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RHINOCEROS SONDAICUS.

The Javan or Lesser One-horned Rhinoceros and its Geographical Distribution.

By CHARLES W. LOCH.

Plates III—IV.

In January, 1932 when the Sungai Lampan Javan rhinoceros was shot, near Telok Anson, by Mr. A. S. Vernay for the British Museum, a great deal of newspaper correspondence took place in the Malayan press as to the relative scarcity of this great beast. Well-intentioned but ill-informed persons also took up the argument and criticised the authorities for allowing a specimen of this rare species to be collected.

There is no doubt that *Rhinoceros sondaicus*, a few specimens of which still linger in Malaya, is one of the rarest of the great mammals in existence at the present time. So little is known about it that it will surely be of scientific interest to place on record all the information that can be found about it with as much accuracy as possible from the data available; and with special reference to the occurrence of *sondaicus* in Malaya.

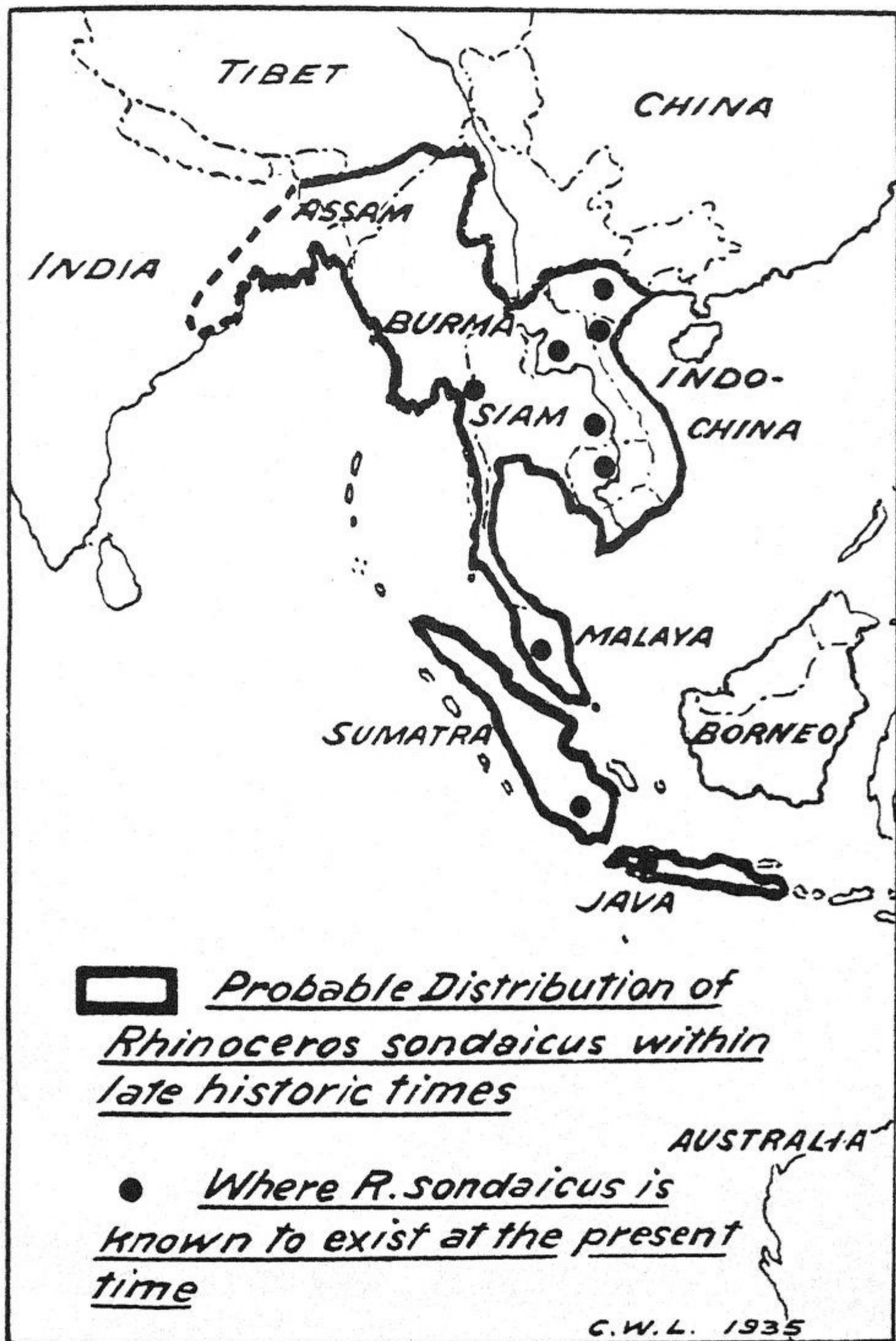
The writer first became interested in the subject, when living at Changkat Pa'Badak on the Kinta River, not far from the town of Kampar, during the years 1929—33. Malays coming from Changkat Pingan a few miles down stream would speak of a "badak" of enormous size living in the jungle to the south of them, the tracks of which had been often seen. Finding that we were interested, they would draw upon their imagination, until we were told on one occasion of it making a nightly visit and eating the "pisangs" on the outskirts of the village. As this was rather hard to believe several trips down river were made to investigate, only to find as we had thought, that none of the Malays had actually seen it but had heard about it from Sakais whose kampongs were further again to the south. There were many of these people living some three or four miles from Changkat Pingan, out in the jungle; and they could all point to the locality, not far away, where the tracks of the "badak" were to be seen and where he was known to live. There was no doubt, from their description, that he was a very big beast. This animal eventually turned out to be the solitary rhino shot by Vernay in January, 1932.

Living Species of Rhinoceroses.

We will now enumerate the existing species of rhinoceros. In Africa are to be found the following:—

The White rhinoceros	<i>R. simus.</i>
The Black rhinoceros	<i>R. bicornis.</i>

Journal Malayan Branch [Vol. XV, Part II,



Map showing the Geographical Distribution of *Rhinoceros sondaicus*.

Both these animals were formerly widely distributed in Africa, but are now greatly restricted in locality and reduced in numbers. The "white" rhinoceros, the largest of all, and once found from Cape Colony to the Sudan, now survives only as a small colony of twenty-five or thirty in Zululand, a larger number north of Lake Albert, and perhaps a few more in the Sudan territory. The "black" rhino, formerly common in South Africa and extending to Abyssinia and Nigeria, is now restricted to a small number in Tanganyika, Kenya, and Northern Uganda.

Three species of rhinoceros are to be found in Asia :

The Indian or Greater one-horned rhinoceros *R. unicornis*.

The Javan or Lesser one-horned rhinoceros *R. sondaicus*.

The Sumatran rhinoceros *R. sumatrensis*.

