODUCE BRANCH



The Camel Unit of northern Kenya, which consists of 40 camels, half of which are used for riding and the others for baggage, patrols the Bisanadi Reserve which has no roads. All the men carry .303 rifles and the presence of this Camel Unit has been partly responsible for the sharp decline in rhino poaching in this area.



Between 1970 and 1972 at least a thousand rhinos died of starvation in Kenya's Tsavo East National Park. At the park's headquarters in Voi, some rangers examine the rhino horns and elephant tusks collected as a result of this disaster.

Photograph by Daphne Sheldrick.



In 1981 rhino horns were still being legally sold in the Transvaal in South Africa. Small slivers of horn are bought by the Zulus and other Africans to treat various afflictions such as asthma, coughs and snake bites.



In the early days of European settlement in Kenya, rhinos were almost as plentiful as elephants, and sportsmen took along several gunbearers on their hunting safaris which lasted for weeks and sometimes months, and almost always resulted in at least one rhino kill.

Photograph by Peter Beard.

Even in villages it is possible to buy packets of American cigarettes, Japanese calculators, Indian contraceptives and Chinese writing paper. Since the Burmese currency is not legally convertible abroad, to pay for various items available in Thailand, people smuggle across the border such natural resources as ivory, emeralds, rubies, teak and opium. It may take weeks to arrange for certain items to get to Mandalay or Rangoon: contraband moves in and out of the country by foot, on the backs of elephants and in trucks that were used during World War II; but some economists believe that perhaps up to one-half of the entire service trade in the country is made up of people working in and for the black market.

Before the coup, there were 20 Chinese medical halls dispensing medicine in Rangoon, but now there is only one left. It is called the "Burma Chinese Physicians Supervision Medical Hall" and is located on Mahabandoola street in the middle of Rangoon. It is open thirteen hours a day, from 8:00 a.m. until 9:00 at night, six days a week (closed on Sundays). In 1962 this hall was also taken over by the government, but it was handed back to ten Chinese doctors in 1967. Today this pharmacy is quite shabby in appearance, like many of the buildings in Rangoon. It is quite small and has none of the modern amenities found in medicine shops in some other parts of Asia. The people there could not believe me when I told them that in Singapore, Taiwan, Hong Kong and Kuala Lumpur traditional Chinese pharmacies sometimes have their displays illuminated with fluorescent lights, package prescriptions in personalized wrapping paper, have cassette recorders playing popular music, and occasionally even colour television sets to entertain employees and customers. Nevertheless, the medical hall in Rangoon does have a wide variety of traditional ingredients, kept behind the main counter in drawers that have the familiar Chinese characters painted in black on them. Almost all of the raw ingredients were from plants and minerals; there were very few animal products, mainly saiga antelope horn, buffalo horn and seahorses. There were some manufactured medicines from China, but none having rhinoceros derivatives. In the window of the shop was a fake rhino horn. I inquired why, and was told that it was solely for display, as a means of attracting customers. There was one old Chinese man who sat on a chair in front of a table placed in a corner; he was the medical hall's resident doctor on duty. Two other elderly men stood at the counter to dispense prescriptions, helped by some younger assistants, one of whom was a woman.

The pharmacists confirmed what I had heard in Chiangmai, Thailand: that rhino products have traditionally been consumed not only by the Chinese in Burma but also by the Burmese themselves. The Chinese prefer the horn, hide and hoof; the Burmese primarily use

rhino blood, but also heart, urine and meat. The latter is made into a curry to feed to weak people, to give them more stamina and to improve their blood. In the past the medical hall has sold all these rhino products, but never rhino dung.

There was no rhino horn for sale when I made my visit in January 1981; the proprietors had sold the last of what they had in November 1980 for the equivalent of \$12,810 a kilo. It had been a Sumatran horn (they told me that for medicinal purposes the smaller, knob-like back horn of this species is "the best"), and they said that they had bought it for what would have been \$8,000 a kilo wholesale in June 1980. For the last twenty years the proprietors had never bought African rhino horn. They told me that in late 1980 a Chinese person had offered to sell them one liang (37.5 grams) of another Sumatran horn, which had been obtained in Mandalay. They refused to buy it because it was too expensive for them — the equivalent of \$12,000 a kilo wholesale, although they agreed that this was "the going price today" due to the rarity of these animals. This, in fact, meant a fifty per cent increase in the wholesale value of Sumatran horn in just six months! The pharmacists said that they thought the latter horn offered to them would have been smuggled out to Thailand.

Dried rhino blood is often sold in the Burma Chinese Physicians Supervision Medical Hall. It is prescribed for people suffering from "weak blood", vitamin deficiencies or general lethargy. The very small dark red pellets retail for \$800 a kilo and come from Sumatran rhinos. One of the physicians confided to me that even in the medical hall they sold some "artificial dried rhino blood". It cost only one-tenth that of the genuine; but he said they never tried to trick customers with it, but that customers who could not afford the other would ask to try it instead. However, I learnt that people elsewhere in Burma do try to swindle patients with dried blood from the ordinary cow which they claim is from a rhino. The making of fake rhino blood has a documented history in Burma. The sportsman Sydney Christopher, in his book *Big Game Shooting in Lower Burma*, wrote about the following activities that occurred after he shot a rhinoceros in 1908 near Rangoon:

... the blood of the beast [the rhinoceros] was carefully collected by my followers in the hollows of bamboos and taken to camp, where they subsequently dried it over a slow fire for preservation. The flesh was eaten and I had my usual taste of it, and found it not unlike bison flesh ...

Some of my followers besides acquiring the flesh [of the rhino] made a few rupees by the sale of the blood which they distributed amongst themselves, but those who made the most were the opium eaters who never even go within ten miles of the

rhino. Long before we left the jungles, dried blood of domestic cows that had been collected in buckets from the village butcher, were on sale at Tikekyi and the other neighbouring villages as rhino blood and was eagerly bought up by quacks and others.

Rangoon's Chinese medical hall has not had genuine rhino hide since 1977, but there is "processed" hide made from buffalo which is sold in place of rhino hide to treat high fever.

Because the pharmacists had emphasized the importance of dried rhino blood in traditional Burmese medicine, I wanted to learn more about its use from a Burmese doctor. I was very fortunate in being given assistance to do this; my guide, provided by the government-owned tourist board, who accompanied me everywhere during my stay in Burma, took me to a traditional Burmese clinic in Rangoon. The doctor in charge of this establishment (which included hospital-like rooms for patients on the upper storey), was one of the most highly qualified specialists in the field of traditional Burmese medicine; he very kindly invited me into his private office and spent a couple of hours explaining to me the principles of Burmese medicine, the treatment of patients, the types of drugs used and some of the variations between Chinese and Burmese medical practices.

The Burmese have traditionally relied almost entirely on products that are indigenous to the country for the ingredients of their medicines. Only a few imports have ever been required: cloves, saffron, nutmeg and some chemicals. Another major difference is that there is no demand for manufactured traditional drugs — practitioners of Burmese medicine almost always prepare themselves the drugs they give their patients. Exemplifying this rule, the doctor interrupted his discourse from time to time to go into an adjoining room to check on a brew he was boiling up for a very sick patient staying in the clinic. He also said that rhino blood was one of the more important items in Burmese medicine, but that it is not consumed on its own. He told me the local names of vegetables and herbs that were usually mixed with it, but as he did not know the Latin names for them I was at a loss to discover if they are ones known to westerners. He also said that substitutes for rhino blood were common; and, moreover, many Burmese doctors believe that dried buffalo blood can indeed achieve the same success in treating weak hearts, "impurities of the blood of patients" and as a general tonic, the main uses for rhino blood. He added that it has been argued that since buffaloes live in the same type of environment and enjoy mud wallows just as much as rhinos, these two animals have relatively similar qualities in their blood. There are also tonics made from both rhino and buffalo dried blood that are usually taken by the teaspoonful once a day with another liquid, preferably milk. Such tonics are for tiredness, the effects of over-exhaustion and

listlessness.

To check whether rhino blood was generally available, I went to a major wholesaler of Burmese medicines in Rangoon. The owner claimed that his shop was the largest of its kind in the country. This shop indeed had rhino blood; it was old stock mixed with other ingredients in dry form, kept in a large two-quart jar. The owner told me that now it is extremely difficult to obtain new supplies of rhino blood, and that most doctors were content to use dried buffalo blood in its place. I asked if other rhino products were for sale here, but there were none. After a while, a very old man came into the shop, and the people working there made a big fuss over him and hastily cleared the way to make room for him to sit down at a desk. He had an old shopping bag with him, filled with his prized possessions — medical books written in Burmese. He motioned to me and I was soon introduced. It turned out that he used to own this shop, was a well known practitioner of Burmese medicine but is now retired; he proudly told me he was 77 years old. He said that rhino products used to be used much more extensively than now; for example, he used to make a tonic from rhino horn and hoof that was boiled. Now he has only a little bit of hoof left; he keeps it at home and will not sell it, although he has from time to time taken a few shavings off it to make medicines for his close friends. Before World War II, some African horn was brought to Rangoon, but he did not know how it got here. There have been no African rhino products supplied to Burma since the outbreak of that war. The war did provide him with quite a bit of free rhino blood, he laughingly added. Obviously, I wanted to know more, and he told me the following story.

When the Japanese came, one of them killed a rhino living in the zoo, just out of spite. A little boy working in the zoo knew the doctor and realized the importance of rhino blood for his medicine, so he filled two big buckets full, ran to the doctor's home to get him to come collect it. The doctor only managed to carry back one of the buckets. He very carefully dried the contents, pleased to have such a welcome supply of a rare and valuable commodity. However, later, the British bombed Rangoon with their Spitfires and he had to flee his home during one of the raids; his house caught fire and the prized rhino blood was lost forever.

How and where in Burma is rhino blood collected today? Driving along Kyunkyí street in Rangoon one afternoon with my official guide, I noticed a large group of people gathered around tables on the verandah of a building. What attracted my attention was the bright pink turbans some of the men were wearing. I asked what was happening; and, reading the large red banner stretched across the front of the building which was a Buddhist temple, my guide said the association of

traditional Burmese doctors was celebrating their annual conference here. Naturally, I told the driver to stop and I went to see what I could learn. Several of the turbaned men had little tables of their own with bottles and powders arranged on top. Many of the people standing around were just on-lookers, but some were earnestly talking to the turbaned men who were doctors dispensing free medical advice and drugs to anyone who needed help.

One of the office bearers of this association (which is composed of private doctors only and has 2,000 members) allowed me to interview him. He explained in detail the role of the association, which has its own clinic, organizes regular seminars for doctors, carries out research on traditional Burmese medicines and teaches people how to become physicians. He said that the last time he himself had received any real rhino blood was in November 1980 when a former patient gave him some that he had obtained from a man who lived in Sagaing town, very close to Mandalay. I asked him what he did with it and he said he made it into a tonic using his own special recipe and gave it to people like me, who were too thin!

He then suggested that I talk to some of the other doctors present, and I made my way through the throngs of people on the verandah. I talked to several of the doctors who had dried rhino blood and they told me they were usually able to get it free when they travelled to the hill states. Hunters who still occasionally kill rhinos in parts of Arakan, Kachin and Karen willingly supply it to them in return for the doctors' professional services to their families and friends. Some of the doctors said that they often exchanged various drugs with their colleagues and that rhino blood was sometimes one of such items.

