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THE JAPANESE AND KOREAN TRADE IN RHINOCEROS HORN

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ABSTRACT

In this first study of the trade in rhinoceros horn in Japan and South Korea, the author examines the origins of the demand and quantifies the amount of horn imported into these two countries since the late nineteenth century. He discusses in detail the present-day uses of rhino horn and explains how it is sold in pharmacy shops and in traditional clinics.

The wholesale prices for rhino horn are listed, along with comment on the smuggling of this commodity into South Korea. Differences in retail prices for the horn are noted, and the results of a sample survey of various traditional medicine establishments are analysed, giving the percentage of such places offering rhino horn for sale to the public.

The author also presents his ideas regarding the measures that the governments of Japan and South Korea have taken to bring a halt to this trade and what action conservationists should now take to discourage the demand for rhino horn in these countries.

Introduction

In 1979 I wrote a monograph for WWF/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 Burma, Indonesia, Japan, Malaysia and South Korea 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 Burma, Indonesia and Malaysia, 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 Burmese, Indonesians and Malaysians, but these are not widely practiced 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 and 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 10 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 in Japan, which had hitherto not even had towns, 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 them, 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 1880's 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 Indian, Javan and Sumatran -- 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 rhinos from the newly established tea plantations. In Burma, Indochina, Malaya, Siam, and Sumatra the more accessible forests which both Javan and Sumatran rhino inhabited were being cut down to provide hardwood 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 the 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 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 the War, 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 Hong Kong, Kenya, South Africa and Zanzibar. 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 under declared 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 Congo-Brazzaville, Kenya, South Africa and Southwest Africa, Tanzania, and Zaire. 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 1980's. Japan's economy was continuing to expand, despite the set-back 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 Flora and Fauna (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 the Yemen Arab Republic. 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 first-hand 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 last 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 practiced. 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 for consultation in almost all of the larger traditional medicine shops. 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 trade-mark), 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 preparations. 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 and parts of China. 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 Ishikama 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 between \$7.15 and \$8.60, or the equivalent of \$1,190 to \$1,430 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, and 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 slices 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 kanpoyakus also sell a few imported medicinal preparations from China. One of the more common of those which purportedly contains rhino horn is "Huolotan". This is in tablet form and in addition to rhino horn, it has carrots, gall and other commodities. 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 traditional 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 homeward 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 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 7c to 12c 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 Southeast 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 propoganda 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 advertize 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 this is 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 sixteenth 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 a shambles and the living standards 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 Koreans 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 Indian 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 exempt 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 need 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 Jakarta 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 at all appeared 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 practice 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 air-conditioners have been installed in some 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 centipedes from the small sticks on which they dried with razor blades, 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 accupuncture, the ends of the needles away from a patient are often plastered with smoking vegetable matter.

If someone wishes to buy traditional medicine in Korea, 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 the concoction through cloth or filters it 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 Korean 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 the ones 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.

Suggestions for stopping the Korean trade in rhino horn

There are no locally manufactured tablets or tonics containing rhino horn in Korea, and none are imported from other countries. However, since official import statistics show a rise from three kilos of rhino horn in 1970 to 217 in 1980 and other evidence points to the existence of illicit imports, the demand for rhino horn is obviously great, and, contrary to many other rhino horn consuming countries, it seems to be on the increase.

The Korean government should be encouraged to join CITES, but due to the fact that large quantities of wildlife products are already being impounded by customs officials (and possibly just as much does manage to enter the country illegally), something must be done to discourage the use of rhino horn in Korean medicine. The individual traders who supply the clinics with rhino horn should be approached and requested to stop dealing in the product.

This would not be a difficult task -- there are only a few people actually importing the horn. Equally important, the doctors should be asked to prescribe substitutes for rhino horn. Those to whom I spoke were totally unaware of the decrease in African rhino populations. This may sound incredible, but conservation literature is not usually published in the Korean language, and no effort has been made to explain the rhino problem. It would not be necessary or even practical to go around to the 2,000 clinics to discuss the issue with the doctors. Most of them belong to an association called Dae Han Min Kook Han Yui sa Hyop Hoe, known in English as the Korean Oriental Doctors' Association (K.O.D.A.). This professional society meets five times a year in Seoul, and each province of Korea has a K.O.D.A. branch. Furthermore, every year the K.O.D.A. sponsors lectures in the provinces, given by its most highly qualified doctors; usually these lectures are very well received, and I was told that doctors from relatively far away turn up to listen to them. It would be appropriate at these special occasions and in the course of regular meetings of the K.O.D.A. for the doctors to agree among themselves not to use rhino horn. Since clients of traditional medicine clinics in Korea do not just walk in and ask for medication containing rhino horn, but must first consult the doctor in charge and receive a prescription from him, it seems to me that the foremost need is to convince the K.O.D.A. to persuade its members of the necessity of ceasing to prescribe rhino horn.