The Great Indian rhinoceros is still to be found in the Terai of Nepal and a few are left in Bhutan, Kuch Behar and Assam. It is known to have existed within historical times through the Punjab as far as Peshawar. Encroachment on its haunts for agricultural purposes means its probable extinction in the near future. The shoulder height of this animal may be nearly six feet and the record horn length is 24 inches. The skin exhibits a number of deep folds around the neck and three on the body. While the fold behind the shoulders and the fold in front of the thighs pass over the back, that in front of the shoulders does not do so. The skin of the sides of the body is thickly studded with large round lumps, similar to boiler rivets.

The Sumatran rhinoceros, a smaller two-horned animal, lives in dense jungle on inaccessible mountain ranges and should remain in existence for a longer period than either of the others. It is to be found in Borneo, Sumatra, through the Malay Peninsula to Burma and Assam and also in Siam and Indo-China. It stands not more than four, or four feet six inches at the shoulder, has a folded skin and is distinctly hairy. The record (front) horn length is $32\frac{1}{2}$ inches.

The Javan rhinoceros is intermediate in size between the two, standing about five feet six inches at the shoulder. It is distinguished by the mosaic-like pattern on the skin, similar to that of a crocodile ; also by the fold in front of the shoulder passing over the back. This animal has a characteristic fold of skin over the neck like a saddle. The record horn is $10\frac{3}{4}$ inches. The male of this species alone carries a horn, but it has been found on the female in a rudimentary condition. This rhinoceros had in former times an extensive range. From the Sunderbans, Eastern Bengal and Assam, through Burma and Siam to the Malay Peninsula ; it is also to be found in the islands of Sumatra and Java and also in French Indo-China. It is now unfortunately on the verge of extinction.

Geographical Distribution and Existing Numbers.

We will now give the geographical distribution of *Rhinoceros sondaicus* in the past and at the present time, from the latest available data; and will place on record the number of this species still believed to exist, under the heading of each separate country.

Bengal.

There have been rumours of the former existence of *R. sondaicus* in the forests of Orissa and about the delta of the Mahanadi River, in the Bay of Bengal. This has been discredited by some authorities and as specimens have not been seen by Europeans, we have now no means of ascertaining the truth.

In the Sunderbans delta, only a short journey from Calcutta, it was to be found in the swamps and marshy flats. The last tracks of the animal were seen here about 1887 so that by 1890 it had probably died out. In 1877 a young one, a female three feet high was brought to London where it soon died. This was the last to be captured alive in Bengal. There are in the Indian Museum, Calcutta, two mounted specimens; both female animals from the Sunderbans shot in 1872 and 1874 by Messrs. O. L. Fraser and J. Barckley respectively: the latter is said to be the last taken in the district. A skeleton is in the possession of the Calcutta Museum from near Jessore; and also other trophies from various or unknown localities.

Assam.

Rhinoceros sondaicus is said to have been found in the Sikkim Terai. From the locality it is more likely to have been the Great Indian rhinoceros that was found here.

In an interesting book by Colonel Pollock and W. S. Thom "Wild Sports of Burma and Assam", many references to the existence of the Javan rhinoceros occur. Pollock writes:—

"This animal extends through Assam, down Sylhet, the Garrow Hills, Tipperah, Chittagong, Arrakan and Burma to Malaya, and probably into Yunan and the western provinces of China."

"I have never shot the lesser rhinoceros on the right bank of the Brahmapootra but I have no doubt it exists, as it is also found in the Soonderbunds not far from Calcutta; but it is fairly plentiful on the left bank South of Goalparah, where I have killed it."

"I may here mention about them in Assam—as I intend to give a short sketch of wild sport in that Province—that I shot there forty-four to my own gun, and probably saw some sixty others slain, and lost wounded fully as many as I killed."

The latter paragraph, no doubt, refers to all species of rhino. Colonel F. T. Pollock spent seven years, in the '60s, in Assam, and was an accurate observer and keen shikari. If one European can, in seven years, account for so many little wonder that the Javan-rhinoceros is now extinct in the country. Most interesting accounts are given in this book of hunting the rhinoceros both in Assam and Upper and Lower Burma, but rarely is the species specified.

A specimen taken at Manipur in 1874 was brought to London by the dealer Jamrach, and was later sent to the Berlin Zoological Gardens. It had been determined as *R. sondaicus* both in Berlin and London. Jamrach was not satisfied with this, and insisted that it represented a hitherto undescribed species. He finally described it himself as *R. jamrachii*! The remains have apparently been lost. It has not been possible to locate any references to *sondaicus* having been seen or shot in Assam during the present century, or to find out the date of when the last one was shot in the country. None of these animals are known to exist in Bengal or Assam at the present time.

Burma.

It is not impossible that there may be one or two lingering along the Arakan Coast or elsewhere. In a letter received from the Forest Department, Shwebb, it stated that four specimens of the Javan rhinoceros probably occur in the Kahilu Game Sanctuary. This is located in the Thaton and Salween Districts, in Lower Burma. In the Shwe-U-Daung Game Sanctuary in Upper Burma, it is hoped that a few may exist but it is unlikely.

In the Tenasserim District the animal was searched for by Vernay and party in 1928, over a period of three months; permission having been given by Sir Harcourt Butler, then Governor of Burma, to shoot two specimens. Tracks of *sumatrensis* were found, but none of *sondaicus*, and it was concluded that the latter was extinct in Southern Burma. The last specimen shot in the district—in fact in Burma, was obtained by Mr. Theodore Hubback in 1920, near Victoria Point, the extreme southerly point of the country. It is now in the British Museum, and though immature, was a full grown female five feet at the shoulder. According to Pollock and Thom, the Javan rhinoceros must have at one time been widely distributed in Burma.

Siam.

Nothing definite about the existence of *sondaicus* in Siam has been found in any books of reference available to the writer. Mr. William W. Fegan of the "Bangkok Sport and Gossip" has sent (1933) some very interesting remarks on the subject, which may be quoted in full.

"I may state that both the one-horned and two-horned rhinoceros (*R. sondaicus* and *R. sumatrensis*) are to be found

in Siam but, owing to the hunting by the hill tribes both are now extremely rare, so much so that some five years ago the killing of them was prohibited by the government. Their extermination was mainly due to the Chinese for their horns for medicinal purposes, the said horns being probably worth their weight in gold to-day. There has for many years been a special customs duty on them.

As to the one-horned, I have been thirty-three years in this part of the world and have travelled over the major part of Siam and I have never yet met a man, native or European, who has shot one. Some twenty years ago two Europeans, surveyors, in the hilly district near the Three Pagodas, on the Siam-Burma frontier, tried to bag one but failed. It was later on trapped in a pitfall by the neighbouring tribesmen and I saw the horn and strips of the skin which were brought to a place called Kanburi.

