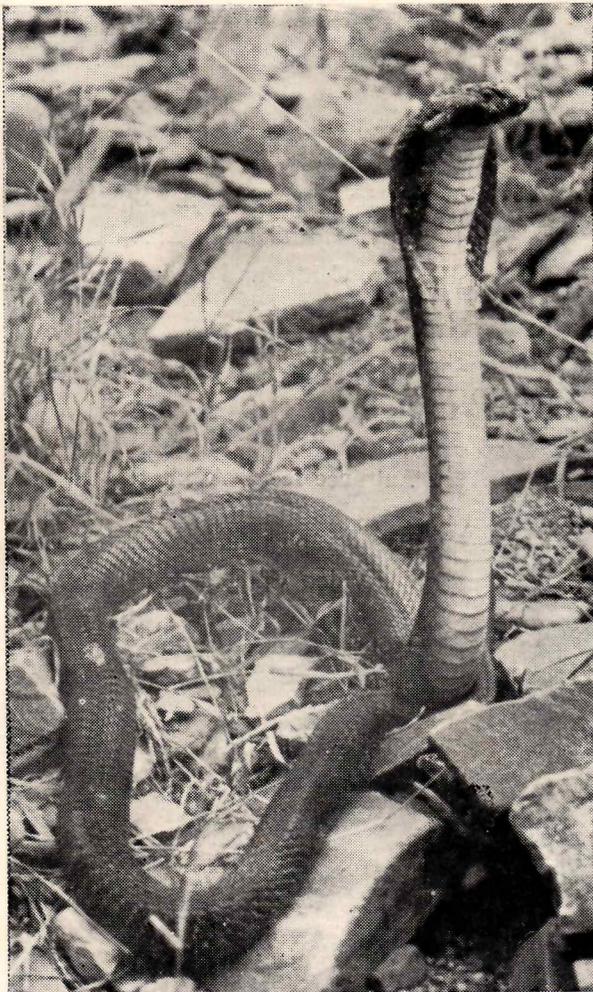


Cobra

Number 6

Quarterly Newsletter

Oct.-Dec. 91



Halasi
12/18/92

The Black Cobra

Photo by: A.J. Ganesh Prasanna

Madras Snake Park Trust
Guindy National Park - Guindy
Madras - 600 022. - India



WELCOME TO MADRAS SNAKE PARK TRUST

- * The Madras Snake Park Trust was established in 1971 on a one-acre plot of forest land leased by the Govt. of Tamil Nadu at Guindy, Madras. Managed by a Trust, the MSPT is a centre for Education, Tourism, Conservation, Service and Research on Reptiles.
- * A variety of live Reptiles, both Indigenous and Exotic are displayed which include Marsh Crocodile, Giant Tortoise, Reticulated Python, South American Iguana and other species of Snakes, Lizards and Turtles. Besides, a Snake Lore Centre and a Museum of Reptile specimens are maintained.
- * The Park is open from 8.30 a.m. to 5.30 p.m. on all days of the year.
- * **Entrance fee :** Adult Re. 1/- and Child Re. 0.50.
- * Photography charges are—free for still cameras and Rs. 100/- for Video Cameras. For commercial Video contact office.
- * Hourly Demonstration of a few kinds of live Reptiles with commentaries is conducted.
- * Nearly 12 lakhs persons visit MSPT a year.

COBRA

Quarterly Newsletter of the Madras Snake Park Trust

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Annual Subscription for 4 issues
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MADRAS SNAKE PARK TRUST PROGRAMME FOR "INDIA TOURISM YEAR - 1991-1992"

1. Special pamphlets on common poisonous snakes and non-poisonous snakes with special legends about them to be issued at Rs. 3/- and Rs. 5/-.

2. The regular hourly reptiles demonstration now being conducted in Hindi / Tamil English will also be extended with special tapes in several Indian languages like Kannada Telugu, Malayalam, Bengali, Oriya, Marathi, Punjabi, Gujarati, Goanese, Urdu etc and Foreign languages like Russian, Japanese, Spanish, German, French, Chinese, Italian etc.

Tourist groups could avail of these special demonstration at Rs. 50/- Indian and Rs. 100 or US \$ 5 for Foreign languages.

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THE USE OF ADRENALINE IN THE TREATMENT OF SNAKE VENOM OPHTHALMIA CAUSED BY SOUTHERN AFRICAN SPITTING COBRAS

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Snake venom ophthalmia in southern Africa is associated with members of the cobra family (Elapidae). Five of the nine cobra forms occurring in the region are capable of 'spitting' their venom. Three of these forms are endemic to the southern African region (south of the Zambezi river), while two forms continue their distribution northwards in Africa. The spitting cobras of the region are represented by four 'true cobras' (*Naja*), i.e. the Mozambique spitting cobra, *Naja mossambica*; and the Black-necked spitting cobra, *Naja nigricollis*, represented by three subspecies; *N. n. nigricollis*, *N. n. nigricincta* (endemic) and *N. n. woodi* (endemic). The final member of this group is the Rinkhals, *Hemachatus haemachatus* (endemic). The Rinkhals, although very similar to the true cobras, is not considered a true cobra, as unlike the aforementioned true cobras it is viviparous (gives birth to young), has keeled dorsal scales and apart from two poison fangs, has no other solid teeth in the upper jaw.