This information helps to explain why the Sumatran rhino is endangered in Burma. Nobody knows how many of them are left; the most optimistic guess is a hundred, while some conservationists think that "under 25" is a more realistic figure. Burma is the only country I have studied in Southeast Asia where there is still a major demand by both the indigenous people and the Chinese for supplies of rhino products. About the only saving grace there for the rhinos is that one of the products in demand can be obtained without danger to the animals, and the marketing of this has greatly increased recently.

The product is rhino urine. It is used to treat high fever and asthma, but until September 1980 it held little significance in Burmese traditional medicine because it is so difficult to collect. However, on 26 August 1980 the King of Nepal sent two Indian rhinos captured in the Royal Chitawan National Park to the Rangoon zoo as a gift to the people of Burma. These two rhinos, an eight-month-old male called "Bhunte" and a ten-month-old female, "Lorie", arrived by air, attended by a Nepalese veterinarian who stayed in Rangoon until his

charges had settled down in their new home. Although some Burmese and resident Indians were aware of the benefits attributed to the use of rhino urine, a demand for it that had scarcely existed before became quite considerable, thanks to information widely disseminated by the veterinarian, who emphasized that Indian rhinos produced the "best" type. He said that it was very helpful for many kinds of chest and respiratory problems and "a proven remedy to colds".

The Burmese keepers of "Loorie" and "Bhunte" learned from the veterinarian how to collect urine in bottles and prefer to do so from "Bhunte" who stands quite still if one keeper thrusts bananas into his mouth while another stands behind him with a bottle at the time. Anyone may come to the zoo and ask for some urine. There is no charge, but the keepers are sometimes given a small tip for it. When someone wants a supply, the keepers stand around closely watching "Bhunte" and when he starts to urinate they jump into his pen, one with a bottle and the other with bananas. I saw this going on when I visited the zoo, and was told that during the monsoon rains when people suffer more from congestion and colds there is often a queue of patients waiting to have their bottles filled.

Demand for this particular rhino product does not at all hinder the care given to the two young rhinos. On the contrary, the keepers seem to have greater respect for the value of these animals, and they make every effort to keep on friendly terms with "Bhunte" and "Loorie". They like showing how "Bhunte" and "Loorie" respond to being called by their names, and take pride in the fact that they are in charge of these animals. They prepare their food and milk formula with concern for cleanliness and proper measurements. Members of the public watch the keepers at work and are impressed. Occasionally, someone will buy a bunch of bananas from one of the vendors' carts in the zoo and present it to the keepers to give the rhinos. The rhinos are, in fact, considered as very special treasures in the Rangoon zoo.

Mandalay is the second city of Burma, and although it has a population of only 500,000 compared to Rangoon's 2,000,000, it is a far more interesting city, having been built by the Burmese themselves and having been the capital of the country from 1857 until 1885, when the British annexed Burma and decided to build another capital city at Rangoon which is on a river, only 40 kilometres from the sea. At the time of Ne Win's coup, Mandalay had six Chinese medical halls, but now only one functions, the Yin Shu Htan Chinese Pharmacy. This establishment is run by a husband and wife team; he is the doctor; she is the pharmacist. They came to Burma from the province of Kwangtung in southern China "a long time ago", but have maintained contacts in China which have helped them to continue to obtain manufactured drugs and raw materials from there that otherwise would not be

possible since the present government of Burma does not allow foreign exchange to be used for payment of them.

This pharmacy sold rhinoceros horn, blood and hide. The horn is purchased only by Chinese customers; it is Sumatran. The piece shown to me had been purchased in 1974, but the couple did not want to tell me what they had paid for it then, although they were quick to say that it was worth \$12,000 a kilo wholesale today. At the time of my visit in January 1981, they were selling it retail for the equivalent of \$20,200 a kilo.

The blood, which is only purchased by Burmese customers, had been obtained in 1974, and again in 1976 for the same price, \$160 a kilo. There was quite a demand for rhino blood, they said; and it is sold retail from this medical hall for \$400 a kilo. The pharmacist believes that she can detect true rhino blood by the way the crystals react in water: they spread much more evenly in fresh water than those of buffalo or cow.

As for rhino hide, the pharmacist suggests that a small piece of it should be boiled with rice as a cure for skin diseases. The rhino hide here was from the Sumatran animal and was sold for between \$240 and \$400 a kilo, depending on its quality. This medical hall no longer had rhino hooves for sale; the doctor stated that he prescribed the last of them in 1975 and that then his patients had to pay the equivalent of \$8,000 a kilo. This is an incredibly high price, the closest to it being \$3,670 charged in Kuala Lumpur in 1980.

While in Mandalay I visited the Kyaucktawgyi pagoda which was built by King Mindon around 1860. Pagodas in Burma are not just centres for worship; there is an almost medieval character about them: life for most of the Burmese people centres around the festivals held at pagodas, and in-between the celebrations they generally visit them two or three times a week. They serve as social centres and there is often more activity going on in the little stalls along their entrance passages than in the cities' business centres. Kyaucktawgyi is no exception, being one of the most popular pagodas in the country. I found here a typical traditional medicine man sitting cross-legged on the floor of the long hall leading to the pagoda. On either side of him were women selling bunches of fresh flowers for visitors to use as offerings. The medicine man had spread out in front of him an amazing assortment of plant and animal products for multitudinous cures. There were pangolin scales and tiger teeth as well as many bottled elixirs, and among the latter I examined one with a label in Burmese reading, "Rhino Blood and Deer Horn Tonic Medicine; Please Use This Medicine". The small bottle held a dark thick liquid which had been mixed by the Burmese medicine man himself. It cost \$3.10 and he said it would make people "feel better". He said he told his customers to take

a small amount at a time, mixed with milk; or, if they could afford it, some brandy, and drink a potion every other day. During festivals, when the pagoda is packed with people, he claimed he sold as many as ninety bottles of this medicine; at other times his sales averaged five or six bottles a month. I asked him how he obtained the rhino blood for it and he told me he bought it from a dealer who assures him it comes from India. The medicine man said, too, that he sometimes is able to get plain dried rhino blood which he sells for what would be the equivalent of \$368 a kilo.

There is one remaining observation I have to make. It regards imitation rhino horns, which I saw in all three of the countries under discussion in this report. There have been several fairly recent articles on the subject of fake rhino horn, including ones by D. A. Hooijer and Eric Alfred who state that these are sold to customers in traditional medicine shops in Asia. Also, many conservationists have suggested that artificial rhino horn, manufactured from synthetics, should be widely marketed to try to save rhinos from being poached. I have often decried this suggestion from a practical point of view, believing that the attempted deceit would be recognized as such. I think that my research in Indonesia, Malaysia and Burma, where people are very much aware of fake rhino horns, lends further support to my argument.

In general, the fake horns seen in traditional medicine shops can be classified into two different types. The first kind is that which is simply carved from the horn of another animal in such a way as to give the impression of being rhino horn. The horn of the water buffalo is most common, but occasionally that from ordinary domestic goats or from the gaur is used. The upper part is shaped to make it look like a rhino's and then rough, little knob-like protuberances are carved at the base of it. These horns are not very convincing because they are often too shiny, too solid and lack the fibrillous quality of the inside of real rhino horn.

The other way of making imitation rhino horns is to include soft wood in the production. The outer part of this type of horn is often water buffalo, too; it is sometimes extensively etched, then painted or inked and polished in streaks to stimulate the look and texture of rhino horn. The inside of it is hollowed out and filled with a soft wood that is glued in. The wood is elaborately carved to give a sponge-like feeling that the true horn has. There are even specimens with the base being genuine rhino horn (this lower part of a rhino's horn is not particularly valuable because it usually is not in good condition and it is thought to be weaker in curative powers). Considerable effort goes into making this style of artificial rhino horn; nevertheless, anyone familiar with genuine rhino horn will immediately ascertain that it is not what it pretends to be.

The fake rhino horns produced in Sumatra, Malaysia and Burma are very cheap. One trader in Penang told me that ten years ago he had bought several imitation horns for three dollars each. These horns are not, however, for sale to customers in medicine shops, contrary to what has been written. They are used for another purpose, and I seriously doubt if any experienced pharmacist would attempt to make shavings from one for a client, even though many pharmacists do sell ready-made shavings that are called "rhino horn" but are not.

The fact is that because genuine rhino horn is worth thousands of dollars wholesale, many proprietors of Chinese pharmacies in South-east Asia do not want to put one in their display window. There is not only the risk of having the window broken and the horn stolen, there is also consideration of the problem that in many countries it is illegal to sell rhino horn; by openly displaying one they might attract unwanted attention from the authorities. A fake rhino horn is thus a safer attraction, and it serves to indicate that the medicine shop concerned sells a wide variety of animal-based products, not just those which are easily obtainable, but the costly and rare ones, too. It may, although this is not always the case, also be a form of advertisement for the availability of genuine rhino horn.

Why do the pharmacists, when they display fake rhino horn, habitually give it the most prominent position among an array of other products which are genuine? The answer to this question lies in the theory behind Chinese medicine. Certain drugs are called "cold", others "hot". The latter are the most powerful and most necessary for treating serious disorders. Of course, rhino horn falls into this category; and it is one of the most important of all. Its presence is, therefore, symbolic in a window display, showing passers-by that the pharmacist in charge is highly qualified in the use of the most potent medicines (rhino horn is considered a "dangerous drug" if improperly prescribed). Furthermore, rhino horn — whether fake or genuine — is displayed to suggest that the pharmacist's business is on a sound financial footing, being able to provide customers with the most expensive products on the market. This is a point appreciated by the Chinese who are generally very shrewd purchasers and prefer to deal with successful proprietors who have already earned their reputation.

TABLES

The Trade and Uses of Rhino Products in Indonesia, Malaysia and Burma

TABLE I

Percentage of Indonesian, Malaysian and Burmese Pharmacies having Rhino Horn for sale in 1980/81

<i>Place</i>	<i>Total no. of shops examined</i>	<i>No. having rhino horn</i>	<i>Percentage of sample survey</i>
Djakarta	26	7	27%
Denpasar (Bali)	1 (only 1 exists)	1	100%
Kuala Lumpur	26	15	58%
Georgetown	22	10	45%
Rangoon	1 (only 1 exists)	1	100%
Mandalay	1 (only 1 exists)	1	100%
Total: 77		Total: 35	Average with rhino horn: 45%

Source: Survey taken by the author.

TABLE II

Average Retail Prices of Rhino Horn* per kilo in December 1980/January 1981

<i>Place</i>	<i>Type of horn</i>	<i>Price (US\$)</i>
Djakarta	Mostly Sumatran and Javan	12,634
Denpasar (Bali)	Unknown	12,903
Kuala Lumpur	Mostly African	19,801
Georgetown	Over 60% of African origin	7,645
Rangoon	Sumatran	12,810
Mandalay	Sumatran	20,200

**Horn in pieces or whole, not shavings.*

Source: Survey taken by the author.

TABLE III

Average Retail Prices of Rhino Products per kilo, 1980/81

<i>Place</i>	<i>Horn</i>	<i>Hoof</i>	<i>Dried Blood</i>
Djakarta	\$12,634	\$ 215	—
Denpasar (Bali)	\$12,903	—	—
Kuala Lumpur	\$19,801	\$3,670	—
Georgetown	\$ 7,645	\$1,636	—
Rangoon	\$12,810	—	\$800
Mandalay	\$20,200	—	\$400

Source: Survey taken by the author.