In more recent times I have heard of two of the animals having been seen in Eastern Siam, near the Meklong, but know nothing more about them. A Siamese official who had spent some years in this district told me that he had heard of the existence of seven or eight and he knew personally of two of them having been killed. The question of how many of the animals remain alive to-day in Siam is rather a mystery as in reality little interest is taken by the people in natural history and there is no museum here. However, nobody knows what the huge jungle stretches and the plateaux in Eastern Siam really contain in the way of large mammals as travel is difficult in many areas and not too pleasant. About the year 1886 a one-horn was captured and brought alive to Bangkok from a place near Krabin, to the west of the capital. It was kept in captivity here for some time ere it passed out."

A. S. Vernay, the well-known collector of big-game specimens, covered a good area of country, from Central to North-West Siam a few years ago when trying, I believe, to obtain a specimen of Schomburgk's Deer, which are rumoured still to exist, though none have been shot for twenty-five years. During the time he was in the field he could get no information that *sondaicus* was to be found still alive in the district visited.

As will be shown later, this animal is known to exist in the forests of Laos in Indo-China, so that it is more than probable that it may still survive in Eastern Siam. The writer has not been able to locate any museum specimen of *sondaicus* actually killed in Siam. A few years ago I saw a newspaper reference to a young one-horned rhino having been captured in Patani, but it is more than likely it turned out to be a specimen of *sumatrensis*.

Malaya.

Few specimens of the Javan rhinoceros are left in Malaya at the present time. In the state of Perak, at least three are believed to exist in the Erong and Chawang areas, to the west of Trolak. At least one is to be found in the Lekir district, on the other side of the Perak River near Sitiawan. After the shooting of a *sondaicus* in 1928 at Ujong Pematang, a search was made at the instance of the Game Warden in the area between the Selangor and Bernam Rivers. The results were unsatisfactory, but it is believed that the tracks of two were found. These half-dozen are all that are known to exist in the Malay Peninsula. There may be others; it is sad to think there may not be so many.

Major Guy Rowley who was with Vernay when he shot the Sungai Lampan rhino in 1932 had permission to collect what was believed to be a solitary specimen of *sondaicus*, living in the Sungai Bugis area between the Bernam River and the coast. Local opinion, the Hon. Game Warden, Malays and Sakai all believed it to be a one-horned rhinoceros—the tracks were $9\frac{3}{4}$ ins. across; but as is usually the case, no one had actually seen it. In June 1933 he followed it for four days, and it was finally shot while charging two trackers. Identification was therefore impossible and the animal turned out to be a very large specimen of *R. sumatrensis*. This is now in the New York Museum. It is therefore possible that the rhinos in the Erong-Chawang areas, may turn out to be also *sumatrensis*.

We do not know if the Javan rhinoceros was ever numerous in the Malay Peninsula previous to the British occupation of the Straits Settlements. Early Portuguese and Dutch writers refer to the "badaks" to be found inland, and there must have been a continuous trade in rhinoceros horns between the Malays and merchants from China. It appears to have been only during the last twenty-five years or so that the extreme rarity of the animals was noticed. We cannot do better therefore than enumerate briefly all instances of the occurrence of the Javan rhinoceros in Malaya of which a record can be found.

The "Province Wellesley" Rhinoceros.

The earliest specimen that we know of is in the collection of the Royal College of Surgeons, London. Here amongst other skulls they have that of a very young *sondaicus*, killed by the side of its mother, on the Malay Coast opposite Penang, in 1816. Looking over from Penang to the Province Wellesley side at the present time it is hard to imagine that about 120 years ago these rhinos were to be found there.

The "Tahan" Rhinoceros.

The next record, although there is an element of uncertainty about it, is of great interest. The Javan rhinoceros has never been known to occur on the east side of the Malay Peninsula.

Mr. Theodore Hubback, the Hon. Game Warden of Pahang, who knows more of the subject than anyone in the country has for many years tried to get reliable evidence, as to the occurrence of *sondaicus* on the east side of the main range. In his extensive jungle tours he has never come across its tracks, and the Malays and Sakai of Ulu Pahang and Ulu Nenggiri have no knowledge of two different species of rhino. However Mr. Henry N. Ridley at one time of Singapore and compiler of the "Flora of the Malay Peninsula" writes as follows:—

"The Rhinoceros I saw in Pahang was in June, 1891. I took it to be *R. sondaicus* on account of its much larger size and distinctly grey colour. It was lying in bushes by the river bank, and jumped up when it saw me and bolted. The depression it made when lying down was much larger than that of the ordinary *sumatrensis* which is not grey when seen alive. I may say I am still doubtful as to which it was but the Malays affirmed that there were two kinds of rhinoceros there. It was a very large beast. It was up in the Tahan woods district where no European had been before. The common kind *R. sumatrensis* I have often met with, a much smaller beast than this huge fellow. I was alone at the time and about 40 yards from it when I saw it. It did not make the usual cry of *sumatrensis* when startled but simply galloped off."

This statement while not conclusive, is the only case of the possible occurrence of the Javan rhinoceros on the east side of the Peninsula that we know of: for that reason it has been placed on record.

"Temoh" Rhinos.

In the '90s. Mr. G. W. F. Curtis, who was a settlement officer in Perak, shot more than one *Rhinoceros sondaicus* near Temoh. The skulls of these animals are believed to be in the Kuala Lumpur Museum.

"Batu Gajah" Rhinos.

Mr. B. H. F. Barnard, for many years a Forest Officer in Malaya, writing in the "Malayan Forester" for July 1932 instances the shooting of two rhinos in 1897 by Mr. F. J. Weld formerly of the Malay Civil Service. This was at a spot about three miles from Batu Gajah on the road to Gopeng, in Kinta. He got them both in a morning. He had a shot at a rhino, it made off and he followed it. Soon after he came upon a rhino and killed it with another shot. Not finding any mark of his previous bullet he concluded that he must have encountered two animals and this proved to be correct as following up the tracks of the first he found the dead body soon afterwards. These are believed by Mr. Barnard to have been the Javan rhinoceros. From the locality it is more than likely that they were. What happened to the trophies is not known.

The "Sungai Palawan" Rhinoceros.

In the same paper Mr. Barnard describes how he and his brother Mr. H. C. Barnard shot a male of the species in 1898 on the Sungai Palawan near Chikus, Lower Perak. At that time, of course, the country around here was mostly virgin forest and practically uninhabited, as a great deal of it is to-day. Looking for Seladang they came across the rhino tracks. They followed him all the morning and eventually, a little after midday, found him standing in a pool of mud in which he had been wallowing. The wallow was evidently one that had been used for a long time, and the absence of undergrowth and small trees let in more light than usually gets through the overhead cover in the forest. As Mr. Barnard describes it:—

"My brother fired and there was a loud snort and a rush. A moment later I saw the rhino standing about twenty yards away on our left. Whether this rush was meant for a charge or not, it is impossible to say. If it was so meant it was a very bad shot. He was broadside on and as he stood throwing his great head up and down, he was a very fine sight. He made no apparent attempt to move and two more shots brought him down. Curiously enough he did not fall on his side, but collapsed in an upright position with his hind legs under him and his nose resting on his forelegs."