TABLE I

OFFICIAL IMPORTS OF RHINO HORN INTO JAPAN

FROM 1882 TO 1903

<u>Year</u>	<u>Quantity in kilos</u>	<u>Price per kilo (US\$)</u>	<u>Value (US\$)</u>
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\*

Year	Origin	Price per kilo (US\$)	Quantity in kilos	Value (US\$)
1951	China	13	36	480
	S. Africa	17	80	1,360
	average	16		
	total:		116	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	457	7,746
1953	China	13	174	2,236
	Hong Kong	14	18	253
	S. Africa	19	83	1,594
	average	15	275	4,083
1954	China	28	30	850
	S. Africa	24	48	1,139
	average	25	78	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	266	7,057
1956	China	31	120	3,811
	Kenya	31	48	1,481
	average	31	168	5,292
1957	China	32	120	3,853
	Thailand	37	30	1,117
	Kenya	38	18	694
	S. Africa	39	18	703
	average	34	186	6,367
1958	Kenya	41	30	1,225
	Tanganyika	41	6	244
	average	41	36	1,469
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	182	7,031	

\* No official statistics are available from 1904 to 1950

TABLE II (Continued)

Year	Origin	Price per kilo (US\$)	Quantity in kilos	Value (US\$)
1960	China	39	94	3,653
	India	40	5	200
	Kenya	<u>38</u>	<u>61</u>	<u>2,316</u>
	average	39	total: 160	total: 6,169
1961	China	40	132	5,297
	India	34	2	67
	Kenya	<u>43</u>	<u>10</u>	<u>433</u>
	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	<u>25</u>	<u>25</u>	<u>631</u>
	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	<u>30</u>	<u>215</u>	<u>6,380</u>
	average	29	total: 494	total: 14,147
1964	Hong Kong	36	79	2,847
	India	30	8	242
	S. Africa	<u>34</u>	<u>10</u>	<u>339</u>
	average	35	total: 97	total: 3,428
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	<u>34</u>	<u>10</u>	<u>336</u>
	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
	SW. Africa	<u>59</u>	<u>30</u>	<u>1,764</u>
	average	45	total: 519	total: 23,179

TABLE II (Continued)

Year	Origin	Price per kilo (US\$)	Quantity in kilos	Value (US\$)
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
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

TABLE II (Continued)

Year	Origin	Price per kilo (US\$)	Quantity in kilos	Value (US\$)
1974	Kenya	64	409	26,131
	S. Africa	76	164	12,404
	Tanzania	71	84	5,974
	Hong Kong	<u>120</u>	<u>27</u>	<u>3,229</u>
	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	<u>807</u>	<u>-</u>	<u>807</u>
	average	84	total: 181	total: 15,248
1976	Kenya	71	704	49,965
	S. Africa	102	64	6,511
	Hong Kong	<u>92</u>	<u>55</u>	<u>5,038</u>
	average	75	total: 823	total: 61,514
	1977	Kenya	107	304
Hong Kong		121	229	27,815
S. Africa		150	25	3,754
Singapore		<u>205</u>	<u>3</u>	<u>616</u>
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	<u>408</u>	<u>16</u>	<u>6,532</u>
	average:	308	total: 853	total: 263,454
1979	Kenya	285	234	66,629
	S. Africa	427	68	29,062
	Zambia	<u>476</u>	<u>55</u>	<u>26,153</u>
	average:	341	total: 357	total: 121,844
	1980	Kenya	657	7
S. Africa		380	587	223,350
China		356	106	37,779
Hong Kong		378	15	5,673
Zambia		<u>431</u>	<u>48</u>	<u>20,699</u>
average		383	total: 763	total: 292,098

Source: see list of references

TABLE III

OFFICIAL IMPORTS OF RHINO HORN INTO SOUTH KOREA  
FROM 1970 TO 1980

<u>Year</u>	<u>Origin</u>	<u>Price per kilo (US\$)</u>	<u>Quantity in kilos</u>	<u>Value (US\$)</u>
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
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)

<u>Year</u>	<u>Origin</u>	<u>Price per kilo (US\$)</u>	<u>Quantity in kilos</u>	<u>Value (US\$)</u>
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

<u>Place</u>	<u>Total no. of shops examined</u>	<u>No. having Rhino Products</u>	<u>Percentage with Rhino Products</u>
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

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



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