TABLE IV

Availability of Rhino Products in Indonesian, Malaysian and Burmese Traditional Pharmacies in 1980/81

<i>Place</i>	<i>Horn</i>	<i>Dried raw hide</i>	<i>Processed hide</i>	<i>Hoof</i>	<i>Dried blood</i>	<i>Manufactured medicines from China</i>
Djakarta	*		*	*		*
Denpasar	*	*	*			*
Kuala Lumpur	*		*	*		*
Georgetown	*	*	*	*		*
Rangoon	*		*		*	
Mandalay	*	*			*	

Source: Survey taken by the author.

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THE TRADE AND USES OF RHINO PRODUCTS IN JAPAN AND SOUTH KOREA



JULY 1981

INTRODUCTION

In 1979 I wrote a monograph for WWF and IUCN, called *The International Trade in Rhinoceros Products*. I based my study on research I carried out in Hong Kong, Macao, Singapore, Taiwan and Thailand which, except for the latter, have never had resident rhinos, and it is the Chinese who live in these countries who mainly import and consume the rhino products found in their traditional pharmacies. Consequently, the role of horn and skin, the two most common rhino products for medicinal purposes, was practically the same in all these countries. The horn was primarily used as a fever-reducing drug and the skin was believed to be of value in treating human skin disorders. Moreover, the preparation of these two products was similar, following procedures laid down by Li Shih Chen, the most famous Chinese pharmacist of all time, who wrote the *Pen Ts'ao Kang Mu* in the 16th century.

Perhaps I should add, for those who are not familiar with the demand for rhino horn today, that even though North Yemen imported an estimated 18 tonnes of rhino horn between 1972 and 1977 for making handles to daggers, an additional 28.5 tonnes was consumed elsewhere as a medicine.

I have recently returned from a trip to Japan, South Korea, Indonesia, Malaysia and Burma for the purpose of further developing my study of the trade in rhino products in countries where the Chinese are less predominant. I wanted to ascertain the influence the Chinese have had regarding the use of rhino products in these countries, what differences may exist between the different peoples in their own beliefs and practices concerning rhino products and whether the consumption of rhino horn was widespread.

I found that in Indonesia, Malaysia and Burma, countries which still have rhinos living in forested areas, the demand for rhino products

is relatively high. Although the animals are legally protected, poaching is carried out wherever possible and indigenous rhino horn finds its way to local pharmacies for domestic consumption. It is generally the Indonesians, Malaysians and Burmese themselves who kill the rhinos for the trade, using their own traditional methods which vary from place to place; however, because of the greater affluence and greater demand for rhino products among the Chinese who reside in these countries, it is they who mainly consume the available rhino horn. There are traditionally accepted uses of rhino products among the Indonesians and Malaysians; but these are not widely practised today due to the rarity of the rhino, the fact that these traditions are waning whilst the Chinese traditional uses of rhino horn remain strong and the Chinese are willing to offer higher prices for rhino products.

In Japan and South Korea the story is somewhat different. Neither of these countries has rhinos nor large numbers of resident Chinese. Nevertheless, Japanese and Korean beliefs about the purposes rhino horn can serve are almost identical to those held by the Chinese, and there is a considerable demand for this product as a medicine. This is solely the result of the influence that China exerted in the introduction of medical practice in these two countries. However, the differences between the way that rhino horn is prepared for consumption in Japan and Korea are greater than those in any other two countries I have studied. As a geographer, I find this remarkable since Korea and Japan are relatively close to each other, have developed their uses of rhino horn as a result of early contact with the Chinese mainland and have had political ties to each other, such as the occupation of Korea by Japan from 1910 to 1945.

In this paper I will discuss the development of the uses of rhino horn in these two countries — neither the Japanese nor the Koreans consume any other part of the rhino — and I will explain where and how they obtain it, the prices they pay for it and look at the comparative importance of rhino horn to the Japanese and Koreans. In doing this, it is my intention to discover ways and means for conservationists to bring to a halt the use of rhino horn in Japan and Korea.

IMPORTS OF RHINO PRODUCTS INTO JAPAN

It was not until the sixth century AD that Buddhist missionary zeal encouraged the Chinese to make direct contact with Japan, some 800 kilometres across open sea. During the following two centuries Japanese Buddhist converts went to China to learn more about their new faith; and it was they who, on their return home, spread Chinese culture in

Japan, rather than the Chinese missionaries themselves. The young Japanese men who accompanied the embassies to China in this period were chosen to go not just because of their interest in Buddhist theology but also on the basis of their scholastic or artistic promise. Some of them stayed in China for ten years or longer, and when they came back they were the recognized leaders in arts and sciences. The cultural influence they wielded was tremendous and led to the creation of the great Chinese-style capital of Nara to house the government of the emperor who described himself as the Rising Sun in a letter he addressed to the Chinese emperor, whom he called the Setting Sun.

It is in the famous Shosoin Collection at Nara where today are found vestiges of the trade that came about between China and Japan in the eighth century. Among the many treasures here are Chinese daggers with rhinoceros horn handles, girdles with rhinoceros horn plaques (which were customarily worn by high officials of the Chinese court), and other rhino horn objects including a measuring stick with gold leaf, sword hilts decorated with silver scrolls inlaid with pearls and Buddhist sceptres, called *nyoi*, which have ivory handles carved into flowers and birds.

There is doubt whether the Japanese themselves ever made such items out of rhino horn. Art historians believe that the Japanese never carved rhino horn until the 18th century, and then only for making netsukes, toggles for fastening objects to the sashes of kimonos. Today netsukes serve no practical purpose, but they are still being made as *objets d'art*. I came across some rhino horn netsukes in one shop in Tokyo; three master craftsmen, Kenji Abe, Akihide Kawachara and Shubi Aramaki, who regularly carve netsukes out of a variety of materials, had made these, and they cost about \$2,000 each, wholesale.

Although raw rhino horn was apparently not used for any carvings in Japan until after 1700, the Japanese have imported it for many centuries. They probably learned of the medicinal uses attributed to it by the Chinese when contacts with China were first made. It is also likely that Chinese traders brought rhino horn in their junks when they came to Japanese shores in the seventh and eighth centuries. Possibly, too, the early Japanese scholars who went to China brought rhino horn back home. Once rhino horn became accepted as a highly valued remedy for maladies in Japan, demand for it continued; and we know that in the 17th century the Dutch supplied rhino horn to the Japanese market.

We do not have any idea of the quantity of rhino horn that the Japanese consumed until towards the end of the 19th century when reasonably accurate statistics become available, thanks to the Meiji government (1867-1912) which initiated a practical system for recording all imports and exports.

Between 1882 and 1889 an annual average of 1,283 kilos of rhinoceros horn came into Japan. From 1882 to 1887 most of this horn was imported from Siam and the East Indies, which would probably have been obtained from the Sumatran and Javan species. The Japanese paid on average \$11.29 per kilo for it, which was over five times more than what African horn from Zanzibar then cost. It was not that the Japanese were unaware of the availability of the cheaper African horn; instead, they believed then, and still do, that horn from Asian species is more efficacious; and, as long as they could obtain it, they were willing to pay more for it. Sometimes they have spent as much as 2,000% more for Asian horn than they would have had to pay for African horn. In the 1880s when they were buying their horn from Siam and the East Indies they were obtaining elephant ivory from these same sources, which they also believed was superior to that which came from Africa.

In the latter part of the 19th century all three of the Asian rhino species — the Javan, Sumatran and Indian — were being shot and trapped in large numbers, and their overall populations sharply declined between 1850 and 1900. In those years, it was not just hunting for sport or for the parts of the animal's anatomy that could be sold for huge sums that brought about the great reduction in their numbers. It was also the fact that rhinos were beginning to get in the way of "progress". In India bounties were paid to those who rid the newly established tea plantations of rhinos. In Siam, Burma, Malaya, Sumatra and Indochina the more accessible forests which both Javan and Sumatran rhino inhabited were being cut down to provide hard wood timber. Also, in the East Indies more and more land was being required for rice paddies to provide food for burgeoning human populations.

As a result of all this, the availability of Asian rhino horn dwindled to far below the international demand for it. Supplies of Javan and Sumatran horn were first diminished, and so in 1888 the Japanese turned to traders in India for their needs. Calcutta then served as the entrepot for Indian rhino horn, which was exported to China as well as to Japan. However, the Indians, who also used rhino horn themselves for medicinal purposes, could not obtain enough domestically to meet both their own and foreign demand for it. Traders in Bombay, who had long-standing connections with the East African coast, imported African rhino horn along with African elephant ivory. It was Gujaratis who were primarily involved in this; and, interestingly, they, unlike most other Indians, believe that rhino horn can be used as a sexual stimulant.

In the late 1800s Bombay became the largest entrepot in the world for elephant ivory, and it is probable that the Gujarati dealers who bought ivory and rhino horn from East Africa encouraged the

Japanese to begin to accept African rhino horn in place of the increasingly rarer Asian species. This supposition that the Japanese did begin to buy African horn then is supported by the fact that between 1893 and 1900 over half of their supply was shipped to them from India (most of the rest came via China) and that they paid an average price of only \$4.97 a kilo for it. It is also worth noting that the Japanese were buying up to a third more rhino horn in the 1890s than they did in the previous decade. This is probably due to the fact that the rapid industrialization of the country under the Meiji government had considerably improved living standards and more people could afford to use rhino horn as a cure for their ailments.

Regrettably, from 1904 to 1950 the official import statistics of Japan, which were kept under the auspices of the Department of Finance, did not specifically list rhino horn as an import; instead it was incorporated with other products into a larger category. However, although the specific statistics are missing, I know that Japanese businessmen were regularly bringing in rhino horn for pharmaceutical purposes from 1904 until about 1940 when the World War interrupted supplies. Talks I had with Japanese importers confirmed this.

Following World War II, Japan experienced severe foreign exchange problems, so rhino horn imports remained relatively low in comparison to the years prior to 1940. From 1951 to 1959 Japanese traders brought in only 196 kilos of horn on a yearly average. Once again China took over its role as the major supplier, since Indian businessmen could provide only very little horn. Other suppliers were traders from South Africa, Zanzibar, Kenya and Hong Kong. Very little horn came from any Asian animals, although 30 kilos were declared from Thailand in 1957. The average price the Japanese paid in the 1950s was a low \$22 per kilo, with a range from \$16 to \$41. As for the rhino horn from Thailand, there are two possibilities. It could be that Thailand acted only as an entrepot for horn coming from Africa, in which case the stated value of \$37 a kilo for it would be correct. On the other hand, owing to the preference of the Japanese for Asian horn and the fact that there still is Asian horn to be seen in Japanese pharmacies, one cannot rule out the possibility that this was Sumatran or Indian horn and that its actual value was underdeclared for some reason or another.

In the 1960s imports of rhino horn rose sharply; the annual average of 404 kilos was more than double that for the previous decade. This was due to several factors. Firstly, the Japanese economy was expanding faster than that of almost any other country in the world and the Japanese had more money to spend on rhino horn than consumers elsewhere. And, secondly, traditional medicine was making a come-back after having been almost swept aside in favour of western

medicine. China remained an important supplier of Japan's rhino horn, but around 1964 Hong Kong became the greatest entrepot for African rhino horn. From 1965 to 1969, when Japan's imports came via both China and Hong Kong, the source countries for rhino horn were Kenya, Tanzania, Zaire, Congo-Brazzaville, South Africa and South-west Africa. The average price paid by the Japanese importers for a kilo of rhino horn was \$34.