The head was taken, the four feet and the tail, and eventually sent to England; this trophy is still in existence and will possibly some day get to a museum. The animal was a big male, over eleven feet in length and over five feet at the shoulder. The horn was seven and a half inches. Barnard states:—

"At the time of the incident here recorded there was nothing to suggest that *R. sondaicus* was becoming rare. Had we known the true state of things we should perhaps have left this one in peace and he might, for another thirty-four years, have kept company with Mr. Vernay's old lady."

The "Pinji" Rhinoceros.

In 1899, the famous "Pinji" rhinoceros was shot by Sir George W. Maxwell in the Pinji Valley, not a great distance from the Lahat Railway Station, in Kinta. The classic description of its exploits and the shooting of this animal may be read in Maxwell's "In Malay Forests" a delightful little book published by Blackwood that one is never tired of re-reading. The old rhino had made his abode in the Pinji Valley and had been the terror of the district long before the British occupation of Perak in 1874. It was a "kramat" animal impossible to kill and had killed at least three men on three separate occasions. All this is related in the story. It seldom left a circumscribed area of some forty square miles, and though many had tried to kill it it appeared to be invulnerable. We hear how a "pawang" made

a feast and invoked the Earth Spirits, asking them to give up the rhinoceros and to accept compensation. Starting from Gunong Kroh a big limestone hill not many miles south of Ipoh, the animal was followed for two whole days, was shot at more than once, and was finally killed on the third day not far from the Pinji village. The animal measured five feet five and a half inches at the shoulder, but this measurement taken when dead hardly did it justice. The horn was only 7 or 8 inches, a shapeless lump. The head of this famous beast may be seen in the Selangor Museum at Kuala Lumpur.

“ Dindings ” Rhinos.

Writing in the “Times of Malaya” 9th Aug. 32, Mr. Granville M. O’Hara states that in 1905, while stationed in the Dindings as a Forest Officer, he had the good fortune to be present at the trapping of a one-horned rhinoceros. He wrote an article “Trapping of Rhinoceros in the Dindings, Straits Settlements.” for the Indian Forester of July 1907. This describes how the animal was captured and removed from the depths of the jungle to the river bank by making it travel on foot carrying its own cage. Observations on the commercial value of the urine, dung, horns, etc., to the Chinese for medicinal purposes are all of considerable interest. Mr. O’Hara further states that when in the Dindings and the Bruas district of Perak, between 1905 and 1921, he met with no less than four of the one-horned variety and only one specimen of *sumatrensis*. It may be mentioned here that some thirty years ago or so, rhinoceroses were not uncommon in the Dindings district, and were often trapped by the Malays. It was commonly supposed that they were all *sumatrensis* and there is still a small number of them left there. The captured Javan rhinoceros mentioned above was sold at Penang to a Mohammedan merchant for the sum of S. \$200. It was resold for S. \$500 to another merchant in Singapore. It was later said to have been sent to Madras and sold there for Rs. 1,500. In 1907 the Government of the Straits Settlements made an order prohibiting the catching of rhinoceroses in the Dindings. This was undertaken at the request of the Singapore Museum authorities.

The “ Kuala Serukai ” Rhinoceros.

In April 1924, a cow *Rhinoceros sondaicus* was killed at Kuala Serukoi near Telok Anson in Perak. It made an attack on a Chinese coolie who was tapping jelutong in the forest. He was charged three times, tossed, and chased into the coolie lines. She was supposed to have killed a man earlier. Being, supposedly, a menace to the district, she was shot by a planter. As he was an unlicensed hunter and the matter had not been reported to the authorities, on news of the incident being received, the head skin and skull were confiscated and are now in the Selangor Museum. Soon after this Mr. E. Seimund in his capacity as Game Warden, visited the scene of the kill. I believe he found

tracks of another adult and a calf, which if true, proves that *sondaicus* may have been breeding in the Malay Peninsula within no distant period.

The statement that the coolie was tossed by the rhino is of interest, if correct. Unlike the African rhinoceros, the Asiatic animal does not gore with his horn, but inflicts terrible bites with its razor-edged teeth. The horn of the Asiatic rhinoceros is, as a rule, only used for grubbing up roots; when they wish to attack they use their incisors, which with them answer much the same purpose as the tusks of a boar. They can inflict a clean deep cut, and they appear at certain seasons to fight amongst themselves, as both males and females have been killed scored all over.

The "Ujong Permatang" Rhinoceros.

In January 1928, a Police Officer stationed at Kuala Selangor at the mouth of the Selangor River heard reports of an enormous animal that was destroying the Chinese gardens in the Ujong Permatang district some five miles to the north and on the other side of the river. It was said to have walked right through a Chinese kongsi house and to have caused considerable alarm in the locality. He therefore obtained the permission of the District Officer to shoot it. With an orderly he went out to search for it and on the same morning came across the animal bogged in one of the Government drains. He destroyed it with a shot gun. He took the head as a trophy and it was only later that when seen in a taxidermist's shop in Klang by Mr. P. R. Kemp that it was recognised as *sondaicus*. When the matter was reported to the Hon. Game Warden, he made, quite rightly, a considerable to-do about it, and the head was confiscated. It can now be seen in the police mess at Kuala Lumpur. It was certainly unfortunate that an animal of such rarity should have in ignorance been destroyed. An amusing feature of the affair was that hundreds of Chinese fell upon the remains and cut it up, collecting the blood and flesh as "obat" or medicine. During the ensuing week or so, the police officer who shot the beast informed me there were continual rows and several court cases amongst the Chinese bargaining and quarrelling over the remains.

The "Sungei Lampan" Rhino.

The last animal of this species to be shot in Malaya was obtained in January, 1932, on the Sungai Lampan near Degong and Telok Anson, Perak. Mr. A. S. Vernay of London and New York, whose collections in the Faunthorpe-Vernay Galleries in the New York Museum are well known to naturalists, had for long wished to obtain specimens of this scarce animal for both the British Museum and for the Natural History Museum in New York. Mr. Vernay had already been to considerable expense in his endeavour to collect a specimen in the Tenasserim District of Lower Burma with no success however. The Game Department

of Malaya, where wild life is steadily decreasing, does not give licenses freely. In the interests of the British Museum, the Chief Secretary of the Federated Malay States, on the recommendation of Mr. Theodore Hubback, gave his consent to the collection of a specimen, if one could be found isolated and incapable of reproducing its species. Such an animal was known to the Game Department to have lived for many years isolated from others, in the neighbourhood of Telok Anson. It followed a fairly restricted area south of the Kroh Forest Reserve, and more or less west of Degong Railway Station. Vernay was accompanied by Major Guy Rowley a well known big-game hunter. Captain Beresford Holloway who made an excellent collection of interesting specimens for the British Museum came out at the same time. Mr. W. E. MacNaught, the Game Warden of Perak, with his assistants organised the arrangements in Malaya and the camp was made at Sungai Samak not far from Degong.