Spitting cobras do not actually 'spit' in the true sense of the word. Spitting is achieved by the snake exerting extreme muscular pressure on the venom gland, which forces the venom down the venom canal in the fang. The venom canal of a spitting snake is modified in that it has an "L" shaped bend just prior to exiting the fang, with the discharge orifice being located on the front of the fang, just above the fang point. This results in the venom being ejected forward as a spray from the fangs.

'Spitting' is largely a defence mechanism usually employed only when the snake is threatened. When capturing prey, the snake will not rely on spitting but will always bite, injecting venom directly into the body of the prey. Spitting cobras are capable of spraying their venom accurately into the face of an adversary at distances of over 3 meters (FitzSimons 1980). The largest of the southern African spitting cobras is *N. n. nigricollis*, which may attain a length in excess of 250 cm (Broadley 1990). This is considerably shorter than the King cobra, *Naja hannah*, which has been reported as growing to nearly 600 cm in length (Deoras 1965).

Eye envenomation may lead to severe but transient conjunctivitis, followed by severe swelling of the conjunctiva and eyelids (NTBS Res. Man. 19**), as well as temporary and even permanent blindness (Warrell & Ormerod 1976). After reviewing recent literature on the treatment of snake venom ophthalmia, and with the exception of one reference, Pringle (1958), all sources recommend washing the eyes out with water, saline solution, milk or any other bland solution. It has also been recommended that the eyes be washed out with dilute antivenom (serum). Broadley & Cock (1982) recommend a dilution of 1 part serum to 4—5 parts water. However, these fluids do nothing to relieve the incredible pain, which may continue for 3 to 4 days. Pringle (1958) suggested the use of Adrenaline eye drops, and this has been found, by the author, to be the most

effective method of treatment for snake venom ophthalmia. Dilute adrenaline eye drops (1: 1000) have been used successfully many times in the treatment of snake venom ophthalmia caused by both the Mozambique spitting cobra and the Rinkhals. By using only one to two drops per eye, the burning sensation is relieved instantaneously, with no impairment to vision, and with no other side effects whatsoever. The only contra-indications experienced through the excess application of the drops has been an excessive dilation of the pupils, which may cause slightly impaired vision for a short period of time, and which could possibly lead to damage of the eye if exposed to bright sunlight. Other side effects which may be experienced from the frequent use of adrenaline eye drops are oedema and hyperaemia. Unfortunately, judging from the literature, the use of adrenaline eye drops appears to be poorly known in southern Africa, particularly amongst doctors, and is thus very seldom, if ever used. It is important to note that adrenaline is contra-indicated in narrow-angle glaucoma, as the dilation of the pupil could cause an increase in intraocular pressure (Martindale 1977).

The use of adrenaline is not altogether surprising when one considers its action and some of its medical uses. Adrenaline has been used during operations to reduce bleeding as well as to check bleeding from superficial wounds and abrasions (Martindale 1977). It is also recommended for neutralizing the positive effects of serum sensitivity when using the ophthalmic test of placing the serum in the conjunctival sac (Deoras 1981), and for the treatment of other forms of anaphylaxis (acute reactions to serum, or serum sensitivity) (Visser 1978; Broadley & Cock 1982; Christensen in Broadley 1990). Despite the above uses of adrenaline, it must be stressed that adrenaline has no effect as a treatment for snake bite when injected, and may even prove fatal in certain instances.

The action and effectiveness of adrenaline is related to it being a vasoconstrictor, whereby it constricts arterioles and capillaries when applied locally to mucus membranes and exposed tissue (Martindale 1977). It would appear that adrenaline constricts the blood vessels of the eye membrane, thus inhibiting the absorption of venom. Owing to the immediate cessation of pain, it would seem that adrenaline possibly also has some analgesic or anaesthetizing effect. How effective the above described treatment is after a extensive time lapse is not known, as the treatment has always been applied within five to ten minutes of eye envenomation.

Although eye envenomation has not been reported to have caused death in humans, death has been observed in the rat, *Rattus rattus*, by the author. An adult rat was observed receiving a direct spray of venom in its eyes from a Mozambique spitting cobra, and the intense discomfort experienced by the rat was immediately apparent. It is difficult to state at exactly what stage the rat could no longer see, or whether or not fear had some effect on its demise, but after approximately forty-five minutes the rat died in considerable rigor. This illustrates just how serious, and damaging snake venom ophthalmia can be if not treated immediately.