From 1970 to 1979 when there were essentially still no restrictions on the importation of rhino horn into Japan, traders brought in an average of 806 kilos a year, once again doubling the amount for the previous decade, but still less than half of what had come into Japan in the 1890s. Japan's economy was continuing to expand, despite the setback from the huge increase in petroleum prices; and the Japanese were enjoying one of the highest per capita incomes in the world. During that decade Kenya provided most of Japan's rhino horn (55%), followed by South Africa (16.5%) and Tanzania (9.5%). Only 20 kilos of rhino horn came from Thailand and 32 kilos from India, but some of the latter was definitely of African origin. The Japanese did not generally buy their horn directly from the African source countries; they took advantage of Hong Kong as an entrepot and the simplicity of sending telexes there for their requirements.

In the 1970s the price for African rhino horn soared. In 1970 the Japanese importers had paid only \$41 a kilo, but by 1977 they were having to spend \$116 per kilo; a year later the price had tripled to \$308. By the end of the decade it had reached \$341 — more than eight times as much as in 1971 and almost 23 times higher than the 1953 price.

In November 1980 the Japanese government ratified the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Before agreeing to the treaty, the Japanese government insisted on certain allowances regarding the fin whale, musk deer, green turtle and a few lizard species, but made no reference to exempting rhino products from the list of prohibited imports and exports. Knowing well in advance the implications of CITES, Japanese traders between January and August of that year brought in 763 kilos of rhino horn, of which 77% originated in South Africa, 6% from Zambia, 1% from Kenya. The 14% which came from China probably consisted of chippings from the carving of handles for daggers which the Chinese had purchased themselves from North Yemen. The origin of the remaining 2% was unidentified, but arrived via Hong Kong as did most all of these rhino horn imports, for which the Japanese paid an average price of \$383 per kilo. As from September 1980 the traders stopped importing rhino horn; and, for the time being, it is unlikely that rhino horn will come into the country.

THE USES OF RHINO HORN IN JAPAN

In Japan today there are two types of medicine: traditional Japanese, based on Chinese beliefs and practices; and modern medicine, mainly based on German and American principles. According to many Japanese scholars, Chinese medicine was introduced into Japan from Korea, around 550 AD. In the seventh century the Japanese sent government officials and scholars to China, who returned with Chinese medical books and firsthand knowledge of the types of cures the Chinese used for various illnesses. In the Heian period (794-1185) Japanese medical practitioners began to write their own books, which continued to be heavily influenced by Chinese medicine. Some variants may have come about during the two and a half centuries of Japan's self-imposed isolation, which lasted until the end of the Tokugawa period (1867), but ideas about the uses of rhino horn remained essentially the same.

With the modernization of Japan towards the end of the 19th century, western medicine was introduced and soon became widely practised. It is now far more important than traditional medicine, although the Japanese often complain about the side-effects of western drugs. They feel that these are sometimes put on the market before adequate testing has been carried out to ascertain the severity of their effects on eastern peoples. They worry about the upset stomachs, skin rashes and allergies they may cause. Consequently, whilst the Japanese generally accept diagnoses made by western methods, they occasionally prefer to take traditional medicine to cure their ailments. Remedies made from herbs, minerals and animal products have been consumed by the Japanese for hundreds of years, and they believe that these are "safer" than chemical cures. The Japanese are also aware that some westerners have cast doubt on the advisability of taking strong drugs, with the result that major interest in traditional Chinese medicine has been regenerated. The success of the "barefoot doctors" on the Chinese mainland, who are skilled in both age-old medical practices and western ways, has not gone unremarked, either; this is another reason for renewed confidence in traditional remedies. Moreover, during the last ten years or so, Japanese pharmacists have begun to prepare medications made from herbs, minerals and animal products in tablet form, rendering them easier to take. Instead of buying a variety of ingredients in a medicine shop, taking them back home to boil in a pot of water for a certain length of time, and then waiting for the mixture to cool enough to allow him to drink it, the patient can, in many instances now, buy a pill containing the prescribed traditional medication and simply swallow it with a sip of tea.

Rhino horn is available in Japan in both tablet and traditional

forms. However, it seemed to me that the Japanese who consume it still prefer to buy it in slices which they boil in a cup of water for about 15 minutes, reducing the liquid by half and drinking the strained potion before meals. Rhino horn taken this way is primarily for reducing fever, especially resulting from the onset of a bad cold; and it is given to both children and adults. It may also be used in this manner by people who have measles, blood poisoning and nosebleeds. Less frequently, boiled slices of rhino horn are prescribed for those suffering from erysipelas (an inflammatory disease which causes a bright redness of the skin, usually shown on the face), weakness of the heart, diarrhoea and vomiting.

These medicinal properties of rhino horn are listed in most of the literature on traditional drugs in Japan. That rhino horn should not be considered ineffectual or a "superstition" is a point emphasized in a modern pamphlet (published in 1976), available in almost all of the larger traditional medicine shops for consultation. The author, Professor Motoo Nagasawa, devotes some 11 pages to the description of rhino horn and gives the most detailed references to its use in Japan. He does not mention that rhino horn may be used as an aphrodisiac, nor did I find any indication anywhere in Japan of rhino horn being taken as a sexual stimulant. Although, here as in other rhino horn consuming countries, aphrodisiacs are not uncommon. Of the animal products used in Japan for this purpose, dried snakes, musk secretion from the musk deer, gall stones taken from cows, fur seal penises, donkey skin and eels were widely available in the cities I visited.

Among the modern processed Japanese rhino horn medicines, there are two brand names usually found in traditional pharmacies. "Usaikakusan", manufactured in Nagoya, is a powder containing rhino horn and six other ingredients. It comes in an attractive small box (with the picture of a rhino as its trademark), holding 15 sachets, one for every dose, which is to be administered before meals, three times a day over a period of five days. A package costs only \$2.40, so there is probably very little rhino horn in it. According to the label on the box, this medication is a reliable cure for measles, influenza, whooping cough, pleurisy and high fever. The contents of each little sachet are to be mixed with a half-cup of warm water in which a teaspoon of sugar has been dissolved. Rhino horn tablets are sold under the brand name "Utu Kyumeigan", manufactured by a pharmaceutical firm in Tokyo. These are minute in size, come in a small vial containing 124, costing \$3.70. Even babies under three months old can be given two tablets at a time with their milk formula to stop them from crying at night and bed wetting. For children between two and five years old, the dosage is seven tablets three times a day for colds, fits, vomiting and food poisoning. Adults may take up to 20 tablets at a time for the same

purposes. There is a slip of paper included with the little vial, stating that in addition to rhino horn, this medication contains carrots, "brain of a dragon" (I was unable to ascertain the meaning of this), and the liver and gall bladder of various creatures.

THE JAPANESE WHOLESALERS OF RHINO HORN

In Southeast Asian countries rhino horn is generally imported by the ivory dealers and then passed on to the traditional medicine shops. This is not the case in Japan where, instead, large pharmaceutical firms undertake the importation of all the products needed for traditional medicinal preparation. There are seven such firms regularly handling substantial quantities of rhino horn in Osaka, four or five in Tokyo, one in Yokohama and one in Nagoya. However, rhino horn is neither the most valuable nor one of the more common imports for medicinal use. In fact, Japanese traditional medicine consists mainly of vegetable rather than animal matter. Nevertheless, Japan produces only a small percentage of the raw ingredients usually sold in traditional medicine shops. One of the largest companies, which has been in business over a hundred years in Osaka, imports about 250 different kinds of ingredients for traditional medicine. Another company, also in Osaka, deals in more than 300 different raw commodities. The Director of Research in this latter firm told me that 95% of them had to be imported, mainly from Korea and China. The most expensive animal product imported by three of the pharmaceutical firms in Osaka is musk pod, which holds the dried secretion of *Moschus moschiferus*, the deer that inhabit the Himalayas. In 1975 the Japanese imported 109 kilos of this extremely rare and expensive substance, and demand for it has been increasing. In 1980 Japan imported 398 kilos (180 from China, 156 from Nepal, 40 from Hong Kong, 16 from the Soviet Union and six kilos from Pakistan), worth about \$8,000,000, or \$19,900 per kilo. The musk is so valuable and important to the people of Japan as both an aphrodisiac and heart stimulant that the government made a special exemption for it under CITES to allow the continuation of legal imports, even though the musk deer is very much an endangered animal and faces probable extinction in the wild.

Whilst most ingredients for traditional medicines are prepared and packaged by the firms which import them, rhino horn is usually sent to specialist companies in Toyama and Ishikawa Prefectures for slicing or grinding by electric machines. A lot of rhino horn is sold in transparent polyethylene packages, each containing six grams of slices. Sometimes, bits of dried fruits, usually dried kumquat (which is

supposed to stop coughing) are mixed with the horn. The fruits impart a pleasant aroma to the horn. The pharmaceutical firms sell such packages of sliced horn wholesale to the medicine shops for between \$7.15 and \$8.60, or the equivalent of \$1,190 to \$1,490 a kilo, not a very high mark up, taking into consideration that it has been professionally sliced and attractively packaged. Rhino horn that has been ground into powder is also sold in the same way to medicine shops for the same price, but it is not as prevalent as the slices. More often, rhino horn powder goes to the drug companies for processing into more "modern" type medicines.

THE RETAIL TRADITIONAL MEDICINE SHOPS IN JAPAN

I was told, but could not confirm, that there are approximately 30,000 retail pharmacies in Japan, 3,000 of which deal in traditional medicine. More than 90% of the latter sell traditional medicine exclusively — they do not even have aspirins on their shelves. Such shops are called *kanpoyaku*, which literally means a "Chinese medicine business". Nevertheless, under two per cent of them have Chinese pharmacists working in them. Those that do are located in the Chinese quarter of Yokohama and they are slightly different from the Japanese ones: they cater for Chinese clientele, depend more on packaged products made on mainland China and they usually offer both western and traditional medicine for sale.

Kanpoyaku shops are in all towns and cities. They are not grouped together in a particular area, but fairly widely separated from one another so that a Japanese who wishes to buy traditional medicine usually goes to the one closest to his home or work. He is not likely to go shopping around to try to find the lowest prices possible for what he needs, which is often the case in Hong Kong or Bangkok, where it is quite easy for a customer to wander from shop to shop before making up his mind which one he wants to patronize for a specific purpose.

The *kanpoyaku* shops are among the most modern, neat and tidy medicine shops I have seen anywhere. In many of the larger ones whole rhinoceros horns, sometimes even Indian ones, are kept in display windows. Because animal products are rarer than herbal or mineral ones in Japanese medicine, some shops like to make a point of showing prospective clients that they are able to provide animal-based medications. I went to a shop in Osaka that looked more like a taxidermist's place than a medicine shop. Its display window held stuffed snakes, an armadillo, a blackened monkey head (which can be ground into a powder used to cure insanity and hysteria), a crocodile, frogs, lizards —

and an Indian rhino horn. Generally, inside the bigger medicine shops there are glass-fronted cabinets and shelves with attractive arrangements of dried animal and vegetable products. Manufactured tonics and tablets in bottles, jars and boxes are stacked on tables. The employees wear white smocks, work quietly and efficiently, mixing various ingredients for prescriptions they make themselves to treat their customers' ailments.