Three days after making camp, the party set out at 7 a.m. and fresh tracks were found and followed through dense and difficult jungle. At 10.30 a.m. the rhino was discovered in a dense thicket of bush and cane-brake at about eight yards. The head was seen, the stump of horn giving the impression that it was a male beast, as in this species the horn is usually absent in the female. The animal was killed by a bullet in the skull, with a second shot behind the shoulder for safety. It travelled in a half-circle for some forty yards and dropped dead; when to everyone's surprise it was found to be an immense cow, measuring five feet three inches at the shoulder and ten feet eight inches over all. The skeleton was sent home with the skin which was set up by Rowland Ward and is now to be seen in the British Museum. Immediately after the killing of the animal, the skin and flesh were removed under the direction of an Indian taxidermist lent by the Bombay Museum. A number of Sakai assisted and so heavy was the skin that it had to be brought out of the forest in two parts. The writer was fortunate in seeing the party going into the forest and returning a few days later with the trophies. It formed a most impressive sight, to see a long line of Sakai passing one after the other through the jungle headed by Vernay the skin in two parts carried on long bamboo poles on their shoulders under the charge of Hartley, the assistant Game Warden with at long last Major Rowley bringing up the rear. At the 11-Mile on the Degong Road, all the Sakai were paid off and the skin taken to the Kampar Rest House. Vernay was taking no chances with the local Chinese and a Malay Ranger lay all night under the skin at the Rest House with a drawn "parang".

It is very surprising that this great mammal had existed so long in this locality actually being killed within four miles of the town of Telok Anson, where tea parties and tennis are in full swing. While the skin of the rhinoceros was being hung up for the night at the Rest House 100 yards away, music and dancing

were to be heard at a Kampar Club night; a contrast between the modern and the primitive, that one often notices in Malaya.

The one-horned rhinoceros has been variously known to the Malays as the "badak raya", "badak gajah" or the "badak sumbu". The two-horned rhino, is known as the "badak kerbau" or the "badak himpit". Maxwell also states that Malays divide rhinoceroses into four classes, according to their horns. There is the one known as "sumbu lilin", the wax-coloured horn; "sumbu api", the flame-coloured horn; "sumbu nila", the blue horn; and lastly, "sumbu hitam", the ordinary black horn.

Sumatra.

The occurrence of the Javan rhinoceros in the island of Sumatra, was first noted by Desmarest in 1822. Up till lately it was doubted that the animal was indigenous, a suspicion now proved to be ill-founded.

De Beaufort, 1928, gives an account of a complete specimen presented to the Zoological Museum of Amsterdam. This was procured by a Mr. Keith, 250 kilometers south-west of Palembang in Sumatra. The same writer, in summarising notes on the range of the species, mentions that according to P. Vageler, a big-game hunter, one, J.C. Hazewinkel, killed in Sumatra, no less than seven. These were at first supposed to be a new variety, but proved in fact to be identical with the Javan rhinoceros.

In the "Illustrated London News" of Dec. 23rd 1933 is a most interesting account by Mynheer Hazewinkel himself, of the shooting of a big bull *sondaicus*; the first he says of seven shot by him. These animals are now of course closely protected. Hazewinkel states that the Chinese would gladly pay up to Fl. 1,500 for a skin of *sondaicus* and a horn might fetch up to 4,000 guilders—nearly £500. The two-horned *R. sumatrensis* not being so valuable would fetch only one-tenth of the above prices. The species still occurs in some localities in South Sumatra in Palembang, but is very rare there.

Java.

The Javan rhinoceros is still to be found in the country, although with the enormous population of this small island, it is surprising. Dr. Dammerman, director of the Zoological Museum at Buitenzorg, was good enough to send the following definite information to the writer, :—

"The species is now rare in Java: a few are said to live in the district south of Tasikmalaja (C. Java) and a few others south of Bantam (W. Java), whereas a dozen or more are found in Oedjoengkoelon, the peninsula at the extreme western part of South Java. This peninsula has been set apart as a special reserve for the Java rhino."

“ Both species of rhinoceros (*R. sondaicus* and *sumatrensis*) are now absolutely protected and the export both of living specimens and of skins or other body parts is prohibited.”

The last example of the Javan rhinoceros that was kept alive in the Zoological Gardens in London, was purchased from Jamrach in 1874, the locality being given as Batavia. This was probably the only specimen really of that species they ever had in their collection.

Indo-China.

The writer's attention was first drawn to the occurrence of *Rhinoceros sondaicus* in Indo-China by a letter written to the "Straits Times", in March 1932, by M. E. M. de Villa of Hanoi. Indo-China being only a short distance away, the writer had the intention of visiting the country and making enquiries at first hand. A change of venue, however, from the equator to the Balkans has unfortunately prevented this. All that could be done was to make exhaustive enquiries by correspondence. M.M. the Residents and Administrateurs of the different districts and provinces were written to and with the greatest courtesy replied; most interesting information being given, with considerable detail.

M. de Villa writes as follows:—

“ The one-horned rhinoceros (monocorne) is still to be found in several parts of Indo-China, being fairly well represented on both sides of the great Annamite Range, and both north and south of it. The animal lives in marshy bush and thick forest undergrowth, where the rattan-cane makes fast walking impossible and tracking very difficult and dangerous. The average size is about 7 feet in height and 11 feet in length. The single horn attains a length of about 3 feet on the male. The two-horned (bicorne) rhinoceros is unknown in this country, but on one occasion a hunter shot a small rhinoceros which had one horn perfectly developed and had a second embryo horn. I am not sure about the elevation preferred by this animal. It is known and hunted on the Dar Lac Plateau at an elevation of about 3,000 feet, and last year some natives invited me to hunt a party of four rhinos near Cua Rao, about 100 feet above sea level. Rhinoceros and elephants appear to be found in the same hunting country, and both are met with between Kratie and Sung Treng, south of Saravane (in Cambodia—to the east of the Mekong) and in many places in Laos. On the west side of the Mekong, south of Oubon, in Siamese Laos, there is the 'Pass of Elephants and Rhinoceros'. The horn and feet of a rhinoceros are worth about \$2,000 which probably explains why so few specimens find their way to museums.”

M. le Résident Supérieur au Cambodge, writing from Phnom-Penh states that enquiries gave the impression that there were no rhinos existing in Cambodia. During the last two years only two specimens, probably from Laos, had been seen by natives in the Kompong-Thom region. This is in Cambodia to the east of the Tonlé Sap lake.