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CONTRIBUTIONS ON REPTILES INVITED

COBRA solicits papers on snakes, lizards, turtles and crocodiles for *quick* publication.

Papers may be on any aspect : Ecology, Biology, Natural History or Conservation.

Faunal and Behavioural aspects are also welcome.

Snake-lore, Myths and interesting personal observations are also accepted for publication under Miscellaneous Notes.

Contributions not exceeding 8 typed pages may be sent to Dr. R.S. Pillai Editor, COBRA, Madras Snake Park Trust, Guindy National Park, Madras-600.022.

FASCINATING WORLD OF INDIAN SNAKES

TEJ PRAKASH VYAS,

Professor of Zoology. Herpetoscientist ISRAG

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Out of 2,500 species of snakes found in the world, India is rich enough to have about 240 species. Amongst these, only 52 species are poisonous. 48 out of these 52 species are not dangerous to man, because the toxicity of their venom is enough only to kill small prey such as frogs, toads, lizards and mice. The poisonous snakes which are concerned with human beings are commonly known as the "Big four". These are Cobra, Krait, Russell's viper and Saw-scaled viper.

The high rate of conversion of forests into agricultural fields in India has richly favoured the survival of these rodent-eating snakes. Rats destroy about 26% of India's crops and stored foodgrains. Poisonous as well as non-poisonous snakes are true friends of farmers, as all these are voracious rat and rodent-eaters, saving food for millions of people. Even the Big four do not wilfully attack a large animal or man except in self defence. Any mistake committed in the form of stepping upon them bare-footed leads to a bite. Every bite is also not always fatal. The health and immunity of the victim, his size and the amount of venom injected are some of the important factors which determine the severity of the bite. Normally it is the farmer working in the field or returning home from his field at dusk who steps bare footed on a snake. This frightens the snake and it bites in defence. Generally the villagers and farmers go to *tantra—mantra* or *Jadi—buti* or herbs which have never been proved successful against poisonous snake bite. These treatments lead to death of the victim, in cases where the bite is by a poisonous snake. The only reliable treatment for poisonous snake bite is administration of anti-venom-serum.

Snakes have interesting feeding habits. They feed on rats, rodents, lizards, frogs,

toads, birds and other small preys. Poisonous snakes inject venom into the body of the prey in order to immobilize it before swallowing. Snakes swallow their prey whole. They have loosely attached lower jaw which helps in swallowing prey larger than their own diameter.

Snakes have sharp eyesight but are unable to hear. They possess a forked tongue which is highly sensitive to temperature and enables them to pick up scent. They are thus able to track prey at night. Most snakes are oviparous while vipers and many of the Sea Snakes are viviparous.

Snakes are in grave danger from man, its main enemy being the skin trader. Snake skin is used in preparing purses, belts, bags and other ornamental things. To feed the snake skin market, traders kill snakes indiscriminately. Though Government of India have imposed a complete ban on export of snakes and snake skins, poachers continue the illegal skin trade.

There are the nine golden rules as far as snakes are concerned :-

- 1) Do not buy articles made of snake skin
- 2) Teach the common man to identify the four common venomous snakes.
- 3) Do not go out bare footed after dusk.
- 4) Always use a torch at night.
- 5) Do not put your feet or hands in places you can't see.
- 6) Do not sleep on the ground.
- 7) Do not try to be hero to kill a snake. Killing a snake is not bravery. Thousands of people get bitten every year because they try to kill poisonous snakes.
- 8) When bitten, locate the nearest source of antisnake venom serum.
- 9) Stock hospitals with anti-venom-serum.

A NOTE ON THE BREEDING OF THE GREEN WHIP SNAKE AT ARIGNAR ANNA ZOOLOGICAL PARK, MADRAS

A. MANIMOZHI and N. BASKER,

Wildlife Biologists, Arignar Anna Zoological Park, Madras-600 048.

The present observations contribute to what little is known of the breeding biology of the green whip snake, *Ahaetulla nasutus*.

An inhabitant of low bushes, scrub jungles, gardens and groves in Peninsular India, the green whip snake has earned the not-justifiable, local Tamil name of *Kankothi pambu* meaning "eye-pecking snake". Common on bushes in populated areas, it escapes notice by its cryptic, verdant green colouration.

Arignar Anna Zoological Park displays many species of snakes for the public. Seven specimens of whip snakes, all caught locally, were exhibited in glass-fronted enclosures with potted plants. On the 8th of October, 1991, a female reclining on the plants, half a metre above the ground, was noticed to be depositing her young ones. The bulged portion of the body was seen to constrict in a wavy movement with each delivery. A total of 13 hatchlings were delivered within a period of one hour. Each hatchling lay coiled within the spindle-shaped caul membrane. Within a minute or two the young ones broke open the membrane and emerged. 10 to 15 minutes after emergence, the baby snakes moulted. Only 11 young ones emerged; and two were found dead inside the membrane case on dissection. They were fully formed and showed no abnormalities.