All the pharmacists in Japanese traditional medicine shops have had formal training. They spend a minimum of four years to complete a university course in pharmacology, which is mainly based on western practices; they learn the principles of traditional Chinese and Japanese medicine at additional classes taught in night school and from relevant books. Then they become trainees in a medicine shop. As licensed pharmacists, they rapidly progress to become specialists in traditional medicine and some are able to save enough from their salaries to buy a partnership in the business or to open a shop of their own in later years.

Most customers of traditional medicine shops in Japan know what the nature of their complaint is and ask for a particular remedy. Since there are no doctors of traditional medicine in Japan, the pharmacists themselves will make their own diagnosis of an illness in cases where the patient is not sure what is wrong, but has this and that problem. I was amused at one shop where I discovered an enterprising pharmacist who had programmed a small computer to help him with his work. The computer analysed the answers to 25 questions asked of a patient and then made a prescription of various medicines.

Rhino horn is available, as mentioned earlier, in slices, powder or tablet form. One curiosity is that when a Japanese buys rhino horn powder, the pharmacist is more likely to mix other things with it than when slices are sold. The powder, like the slices, is taken home and boiled for about 15 minutes. In addition to dried kumquat, which is generally the only other product mixed with rhino horn slices, powder may also be mixed with the shell of a lobster (also considered a fever-reducing remedy), rock sugar (to make the medication easier to swallow) and the gall of a bear (good for colds and high blood pressure). On its own, rhino horn powder is an uninteresting greyish colour and I wondered if this was why it is more often mixed with other ingredients for medication. The little six-gram polyethylene packages of both rhino horn and powder have printed on them directions how to take rhino horn. Suggested doses are two to three grams at a time, and the main uses listed are "antidotal", and for fever, nosebleeds and measles.

The pharmacists often advise their clients to take rhino horn for bad colds. In fact, the demand for rhino horn medicine is considerably greater in the autumn and winter, so the importers try to schedule the

processing of it in late spring and summer. Many *kanpoyaku* also sell a few imported medicinal preparations from China. One of the more common of those which purportedly contain rhino horn is "Huolotan". This is in tablet form and in addition to rhino horn, it has carrots, gall stone and other ingredients. By taking Huolotan pills one is supposed to obtain relief from muscular pain, rheumatism and bruises. This and other Chinese medications are expensive because the importers and wholesalers mark them up high in order to protect their own manufacturers of traditional drugs. A small bottle of 50 tablets of Huolotan costs \$12 retail.

Because the *kanpoyaku* shops are so widely scattered throughout Japanese cities, I was unable to visit as many of them as I would have liked. My time was limited, and simply to move from one area to another is a feat to accomplish in Japan — even for a geographer. I could only make a random selection to study and I thought that it would be best to try to find the larger ones. In Tokyo and Osaka I went to those which carried the biggest advertisements in the telephone directories.

Of the 18 traditional pharmacies I visited in Tokyo in November and December 1980, eight, or 44%, had raw rhinoceros horn for sale. This horn was of African origin and was priced retail in weights of one or six grams, the latter usually referring to the small packages of rhino horn slices. The retail price per gram for African rhino horn, sliced or powdered, varied from \$1.19 (admittedly old stock) to \$2.38 per gram. The average price would thus be \$1,620 per kilo. This is one of the cheapest average retail prices in the world. For comparison, the retail price of a kilo of African horn in Singapore is \$11,615, in Hong Kong \$11,103 and in Macao \$4,127.

Only two of the pharmaceutical shops I visited in Tokyo had Indian rhinoceros horns, and at the time I was there the owners were not willing to sell shavings from them. However, both of the proprietors knew their international worth, and priced the horn at \$23.81 per gram. The reluctance to sell Indian rhino horn was also obvious in Osaka. I saw quite a lot of Indian horn there, but as far as I could ascertain, none of it was available in sliced or powdered form. It seems to me that the little Asian horn that has come into Japan in recent years is almost entirely used for display purposes. The Japanese are fully aware of its rarity and perhaps they want to hold on to what they have as a kind of keepsake. All the Japanese literature that I have come across stresses that Indian rhino horn is better for medicinal purposes, but I did not hear of any being sold in *kanpoyaku* shops, and I do not think that it is any longer being processed into slices, powder or tablets.

In Osaka nine of the ten *kanpoyaku* shops I visited in December 1980 had rhino horn for sale, indicating that it is much more prevalent here, where the major Japanese importers and wholesalers of tradi-

tional medicine are located. A gram of African horn ranged in retail price from \$1.19 to \$4.76, the average being \$2.23, higher than in Tokyo.

THE END OF THE JAPANESE TRADE IN RHINO HORN?

Although conservationists may rejoice in the fact that Japan has ratified CITES without making an exemption for rhino horn imports, I do not believe that they should now consider this the end of the matter. We have seen that the people of Japan use rhino horn for even the most common of afflictions — the cold. What are the Japanese going to do when present stocks run out? Are the traders going to abide strictly by the law when there remains a strong demand for this product, knowing that people elsewhere are still legally selling it? Rhino horn can be cut into small pieces without lessening its value and it is not easy for customs officials to detect it then. The situation is such that it could be tempting to some, not necessarily the regular importers but quite possibly home-ward-bound Japanese tourists, to buy supplies in other countries, not fully understanding the seriousness of the plight of the rhino today.

I think what is needed in Japan now is a campaign to inform the people of the decline of the rhino in Africa — with emphasis on what has happened to rhino populations during the last ten years. In conjunction with this, an appeal should be made to pharmacists to suggest other traditional medicines that can be satisfactorily substituted for rhino horn.

It would not be at all difficult to run a campaign to educate the Japanese in conservation measures that must be taken to try to save rhinos. In Japan, as in England, there are national newspapers which literally have millions of readers. Articles should be written for them, pointing out the rhino problem, teaching why it is necessary to protect the remaining populations and captivating readers by making these articles factual, poignant and of direct interest. Such a campaign would be addressed to adults; but children, too, should be made aware of the situation. Stories for them, composed by respected Japanese authors of children's literature, could be commissioned. I think that Japanese children, like those elsewhere, generally have to be persuaded to take any medicine, and if they are attracted to the idea that rhinos are rather special creatures that deserve care in the wild, they are going to be even more reluctant to consume something that is only available as a result of such an animal being killed.

Traditional medicine is an important part of Japanese culture, despite the fact that Japan is a modern, industrial world power. Many

millions of people there purchase herbs, minerals and animal products to cure anaemia, high blood pressure, colds, rheumatism and other such ailments, even though they generally rely on western drugs for most diseases. There is no doubt that rhino horn is considered by some Japanese as one of the "best" medicines for colds and fever, but other animal products are acceptable to them as appropriate substitutes. Since these are not derived from endangered species, their use should be encouraged instead of rhino horn. The most common substitute for rhino horn as a traditional fever-reducing drug in Japan is a dried worm, imported from China. It is very cheap, ranging in retail price from US seven cents to 12¢ per gram in *kanpoyaku* shops. The worms are also prepared for consumption in the same manner as rhino horn: the purchaser takes the pharmacist's prescribed amount home, boils it for a little while and gives the strained liquid to the patient. In South-east Asia the horn of the commercially harvested saiga antelope from the USSR is another traditional Chinese cure for high fever. It is not, however, very common in Japan; I only saw it for sale in a few *kanpoyakus* in Tokyo and Osaka. Its wholesale price is between \$100 and \$150 per kilo in Tokyo and it is usually imported via Hong Kong dealers, who already supply Japan with vast quantities of traditional medicines. Those Japanese who are particularly adamant about their beliefs in the efficacy of rhino horn might be more readily convinced that they should try saiga horn in place of other remedies, if the importers brought in more of it and publicized the fact that it is widely used as a substitute for rhino horn.

The Japanese importers of traditional medicinal products should be personally approached for the purpose of rationally explaining to them why they ought not to pressure the government for any change in the law about prohibiting rhino horn imports. They should be informed in detail about the acceptable substitutes, where they can obtain them and how much they cost. They should be asked to try to promote such substitutes in their sales propaganda to the proprietors of *kanpoyaku* shops, who buy almost all their raw products from them. In addition, the pharmaceutical companies should be requested to stop handling any manufactured drug purported to contain rhino horn, whether produced locally or imported.

Since rhino horn is just one of more than 300 products regularly used in Japanese traditional medicine, there will be no economic hardship for anyone in the business of traditional medicine to forego rhino horn sales. Both importers and drug companies should help *kanpoyaku* pharmacists advertise rhino horn substitutes. In working together, importers, drug manufacturers and pharmacists could do a lot to decrease the demand from the public for rhino horn medicines, and I believe that if the necessity for action were made clear to them, they

would help in this matter. Thus, the Japanese trade in rhino horn could be brought to an end.

THE DEVELOPMENT OF THE DEMAND FOR RHINO HORN IN KOREA

Although the Koreans have been wedged on their peninsula between two powerful neighbours, China and Japan, and have suffered invasions and occupations by one or the other throughout history, they have developed a culture that is uniquely their own, and obvious to even the most casual visitor today who sees their dress, tastes their food and hears their music. In some respects, Chinese influence is less pronounced here than in Japan. For instance, the Japanese still struggle with Chinese characters which are basically unsuitable to their language, but the Koreans developed their own phonetic alphabet and had the first alphabetic script in the Far East. Mathematics and astronomy have appealed to the Koreans since earliest times, and the Koreans are also believed to have had one of the very first observatories.

They learned the practice of medicine from the Chinese, and probably used rhino horn in some of their drugs when they were on friendlier terms with China during the Sung Dynasty (960-1279); but, from the fourteenth century onwards when Korea was ruled by a class of conservative bureaucrats, called the *Yangban*, Korean doctors began making their own medications from local herbs, developed their own methods of medical diagnosis and wrote books such as *Collected Life-saving Prescriptions of Native Korean Medicine*, *Native Korean Pharmacopoeia* and *The Precious Mirror of Korean Medicine*.

By the 16th century Korean medicine was indeed progressing along lines somewhat different from that of the Chinese, and constant harassment from Japanese pirates led the Koreans to try to cut themselves entirely away from all outsiders; for almost three hundred years Korea remained the "Hermit Kingdom", impoverished, weak and stagnant. The inventive skill of the Koreans seemed to succumb in the process.

In 1876 the Japanese forced Korea to re-open its ports for trade. Not long afterwards European and American missionaries came along, and Korea soon had one of the highest literacy rates in Asia and many Christian converts. However, rivalry among the Chinese, Japanese and Russians led to Korea's being formally annexed to Japan in 1910. During the following 35 years farming and fishing methods were improved, roads and railways were built, mineral deposits in the north were exploited, communications became much easier, industries were established and the Korean population expanded from 13 million to 26

million by 1945. Yet this period of development was more for Japan's benefit, and the Koreans themselves remained practically poverty-stricken and were subjected to abuses by their Japanese overlords whom they hated and distrusted. A strong independence movement developed in Korea before the end of World War II, but the Potsdam Conference ruled that Korea had to be divided into two parts along the 38th parallel. Russia took over the industrialized but more sparsely populated north and the United States claimed the south for its sphere of influence, with the result that a devastating war broke out in 1950 between the two Koreas. In 1953, when it ended, the South Korean economy was in shambles and the living standard of the average person very low.

With help from America, the economy of South Korea began to expand by leaps and bounds. From 1962 to 1980 it grew by eight per cent a year, and the per capita income of \$87 in 1962 rose to \$1,500 in 1980, even though once again, in 1980, Korea experienced severe political upheavals which in turn led to a negative growth rate. Korea's booming economy in the 1970s was based upon the export of textiles, electronics, ships, machinery and heavy construction equipment. The value of these commodities went up from \$800 million in 1970 to \$17.5 billion in 1980.