M. Antoine Lagreze, the Résident at Vinh in Northern Annam, who evidently knows something of the subject has written in some detail and summarises from his knowledge that several specimens still exist in the dense forests separating the provinces of Vinh and Thanh-Hoa, in northern Annam. Also in the forests between the province of Luang-Prabang and the Vème military territory. The writer states that during 1924 he located a band of rhinos in the province of Sam-Nua where formerly they abounded. By the appearance of the tracks, they had only been there some eight hours before. They were followed for several days without success and a bout of fever interrupted the hunt. Fifty years ago these animals were numerous in the Annamite Chain and in the forests of Nord-Annam and Haut-Laos. They have been destroyed by the Meos, a mountain people who have immigrated from China in recent times. The Meos hunters search for them for the horn, used as a medicine. The value of the horns was so great that they figured in the tribute sent by the king of Luang-Prabang every year to the Emperor of China and the Emperor of Annam. At the present time in the royal marriages of Luang-Prabang a rhino horn frequently figures in the dowry of the young princesses.

Professeur Bourret, a well-known zoologist, of the " Direction de L'Instruction Publique " writing from Hanoi is certain of the existence of two species of Rhino, *sondaicus* and *sumatrensis*, in the south of Indo-China; and of *sondaicus* as far north as Tonkin where it has recently been killed in the province of Son La. As an instance of the nomadic tendencies of the animal he calls attention to " Les grandes chasses en Indochine " of Bordeneuve, who quotes the case of one killed in N. E. Laos at Trannih that carried a ball almost certainly fired from Bengal.

Bourret maintains that *sondaicus* occurs or has been found in Cochin China, Siam, Laos and Cambodia. It has been killed in La Nha, also at Bien-Hoá at Cap St. Jacques not far from Saigon, in the south of Cambodia. Also in the region of Xieng-Khouang in Tran Ninh, North-east Laos; and is probably found to the west of the Annamite Chain. Few scientific details are known but only references in the reminiscences of hunters. He estimates that perhaps 30 of the one-horned rhinos have been killed in Indo-China by European hunters since 1900. About 1900, two skulls were sent home from Bien-Hoá to the Paris Museum,—these appear to be the only specimens of *sondaicus* from Indo-China in any Museum. A one-horned rhino was seen in 1934 at Son La in Tonkin, where a native chief also possesses a skull

from the district. *R. sumatrensis* is also known in Cambodia and on the Annamite Chain; it has been seen several times, but seems to be more scarce here than the other. No museum in Indo-China appears to have any trophies of the Javan rhinoceros.

M. J. Loupy, Commissaire du Gouvernement at Luangprabang in Laos, from enquiries from native authorities, thinks that no rhino has been met with during the last five years in the Kingdom of Luangprabang. There are many stories current about them and natives affirm that they exist, but they are unable to give a single case of their capture or killing.

The Gouverneur Général himself was good enough to institute enquiries and through his good offices His Excellency Tiao Phetsarath, Native Inspector of Political and Administrative Affairs in Laos was able to send information of considerable interest. Both species of rhino are evidently known in Laos; the one-horned being known to the natives as "Sou" and the other two-horned as "Het". During the last few years, the only rhino he knew of that had been killed was at Traninh in January 1925, within three hours of the waterfall along the road from Zieng-Khouang to Vinh. None were known to have been captured for a long period.

Bordeneuve in "Les Grandes Chasses en Indochine" states that these animals are very scarce. In 1899 he came across three rhinos, male, female and young, near the confluence of the Song-Dinh and the Song-Ray. In the following year 1900 he was told by the Cham mountaineers that the Siamese has killed a rhino within two kilometers of Tan-Linh. He considers that from the hunters point of view, the most likely place to find rhino is in South Indo-China: the country between Attopeau, the Mekong, North Cambodia and south of the Stien country. He gives the following names for *R. sondaicus*.—Annamite, "Con-Tay"; Siamese, "Herse"; Cambodian, "Lam-mia"; and Malay "Ha-rang".

From the above it will be seen that there is little doubt that *R. sondaicus* exists in Indo-China, but in ever decreasing numbers. It is surprising that there do not appear to be any specimens from Indo-China in museums in Paris, Saigon or elsewhere: with the exception of the two skulls sent from Bien-Hoá. Many of these animals must have been killed by native hunters in the past, and owing to the value of the trophies the affair was kept quiet. In the translation of Henri Mouhot's book on "Travels in Indo-China" published in 1864 by John Murray, there is an interesting account of a rhinoceros hunt. Vol. II p. 147-148. A description is given of a Laotian chief killing a one-horned rhino by pushing a bamboo spear into its mouth. This occurred near the village of Na-Lě to the east of Louangprabang. An illustration drawn from a sketch made by

Mouhot distinctly shows only one horn and the saddle over the back of the neck which is so characteristic of *sondaicus*.

Borneo.

There has always been an element of doubt about the statement that *R. sondaicus* exists in the island of Borneo. Natives speak of the occurrence of a one-horned rhino as they do also of a Wild dog and Goat. Their rhino may well be a young *sumatrensis*. Everett, in P.Z.S. 1893 I believe records the finding of parts of a rhino skeleton in Upper Sarawak, the teeth belonging to *sondaicus* and the bones to *sumatrensis*; a mystery that we shall not be able to clear up.

All the parts seen by Mr. E. Banks, Curator of the Sarawak Museum at Kuching were of *sumatrensis* and he does not believe that *sondaicus* really exists in Borneo. The Dyaks make or have made a very good thing out of hunting *sumatrensis* for sale to the Chinese.

Yunnan and Kwang-Si.

As these provinces of China are adjacent to Burma and Tonkin it is possible that *R. sondaicus* may have occurred there or at least visited these countries. Knowing the value the Chinese place on the trophies, it may be supposed that any rhino so ill-advised as to enter these provinces would not remain alive very long.

It must be remembered that all statements of the occurrence of *sondaicus* are open to doubt, though given in good faith. The identification of the species can only be accepted from persons competent to give an opinion on the matter. It sometimes happens that the second horn of *Rhinoceros sumatrensis* has been broken off, and in any case natives cannot by any means distinguish between the two species. In fact, the animal can only be definitely identified when a specimen has been shot and examined at close quarters. The tracks of *sondaicus* as seen in the jungle are, however, very much larger than those of an adult *sumatrensis* and they can usually be distinguished by those who have seen the tracks of the two animals.

Approximate Estimate of the Number of Living Specimens of
Rhinoceros sondaicus at the present time.