Concurrent with this tremendous expansion of exports was a strict government policy prohibiting imports of non-essential materials. In fact, until very recently, there was an almost total ban on the importation of luxury items; and very high duties are still levied on many basic items, including medicines. The severe restrictions may partly explain why the official statistics show only very small amounts of rhino horn coming into the country in the early 1970s. Prior to this time, I have been unable to obtain any official Korean statistics on rhino horn imports, but I do not think appreciable amounts of rhino horn were used by the Koreans from the time of the Yi Kingdom, which began in 1392, until well after the Korean War. For six centuries it appears that Korean medicine was derived almost entirely from local products.

The people could not have afforded rhino horn even when international trade links were re-established in the latter part of the 19th century, for this was then, too, a relatively expensive commodity. Moreover, there is no evidence in the statistics of India or African source countries of rhino horn going directly to Korea until the beginning of the last decade. Neither does it appear that the main entrepôts of Hong Kong and Singapore supplied Korea with any significant amount of rhino horn before 1970. But, in that year, Korea did officially import three kilos, and the Korean statistics show that the imports jumped to 52 kilos the following year. From 1972 to 1980, Korea's official imports averaged an annual 233 kilos, thus making

Korea one of the major rhino horn consuming nations in Asia. The Koreans also had to accept the huge price increases that came about in the 1970s; whilst they could obtain the horn in 1970 for just \$30 a kilo, they claimed officially that they paid \$355 for it in 1979.

Despite the fact that these official government statistics do disclose a tremendous growth in the demand for rhino horn in Korea, I think that they still tell only part of the story. I am convinced that far more substantial amounts actually entered Korea during the 1970s. The Koreans were finally able to afford what they wanted (their per capita income increased by 400% between 1972 and 1980), and the traditional uses of rhino horn had not been forgotten. Furthermore, the impetus given to traditional medicine in Japan and China spurred an almost simultaneous re-awakening in Korea. There were also ways and means of bringing in rhino horn which were hidden from the official eye.

THE UNOFFICIAL KOREAN IMPORTS OF RHINO HORN

In Seoul alone, during December 1980, I visited 30 clinics specializing in traditional medicine, of which 63% had rhino horn for sale. For the whole country, there are over 2,000 traditional medicine establishments serving the needs of a population of 38 million. Even if one were to estimate that only 15% of all of Korea's traditional medicine clinics sell rhino horn, it is unlikely that the amount of rhino horn officially imported would be sufficient to supply that number.

I talked to a major importer of raw materials for medicinal purposes in Seoul, and he told me that in 1980 he had imported 500 kilos of rhino horn. When I insisted that this was well in excess of the official import figure of 217 kilos, he looked up his correspondence and confirmed to me his statement, naming the firm in Hong Kong from which he obtained this amount over a period of several months in 1980. Although Hong Kong has banned international trade in rhino horn, traders are still legally allowed to dispose of old stock, as and how they wish. They need only to document the fact that the horn came into their possession before 1979; and since Koreans are willing to use low quality horn I can only guess that Hong Kong dealers are rather pleased to get rid of the stocks that are unacceptable locally. The Korean trader who showed me some of this horn he had imported, classified it as "Grade B", but I would have graded it considerably lower.

There is a 40% customs tax, plus a 2.5% defence tax and 10% V.A.T. on rhino horn imported into Korea, giving traders a major economic incentive to smuggle it into the country. So often when high

taxes are imposed on goods entering a developing country, businessmen will attempt to get around them, by smuggling the goods, under-invoicing them or misidentifying them in order to pay less tax (or none at all). Koreans are no exception to this rule. According to an article in the 14 December 1980 issue of *The Korea Herald*, during the first 11 months of that year animal and herbal medicinal products constituted the main category of goods seized by the customs officials in the main port of Korea, Pusan. They included deer antlers, antelope horns, other horns, herbs and a variety of vegetable matter, worth approximately \$1,140,000. The next most important category of confiscated goods illegally imported was machinery, followed by wrist watches and electric appliances.

The official statistics which list the amount of rhino horn legally imported into Korea also state the countries supplying it, and in the majority of cases Indonesia is named, supposedly responsible for 69% of all rhino horn imports since 1973. Why, I do not know. The dealers in Djakarta have told me that they obtain all their foreign horn from Singapore and Hong Kong, and that they do not re-export it. Of course, there is some Asian horn on the market in Indonesia, but I found no Asian horn for sale in Korea. Furthermore, the two largest importers in Seoul specifically said that their imports came via Hong Kong. There may possibly be a reason why importers do not wish to claim officially that they bring in horn from Hong Kong, which in fact has not appeared at all in the official statistics as a source for rhino horn since 1974.

In 1980 the rhino horn importers in Seoul paid their overseas suppliers between \$300 and \$600 a kilo, depending on the quality. The lowest grade was for damaged horn, in particular that with insect holes in it. Unlike in Japan, where most horn is processed into slices or ground before being bought by the medicine shops, the Korean importers sell the horn as it comes directly to the traditional medicine clinics, where shavings are taken from it at the time a prescription is filled.

THE KOREAN TRADITIONAL MEDICINE CLINICS

Korean medicine is called "Tonguihak", and the places where it is sold are referred to in English as "Oriental Medicine Clinics". Koreans use the word "oriental" to distinguish their medicine, which developed on its own for many centuries, from that of the Chinese. The retail medicine businesses are clinics instead of shops or pharmacies, because they are run by doctors who diagnose patients and prescribe appropriate medications.

Recognizing the growth in popularity of traditional medicine, the Korean government is making available more and more places in colleges and universities for those who wish to pursue studies in this field. A graduate from high school may enroll in a two-year pre-medical course in which the principles of both oriental and western medicine are taught. Following satisfactory completion, the student may go on to specialize in traditional medicine, which entails four more years of training before he is allowed to sit for an examination by the Ministry of Health and Welfare. If he passes, he becomes a licensed Doctor of Oriental Medicine and he may open a clinic of his own. There are four institutions teaching oriental medicine in Korea; the largest and most highly respected is the Kyung Hee University in Seoul. The others are the Won Kwang University near Iri, Dong Kuk College in Kyongju and Tae Ku College in Taegu. The universities of Kyung Hee and Won Kwang have been graduating a total of about 120 doctors annually in recent years, but the two colleges are new and have not yet produced graduates.

The clinics in which these doctors practised are usually divided into two rooms, the front one furnished with the ubiquitous wooden drawers and display cabinets found all over Asia, holding herbs, minerals and animal products. They do have one characteristic, however, which I have not seen elsewhere: an oil-powered, usually rather antiquated-looking stove, on top of which invariably sits a pot or two full of medicinal ingredients which simmer there for hours at a time. Some clients ask to have their medications prepared for them rather than cooking them themselves, but the presence of a hot stove serves another practical purpose during the cold winter months by keeping the clients warm, since these premises usually do not have other heating facilities, although in some air-conditioners have been installed for use in the summer. When I was in Seoul, there was snow on the ground and it was freezing. The picture that stands foremost in my mind is of old women and men huddling together around these traditional stoves, each waiting in turn to see the doctor in the room behind. This is usually smaller, more like an office, with a desk and shelves of books. There may also be a bed or two, and several chairs around a table. Although the outer room is often full of activity, some noise and dust, resulting, for example, when the employees are busily scraping with razor blades centipedes from the small sticks on which they are dried, all is quiet and peaceful in the office. On several occasions I was invited to look inside to watch a client consulting a doctor and to see patients lying face down on beds, with needles stuck into their backs. In Korean acupuncture, the ends of the needles away from a patient are often plastered with smoking vegetable matter.

In Korea, if someone wishes to buy traditional medicine, he must

first see the doctor (over 90% of whom are men) and obtain from him a prescription that is filled by the staff in the main part of the clinic. Prescriptions rarely consist of just one product — even when rhino horn is used.

The usual packet of medicine contains between 20 and 30 different ingredients, and the dry weight is around 60 to 70 grams. Portions are units based on 3.75 grams. There may be two or three different packets to be taken daily for three to seven days. The average price for a packet of prescribed medicine is \$3.50, but a lot depends on the cost of the ingredients used. A patient ends up paying anything between \$25 and \$60 for medication to last a week for a specific illness. The doctor does not charge for his own services, but since he is the owner of the clinic he earns his money from the sale of the medications he prescribes. Refills of prescriptions are sometimes also made.

When a patient returns home with his packets of dried herbs, minerals, animal products, or any combination thereof, he places the contents of one of them in a pot (the traditional kind for medicinal purposes is made out of brown clay, has a handle and sells now for \$2.30), and boils the mixture in water for two to three hours. He then squeezes through cloth or filters the concoction into a glass or bowl and drinks the resulting liquid. Sometimes the residue may be re-boiled and used for a second dose, and in the end it can be put on plants for fertilizer. There is actually an art in producing the final liquid, which is why some patients ask the employees in the clinics to make up their medicines; however, recently, a special Pyrex boiling jug with an electric hot plate has been manufactured in Korea solely for the purpose of preparing traditional medicine. It looks rather like a coffee percolator with a sieve. It includes dials that can set different temperatures and timing for specific prescriptions to cook; such a machine sells for \$38 retail, and it seems that this new apparatus has helped encourage more people to use traditional medicines.

Rhino horn can, of course, like all other ingredients in Korean medicine, be prepared for consumption in either a traditional medicine pot or the new "percolator". And, in Korea, rhino horn is used to lower fever and high blood pressure, to stop bleeding and cure snakebite. In addition to these major uses, rhino horn is considered a relaxant which prevents hallucinations, nightmares and infantile convulsions and also as a cure for shock, paralysis and dysentery.

Rhinoceros horn is not used as an aphrodisiac in Korea, but other products certainly are. According to one reference work that is widely used by Koreans doctors of oriental medicine, antelope horn "taken regularly is an aphrodisiac to the male, lightening the body and strengthening the bones and muscles". A bag full of white antelope horn shavings weighing 600 grams sells for \$243 retail in a clinic, whilst

a bag holding the same amount of black antelope horn shavings, considered "less potent", costs only \$46. Deer antlers are also used as aphrodisiacs and general tonics; but, oddly, according to the same reference, when taken by women they can cure nymphomaniac Deer antlers are cheaper than antelope horn: 600 grams sell for \$30, and they are the most popular animal product sold in Korean clinics (an astounding amount of 253,268 kilos of antlers was legally imported in 1980). In some clinics you see little bags of antler shavings stacked to the ceiling. Other animal products for aphrodisiac purposes are centipedes (harvested, dried, roasted, then ground into powder), which cost between \$15 and \$30 for a hundred; dried geckos, which are sold in pairs since one is supposed to use both male and female tails, and a pair varies in price from \$4.55 to \$9.10; and seahorses (imported from Hong Kong), which are priced between \$7.60 and \$10.60 per 37.5 grams. Occasionally, fur seal penises are also available, although they cannot be legally imported; a dried one, ground into powder, costs \$1,500. Often in Southeast Asian countries animal products for aphrodisiacs are soaked in brandy; however, in Korea these are prepared in the same manner as ordinary traditional medications; that is to say, boiled in water and then strained. Many different types of vegetable matter are also considered to be aphrodisiacs in Korea, and these, too, are sold in the clinics. It was my impression that the sale of "love potions" was a very important part of the business carried on in these establishments.