Country.	Number alive.	Locality.
Bengal ..	Extinct.	
Assam ..	Probably Extinct.	
Burma ..	4	Kahilu Game Sanctuary.
Federated Malay States	3	Erong and Chawang Area, Perak.
	1	Lekir District, Perak.
	2	Kuala Selangor—Bernam River District, Selangor.
Sumatra ..	a few 6 say	Palambang.
Java ..	a few 6 say	S. of Tasikmalaja
	a few 6 say	S. of Bantam.
	12	Oedjoengkoelon Peninsula.
Siam ..	8	Siamese Laos near the Meklong
Indo-China	2	Cambodia.
	a few 6 say	Northern Annam.
	a few 6 say	Luang Prabang District, Northern Laos.
	1	Tonkin.
	3 say	South Laos.
Borneo ..	Probably non-existent.	
Yunnan and Kwang-Si	No records.	
Total ..	66	

As the above can only be a very approximately estimate, founded upon doubtful data we would probably be correct in stating that probably less than 70 and more than 40 of these rare mammals are in existence at the present day. Owing to slow breeding, the encroachment of agricultural land and the destruction by unauthorised hunters, it seems that this unfortunate animal will not exist long except in the Peninsula of Oedjoengkoelon in West Java where a dozen or more exist in a small area and are all closely protected. If they increase sufficiently to carry on the species for another hundred years remains to be seen.

LIST OF RHINOCEROS SONDAICUS SPECIMENS TO BE FOUND IN MUSEUMS AND ELSEWHERE.

Stuffed Specimens.	Skeletons.	Heads.	Skulls.	Locality.	Museum.
	1			Sumatra	} Amsterdam Zoolog : Museum.
	2		2	Unknown	
	1		3	Java	} Berlin. Zoolog : Museum der Universitat.
1M 1F	1	2M	1	Sumatra	
			5	Java	} Java. Buitenzorg Museum
			2	Unknown	
1F 2 ..	5		1	Bengal	} Calcutta. Indian Museum
			1	Burma	
			1	Java	
	4		4	Unknown	
1 ..			1	Java	} Cambridge. Mass : Museum of Compar : Zoology. Cleveland. Ohio. Western Reserve University.
		IM 1F	1	Sumatra	
				F.M.S.	} Kuala Lumpur. F.M.S. Museum. England ?
		IM		F.M.S.	
		1		F.M.S.	} Kuala Lumpur. Police Mess. Leiden Museum.
1M 1F 1Y				Unknown	
2M ..	1		2	Unknown	} Leningrad. Museum of Academy of Sciences.
1F ..				Burma	
1Y ..				Bengal	} London. British Museum.
1F ..	1		1	Java	
	1			F.M.S.	} London. Royal College of Surgeons.
			1	Sumatra	
			2	Unknown	
			1	Bengal	
			1	Straits	
			6	Settles Unknown	
1Y ..			6	Unknown	} Melbourne. National Museum of Victoria.
1 ..				Java	
			2	Indo-China	} Paris. National Museum of National History.
	3			Unknown	
1 ..				Java	} Stockholm. Riksmuseum. Washington. U.S.A. National Museum.
			1	Java	
			1	Indo-China	} Son-La. Tonking Native Chief. Mus. Nat. Hist. Vienna
Y1 ..				Java	

18 20 6 40

For the greater part of the above list we are indebted to Barbour and Allen, *Journal of Mammalogy*, Vol. 13, May, 1932; who have supplied the fullest information hitherto available on the subject.

Literature that may be referred to in connection with *Rhinoceros sondaicus* is cited here. It is not of course complete as there are many other books and papers containing more or less information about this animal and its geographical distribution.