Most of the larger traditional medicine clinics in Seoul are located around East Gate (Dongaemun) and on Jung-Ro street; of those I visited, nineteen had rhino horn for sale. There was not much difference in its price from one clinic to another, probably because the wholesalers publish a suggested retail price list for their commodities, which they circulate to the doctors. Moreover, the dealers themselves charge the clinics roughly similar costs, e.g. \$760 for a kilo of "Grade B" horn. The retail price for a kilo of rhino horn in the clinics in December 1980 ranged from \$885 for a kilo of the lowest quality to \$1,821 a kilo for the best, averaging \$1,436, which is cheap; but the rate of exchange of Korean currency for dollars had fallen by 34% since January 1980, so these figures are somewhat deceptive. Soon, the increased cost of rhino horn will be reflected in the retail price, due to devaluation of the Korean won.

On account of the fact that rhino horn is one of the most expensive products sold in the Korean clinics, a packet of medicine containing it costs the customer about \$10, three times more than the price for an average packet of medicine. Nevertheless, there is not a high mark up on rhino horn thus sold. The prescription usually consists of 3.75 grams of rhino horn which would roughly be \$5.38 and there are usually about 20, and can be up to 30, other ingredients included.

TABLES
The Trade and Uses of Rhino Products in
Japan and South Korea

TABLE I
Official Imports of Rhino Horn into Japan from 1882 to 1903

<i>Year</i>	<i>Quantity in kilos</i>	<i>Price per kilo (US\$)</i>	<i>Value (US\$)</i>
1882	1,582	13.33	21,087
1883	1,297	11.49	14,898
1884	874	11.24	9,820
1885	1,560	10.03	15,640
1886	1,142	10.03	11,455
1887	1,349	5.25	7,082
1888	1,016	4.12	4,187
1889	1,446	4.12	5,959
1890	n/a	n/a	n/a
1891	n/a	n/a	n/a
1892	n/a	n/a	n/a
1893	1,600	7.35	11,761
1894	1,481	4.65	6,882
1895	1,387	5.50	7,628
1896	1,583	3.64	5,764
1897	2,204	2.97	6,544
1898	2,259	6.29	14,200
1899	1,163	4.47	5,194
1900	1,898	4.99	9,470
1901	n/a	n/a	n/a
1902	754	10.05	7,579
1903	232	19.47	4,518

TABLE II
Official Imports of Rhino Horn into Japan from 1951 to 1980*

<i>Year</i>	<i>Origin</i>	<i>Price per kilo (US\$)</i>	<i>Quantity in kilos</i>	<i>Value (US\$)</i>
1951	China	13	36	480
	S. Africa	17	80	1,360
	average:	16	total: 166	total: 1,840
1952	China	19	112	2,134
	Hong Kong	11	58	610
	Belgium	16	14	217
	Zanzibar	16	136	2,226
	S. Africa	19	137	2,559
	average:	17	total: 457	total: 7,746
1953	China	13	174	2,236
	Hong Kong	14	18	253
	S. Africa	19	83	1,594
	average:	15	total: 275	total: 4,083
1954	China	28	30	850
	S. Africa	24	48	1,139
	average:	25	total: 78	total: 1,989
1955	China	27	157	4,247
	Hong Kong	25	56	1,425
	Tangier	29	5	145
	Kenya	26	48	1,239
	average:	27	total: 266	total: 7,057
1956	China	31	120	3,811
	Kenya	31	48	1,481
	average:	31	total: 168	total: 5,292
1957	China	32	120	3,853
	Thailand	37	30	1,117
	Kenya	38	18	694
	S. Africa	39	18	703
	average:	34	total: 186	total: 6,367
1958	Kenya	41	30	1,225
	Tanganyika	41	6	244
	average:	41	total: 36	total: 1,469

TABLE II continued

Year	Origin	Price per kilo (US\$)	Quantity in kilos	Value (US\$)
1959	China	38	51	1,942
	Hong Kong	38	50	1,925
	India	40	20	800
	U.K.	38	18	683
	Kenya	39	25	967
	Tanganyika	40	18	714
	average:	39	total: 182	total: 7,031
1960	China	39	94	3,653
	India	40	5	200
	Kenya	38	61	2,316
	average:	39	total: 160	total: 6,169
1961	China	40	132	5,297
	India	34	2	67
	Kenya	43	10	433
	average:	40	total: 144	total: 5,797
1962	China	37	75	2,811
	Hong Kong	41	20	822
	India	34	151	5,189
	U.K.	37	5	186
	Kenya	31	160	4,969
	Zanzibar	34	10	339
	S. Africa	25	25	631
	average:	34	total: 446	total: 14,947
1963	China	48	6	286
	India	29	112	3,203
	Kenya	31	92	2,850
	Tanganyika	21	69	1,428
	S. Africa	30	215	6,380
	average:	29	total: 494	total: 14,147
1964	Hong Kong	36	79	2,847
	India	30	8	242
	S. Africa	34	10	339
	average:	35	total: 97	total: 3,428

TABLE II continued

Year	Origin	Price per kilo (US\$)	Quantity in kilos	Value (US\$)	
1965	Zaire	32	130	4,222	
	Hong Kong	33	68	2,228	
	India	35	62	2,194	
	China	35	53	1,831	
	S. Africa	29	39	1,150	
	Kenya	34	38	1,308	
	Congo	50	30	1,511	
	Tanzania	34	10	336	
	average:	34	total: 430	total: 14,780	
	1966	Tanzania	40	146	5,833
Kenya		38	91	3,492	
Zaire		44	85	3,750	
China		49	75	3,656	
Hong Kong		55	49	2,678	
S. Africa		47	43	2,006	
S.W. Africa		59	30	1,764	
average:		45	total: 519	total: 23,179	
1967		Tanzania	23	261	8,319
		Hong Kong	40	162	6,525
	India	45	86	3,853	
	Kenya	35	59	2,053	
	Zaire	37	50	1,861	
	Congo	35	50	1,753	
	China	29	20	575	
	average:	36	total: 688	total: 24,939	
	1968	Hong Kong	19	106	1,967
Thailand		22	50	1,075	
Tanzania		46	49	2,272	
S. Africa		38	25	958	
Kenya		31	9	278	
average:		28	total: 239	total: 6,650	
1969	Kenya	26	295	7,781	
	Hong Kong	39	274	10,603	
	Thailand	13	100	1,300	
	Tanzania	26	85	2,206	
	C.A.R.	16	60	936	
	S. Africa	42	11	464	
	average:	28	total: 825	total: 23,290	

TABLE II *continued*

Year	Origin	Price per kilo (US\$)	Quantity in kilos	Value (US\$)
1970	Hong Kong	44	353	15,511
	Tanzania	30	262	7,872
	Kenya	50	203	10,208
	S. Africa	41	37	1,503
	Thailand	26	20	528
	China	48	10	481
	USA	56	8	450
	average:	41	total: 893	total: 36,553
1971	Kenya	54	447	23,983
	Tanzania	56	414	23,119
	Hong Kong	59	197	11,594
	S. Africa	62	121	7,517
	Congo	58	60	3,456
	India	50	31	1,539
average:	56	total: 1,270	total: 71,208	
1972	Kenya	49	588	28,822
	Hong Kong	64	45	2,892
	S. Africa	54	15	813
	average:	50	total: 648	total: 32,527
1973	Kenya	60	1,016	60,747
	S. Africa	60	462	27,559
	Hong Kong	58	265	15,326
	Zambia	67	49	3,289
	average:	60	total: 1,792	total: 106,921
1974	Kenya	64	409	26,131
	S. Africa	76	164	12,404
	Tanzania	71	84	5,974
	Hong Kong	120	27	3,229
average:	70	total: 684	total: 47,738	
1975	Kenya	64	143	9,172
	S. Africa	70	22	1,538
	Hong Kong	233	16	3,731
	India	807	—	807
average:	84	total: 181	total: 15,248	
1976	Kenya	71	704	49,965
	S. Africa	102	64	6,511
	Hong Kong	92	55	5,038
average:	75	total: 823	total: 61,514	

TABLE II *continued*

Year	Origin	Price per kilo (US\$)	Quantity in kilos	Value (US\$)
1977	Kenya	107	304	32,678
	Hong Kong	121	229	27,815
	S. Africa	150	25	3,754
	Singapore	205	3	616
	average:	116	total: 561	total: 64,863
1978	Kenya	301	367	110,342
	S. Africa	304	350	106,380
	Hong Kong	335	120	40,200
	Singapore	408	16	6,532
average:	308	total: 853	total: 263,454	
1979	Kenya	285	234	66,629
	S. Africa	427	68	29,062
	Zambia	476	55	26,153
average:	341	total: 357	total: 121,844	
1980	Kenya	657	7	4,597
	S. Africa	380	587	223,350
	China	356	106	37,779
	Hong Kong	378	15	5,673
	Zambia	431	48	20,699
	average:	383	total: 763	total: 292,098

**No official statistics are available from 1904 to 1950*

Source: see list of references

TABLE III

Official Imports of Rhino Horn into South Korea from 1970 to 1980

Year	Origin	Price per kilo (US\$)	Quantity in kilos	Value (US\$)
1970	Hong Kong	25	2	49
	Japan	40	1	40
	average:	30	total: 3	total: 89
1971	Singapore	88	50	4,416
	Japan	161	2	321
average:	91	total: 52	total: 4,737	

TABLE III *continued*

Year	Origin	Price per kilo (US\$)	Quantity in kilos	Value (US\$)
1972	Singapore	34	197	6,749
	Japan	32	31	1,000
	USA	37	20	737
	average:	34	total: 248	total: 8,486
1973	Indonesia	37	214	7,843
	India	35	30	1,055
	Japan	54	9	484
	average:	37	total: 253	total: 9,382
1974	Indonesia	37	97	3,612
	Thailand	38	81	3,098
	Hong Kong	38	30	1,127
	Japan	40	6	242
	average:	38	total: 214	total: 8,079
1975	Indonesia	55	200	11,012
	Japan	105	12	1,258
	average:	58	total: 212	total: 12,270
1976	Indonesia	46	204	9,439
	Thailand	46	65	3,012
	Japan	127	8	1,016
	average:	49	total: 277	total: 13,467
1977	Indonesia	183	207	37,850
	Thailand	155	66	10,204
	India	87	19	1,661
	Japan	203	15	3,044
	average:	172	total: 307	total: 52,759
1978	Indonesia	284	51	14,492
1979	Malaysia	363	30	10,900
	Indonesia	333	208	69,331
	Thailand	356	40	14,229
	Burma	580	20	11,593
	India	339	20	6,775
	average:	355	total: 318	total: 112,828

TABLE III *continued*

Year	Origin	Price per kilo (US\$)	Quantity in kilos	Value (US\$)
1980	Indonesia	445	93	41,402
	Japan	160	89	14,230
	Malaysia	363	21	7,632
	Burma	497	10	4,969
	Thailand	646	4	2,585
	average:	326	total: 217	total: 70,818

Source: see list of references

TABLE IV

Percentage of Japanese and Korean Pharmacies having Rhino Products for Sale in 1980

Place	Total no. of shops examined	No. having Rhino Products	Percentage with Rhino Products
Tokyo	18	8	44
Osaka	10	9	90
Seoul	30	19	63

TABLE V

Average Retail Prices for African Rhino Horn per Kilo in 1980 in Japan and South Korea

Place	Price (US\$)
Tokyo	1,620
Osaka	2,230
Seoul	1,436

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HALTING THE RHINO HORN TRADE

MARCH 1983



From October 1982 to February 1983, I visited 10 Asian countries in order to discourage pharmaceutical wholesalers from further dealings in rhino products, to explain to practitioners of traditional Chinese medicine why they should no longer prescribe rhino drugs, and to publicize in the mass media the plight of the rhino in Africa as well as in Asia, so that consumers would be more willing to use substitutes. I also studied the present state of the international trade in rhino products to find out what additional efforts could be made to stop it.