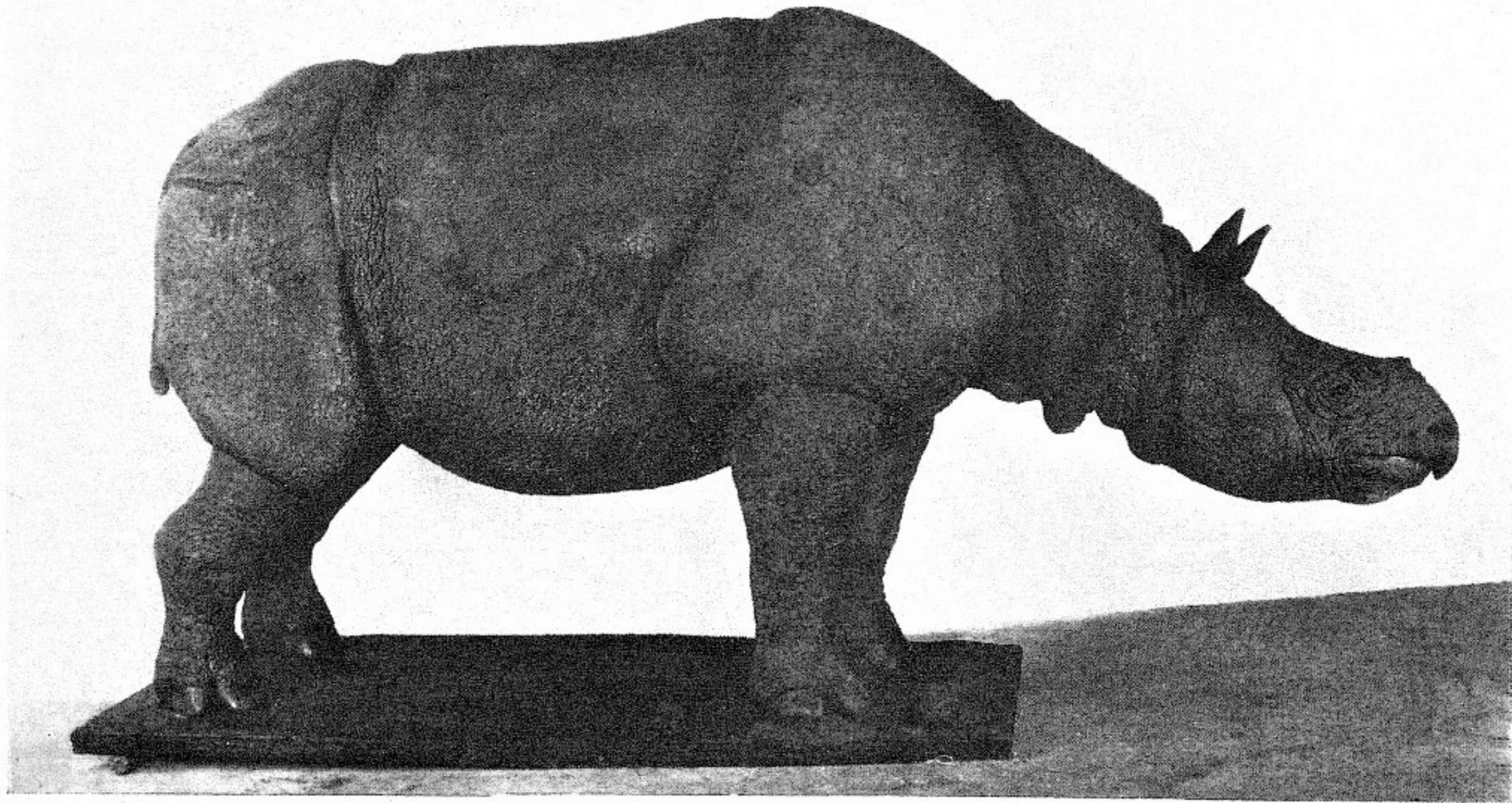
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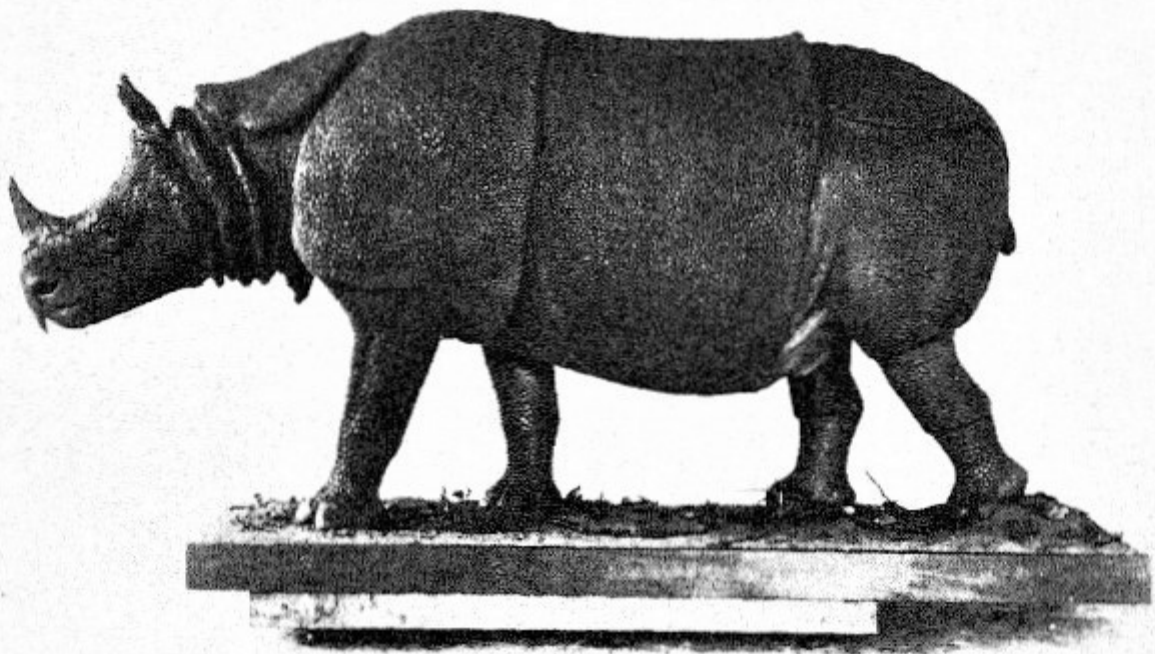
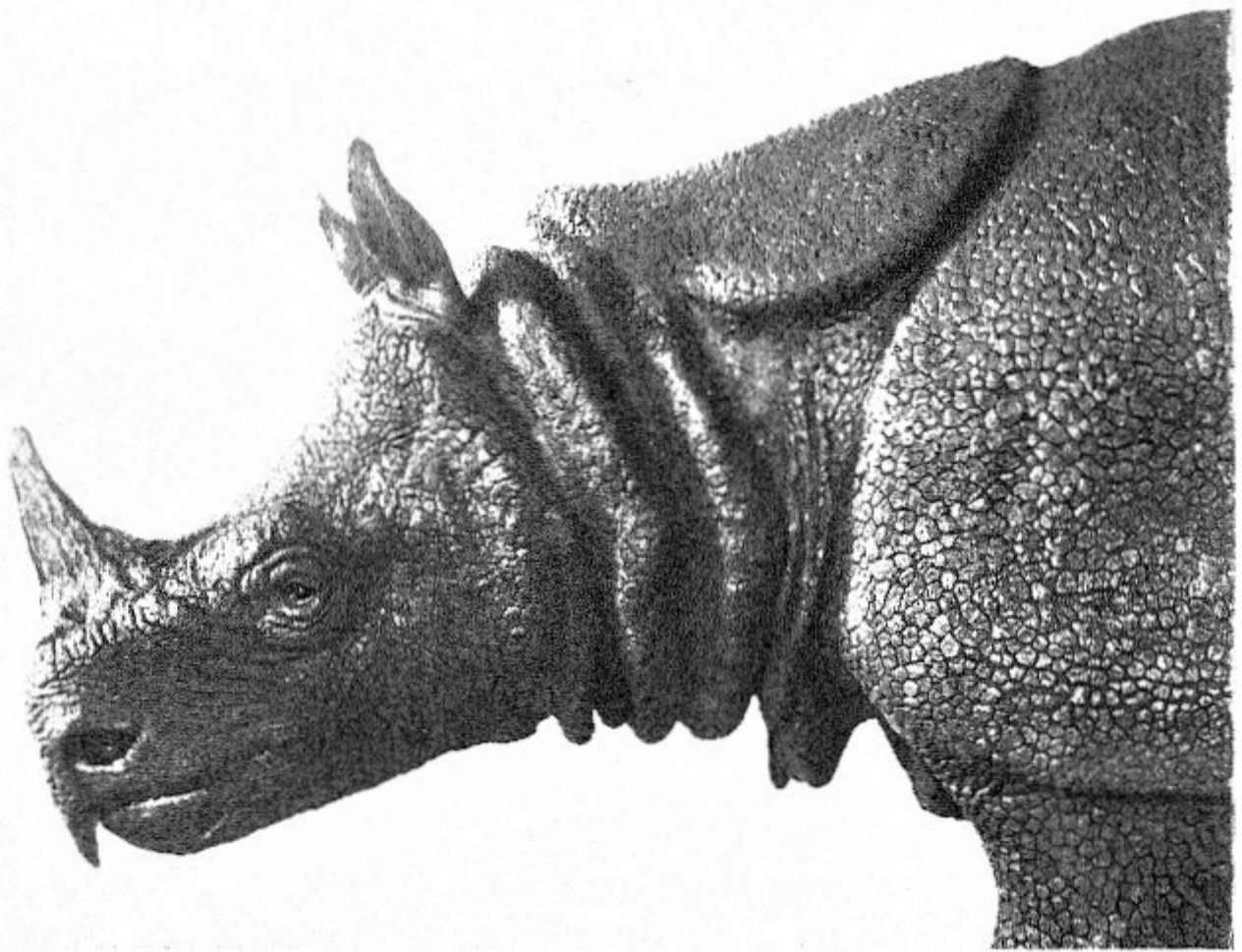
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A female *Rhinoceros sondaicus*, the "Sungai Lampan Rhino.", shot by Mr. A. S. Vernay, Jan. 1932 in the Kroh Forest, Perak. Now in the British Museum of Natural History.

(Photo. kindly supplied by the Museum.)



A male *Rhinoceros sondaicus* from Java. Shot 31-1-1934. Now in the Zoological Museum, Buitenzorg.

(Photo. by Mr. P. F. Franck kindly supplied by the Director of the Museum.)

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