I discovered that despite a sharp decline in the amount of new rhino horn reaching the world market from 1980 to 1982, there has generally been only a small increase in its retail price in most Asian countries. If the demand for rhino horn had continued on the same scale as it was three years ago, there would have been substantial price increases relative to its lesser availability. Because this is not the case, the encouraging conclusion can be drawn that there is a significant decrease in demand among consumers in Asia for rhino horn.

Specifically, the quantity of new horn reaching the world market has fallen from eight tonnes per year between 1972 and 1978 to less than four tonnes annually from 1979 to 1982. Since the number of rhinos in Africa was reduced by half during the 1970 decade, poachers have now found it more difficult to locate rhinos; furthermore, some of the African countries which had been among the main suppliers of rhino horn (Kenya, Zimbabwe and South Africa) have introduced measures which have greatly restricted the movement of rhino horn across their borders.

On average, the retail prices for rhino horn in Asia have increased by only 20% since 1979, about 8.5% a year, at roughly the same rate as inflation. As for rhino hide, a kilo in Hong Kong has gone down in retail price from \$423 in 1979 to \$376, and its decrease in price in Singapore is even more spectacular during this period: from \$923 to \$635. Wholesale, average costs of rhino horn have remained the same since 1979: \$550 for African horn per kilo in Southeast Asia, and \$9,000 per kilo for Asian horn.

There are many reasons for the declining demand in rhino pro-

ducts today. First, and most importantly, Hong Kong and Japan have stopped importing them, in 1979 and 1980 respectively, and these two countries were the largest consumers of rhino horn for medicinal purposes. In Hong Kong, where pharmaceutical traders produce numerous books and brochures on traditional drugs, these now include explanations why rhino horn is no longer being imported; and in Japan, the government itself sent letters to pharmacists requesting that they promote the use of substitutes for rhino horn. Such actions are commendable: they have helped to lower domestic demand and, possibly, they will also discourage illegal imports.

Second, saiga antelope horn is now much more widely used as a fever-reducing drug in Asia than previously, partly because of my own efforts to persuade importers, doctors and pharmacists in oriental medicine to use it instead of rhino horn; but, mainly, because it is very much cheaper and is acceptable as a substitute for rhino horn in traditional medicine. The retail price for a kilo of saiga horn in Singapore, for example, is around \$230, while a kilo of rhino horn is \$9,876 for African species and \$19,170 for Asian species.

Third, since Hong Kong is a major entrepot for most traditional Chinese drugs, and can now only supply to other countries stocks of rhino horn imported before the 1979 legislation, pharmacists elsewhere in Asia are aware that it will become increasingly difficult to obtain via Hong Kong. Moreover, because the traders in Hong Kong do not want to lose their rhino horn customers to foreign pharmaceutical firms which will supply rhino horn, they are doing their utmost to sell other drugs as substitutes.

Fourth, the sharp rise in the wholesale price in rhino horn, which was \$35 a kilo in 1972, led to the appearance of fake rhino horn shavings and tips of water buffalo horn being marketed under the name of rhino. This has made customers suspicious; consequently, some would rather buy a packet of dried herbs or saiga antelope horn when in doubt about the genuineness of the rhino product they are offered.

Fifth, worldwide publicity about the decline in rhinos has reached the ears of city dwellers in Asia, through the mass media and even by word of mouth, with the result that many would-be customers of rhino horn are no longer asking for it when they visit their traditional pharmacies. From interviews I carried out, however, this is not usually because they appreciate the need for conservation, but because they do not believe there are any more rhino horns available.

While the demand for rhino products in Asia may be beginning to wane, curtailment of the trade is still a long way off. Efforts to cut it short are hampered not only by those who flout laws prohibiting the movement of rhino horn across certain international borders, but also

by loopholes in legislation, and even the absence of restrictions in some countries. Without effective controls on this trade, rhino horn can continue to reach the main markets and if such supplies become substantial, the demand could escalate once again.

There is also the major challenge of North Yemen. Its location is close to African rhino sources, the demand for horn remains high there, and it is well known that, even though the government made rhino horn an illegal import in late 1982, it is still coming into the country. Smuggling is nothing new to North Yemen; traders have managed to bring in and take out other illegal goods with impunity. Regarding rhino horn, traders are now arriving on scheduled airline flights to Sanaa with rhino horn from the southern Sudan in their baggage.

The role of Singapore as a legitimate entrepot for rhino horn is perhaps the biggest problem, insofar as the trade in this product for medicinal purposes is concerned. Moreover, during the past few years there has been a definite increase in the amount of rhino horn and skin coming into Singapore from Sumatra because the Singapore dealers generally offer higher prices, and the horn can freely enter the country. There is not even a duty levied on rhino products. The simplicity of getting rhino horn on the market in Singapore explains why Indian rhino horn is being smuggled out of Calcutta to this destination. Ominously, there has recently been an upsurge in poaching of Indian rhinos in Assam.

China is still exporting vast quantities of various manufactured tablets containing rhino horn. These are to be found in traditional medicine shops throughout Asia — in Japan, South Korea, the Philippines as well as in Singapore, Hong Kong and Macao. In selling such manufactured medicines the traditional pharmacists continue to cater to the demand for rhino horn. Since the rhino horn is not readily identifiable in these drugs from China, they are technically allowed to be imported by countries which have ratified CITES.

Hong Kong traders are legally allowed to continue to export their old stocks of rhino horn, and since 1976, when they had to obtain licences for rhino horn, 2,535 kilos have either been consumed domestically or exported. Additionally, there are some stocks of rhino horn held in Hong Kong, which have never been registered, and some of them are now being smuggled out, mainly to South Korea.

Today South Korea is one of the most important consumers of rhino horn. It is still legal to import the horn there, if it is declared and the 42.5% tax levy is paid on it. In both Seoul and Pusan, the second largest city in the country, I found rhino horn for sale to the public. In fact, it was available in 62% of the 76 oriental medicine clinics I visited in Seoul. The official import statistics for 1981 record 142 kilos of rhino

horn entering the country, but this is not the correct figure; the total annual imports were probably more than double that. Nor is the place of export given in the government's statistics correct; the vast majority of rhino horn imports — both legal and illegal — come from Hong Kong, not Indonesia.

Although neither the demand nor price for rhino horn has significantly increased on international markets since 1979, the incentives for poachers to supply it from the remaining 16,000 rhinos in Africa and the 2,000 in Asia are still tremendous. Therefore, in order to relieve some of the pressure on rhinos in the wild, further action must be taken against the trade. I suggest the following recommendations:

1. An important personality in the world of conservation should visit Singapore, South Korea, Taiwan and Brunei to urge the governments of these countries to ban imports and exports of rhino products. Each has the infrastructure to enforce a ban, and this would deal a severe blow to the international trade. In the case of Singapore, which is presently unwilling to become a CITES member, arguments could be presented to the government that their already enacted legislation to protect birds of paradise and orang-utans from international trade should be extended to encompass rhino products. It is unlikely that either South Korea or Taiwan would take over Singapore's role as an entrepot, but their use of rhino horn is so extensive that the closing of their doors to its importation is imperative. On the other hand, Brunei must stop imports, not because it is a major consumer, but because it could become an entrepot for rhino products in the future.
2. Continual encouragement of the use of saiga and water buffalo horn as substitutes for that of rhino should be given to the proprietors of traditional medicine shops in Asia. Also, the use of water buffalo hide as a medicinal product instead of rhino hide should be encouraged.
3. Publicity on the plight of rhinoceroses in Asia and Africa has proved effective in cutting down the demand for rhino products; therefore, it should be intensified in the English, Chinese, Japanese, Korean and Malay languages.
4. The Agriculture and Fisheries Department of Hong Kong should prohibit further export of "old" rhino horn stocks.

5. In order to help the North Yemen government enforce its new law against rhino horn imports, someone familiar with the trade should undertake a study of the present smuggling activity and how to curtail it. In addition, a strategy should be developed that will entice the carvers of expensive dagger handles to use a substitute for rhino horn.

SUMMARY OF THE RHINO POPULATIONS OF AFRICA AND ASIA

(IUCN/NYZS/WWF African Rhino Survey, August 1981) (Update May 1983)

Black Rhino (*Diceros bicornis*)

Country	Estim. Nos.	Trends	Data base
Angola	low hundreds	decreasing	C
Botswana	low tens	decreasing	C
Cameroon	100	decreasing	C
CAR	1,000-3,000	decreasing	B/C
Chad	under 10	decreasing	C
Ethiopia	10	probably decreasing	C
Kenya	1,500	decreasing	A/B/C
Malawi	± 40	stable/ increasing	B/C
Mozambique	200-300	decreasing	B/C
Namibia	± 300	decreasing	B
Rwanda	20-40	increasing	B
Somalia	low hundreds	unknown	C
South Africa & Boputhatswana	± 625	increasing	A
Sudan	100	decreasing	B/C
Tanzania	3,000-4,000	decreasing	A/C
Uganda	low tens	decreasing	C
Zambia	2,500	decreasing	B/C
Zimbabwe	1,400-2,000	increasing	A/B/C
Total (rounded)	<u>c. 10,000-14,500</u>	DECREASING	

Northern White Rhino (*Ceratotherium simum cottoni*)

Country	Estim. Nos.	Trends	Data base
CAR	a few	unknown	C
Sudan	50	decreasing	B
Uganda	2-4	decreasing	B
Zaire	<u>15-20</u>	decreasing	A
Total	<u>c. 100</u>	DECREASING	

Southern White Rhino (*Ceratotherium simum simum*)

Country	Estim. Nos.	Trends	Data base
Botswana	60-90 (re-introduced)	increasing	B
Kenya	27 (introduced)	stable	A
Mozambique	22-36 (re-introduced)	decreasing	B
Namibia	± 150 (re-introduced)	increasing	B
South Africa & Bophuthatswana	± 2,500	increasing	A
Swaziland	60 (re-introduced)	increasing	A/B
Zambia	6 (re-introduced)	stable	A
Zimbabwe	± 180 (re-introduced)	increasing	A/B
Total	<u>3,005-3,049</u>	INCREASING	

RHINO POPULATIONS *continued***JAVA** (*Rhinoceros sondaicus*)

<i>Location</i>	<i>Estim. Nos.</i>	<i>Trends</i>	<i>Data base</i>
Java, Indonesia	60	STABLE	A

SUMATRA (*Dicerorhinus sumatrensis*)

<i>Location</i>	<i>Estim. Nos.</i>	<i>Trends</i>	<i>Data base</i>
South-East Asia	300-600	DECREASING	B/C

INDIA (*Rhinoceros unicornis*)

<i>Location</i>	<i>Estim. Nos.</i>	<i>Trends</i>	<i>Data base</i>
India and Nepal	1,650	INCREASING	B

Key: Data base:

- A : Estimates based on census figures or other detailed information reliable for rhinos.
- B : Census information less reliable for rhinos, or extrapolations from good knowledge of an area.
- C : Educated guesses.