The young ones, measured half hour after emergence, ranged 210 to 300 mm in length with a mean of 253.8 mm. The babies were kept in a pot containing sand and stones. Grass hoppers and crickets, though provided, were not fed upon. The babies were released in the zoo premises on the fourth day.

According to Daniel (1983) the green whip snake young are seen usually between March and December. The period of gestation being about 6 months, the mating period is protracted from October to July. The clutch size also varies from 3 to 23.

Acknowledgements :

The authors thank Thiru Chitrapu, Chief Wildlife Warden, Thiru Gautam Dey, Director, Dr. H. Basavaraju, Deputy Director and Thiru S.K. Kalyanasundaram, Asst. Director of Arignar Anna Zoological Park for their encouragement in field research. The first author is grateful to Dr. K. Kanagasabai, Professor, A.V.C. College and Dr. S. Paulraj, Wildlife Warden, Srivilliputhur for their valuable suggestions.

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ACROCHORDUS GRANULATUS
(SCHNEIDER) (SERPENTES : COLUBRIDAE), AN ADDITION
TO THE SERPENT FAUNA OF ORISSA

D.P. SANYAL and S.K. TALUKDAR

Zoological Survey of India, 27, Jawaharlal Nehru Road., Calcutta—700 016.

Two species of Wart Snake of the genus *Acrochordus* Hornstedt, 1787, are known of which *Acrochordus granulatus* (Schneider) is reported to occur within the Indian limits. According to Smith (1943) the species is confined to the coast of Sri Lanka, India and Vietnam, as far as Bombay in the west and Vietnam in the east and south-east through the Indo-Australian Archipelago to the north coast of Australia and the Soloman Islands. Wall (1978) considers this species to be fairly abundant round the coastal belts of India but he has, however, not specifically mentioned its occurrence in any particular locality. Whitaker (1978) reported this species along the north-east coast of India, but has not indicated its occurrence in any particular area.

During the course of our studies on the Ophidian Collection in the National Zoological Collection of the Zoological Survey of India Calcutta, it was interesting to find a well preserved specimen of this Wart Snake, *Acrochordus granulatus* (Schneider), which according to literature, has not so far been reported from the Orissa coast. The present find of the species, therefore, signifies an interesting and specific record.

Material studied :

One adult male, from western coast of Chilka lagoon, near Balugan Ghat, Puri

District, Orissa; 13, vi, 1969; Coll. K.N Nair; ZSI Reg. No. 224559.

Measurement :

Standard length 550mm, and Tail 65 mm.

Colour (in spirit) :

Dark grey or blakish above with distinct whitish cross bars or annuli, the dark bands round the body are a little broader underneath; head dark grey with light spots above.

Acknowledgement :

The authors are grateful to the Director, Zoological Survey of India, Calcutta for laboratory facilities to examine the material.

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Reptile Lore



PĀRSVANĀTHA

The twenty third Tirthankara of the Jaina pantheon, he is said to have lived 250 years before the birth of the last Tirthankara, Mahāvira (about 600 B.C.). He is one of the four widely worshipped Tirthankaras (others being the first Tirthankara Rshabha of Ādi-nātha, the twenty-second Tirthankara Neminātha and the twenty-fourth and last tirthankara Mahāvira); and there was a large following for Pārsva-nātha even when Mahāvira appeared on the scene, and this continues till this day. There are many shrines in the country dedicated to this Tirthankara, and numerous kalpas are devoted to his worship.

He was in lay-life a prince of Vārānasi, who renounced his wealth and worldly life to become an ascetic. He was born in Vārānasi, as the son of King Visva-sena and his wife Brahmila-devi. He obtained enlightenment under devadaru or dhataki tree, which is regarded as his kevalavrksa. Svayāmbhū became his principal disciple and leader of the community after him (gaṇadhara). Iconographically, he is distinguished by the canopy over his head of a serpent with three, seven or eleven hoods.

Another Tirthankara (the seventh), Supārśva, also has this feature, but the texts prescribe for him the canopy of a five-hooded serpent. Serpent is Pārśva's symbol; his-complexion is given as green (or blue according to *Rūpa-mandana* 'muni' cha nilau Śri-malli-pārśvau'). The king who attends upon him was Ajita rāja. Pārśva's birth constellation was Viśākha.

His yaksha is Dharanendra (called Parsva in *Rūpa-mandana*) and Yakshiṇi Padmāvati both of whom are popular deities among the Jains.

His icons are most numerous, as he is worshipped in Jaina shrines as well as households. He is represented like other Tirthankaras in a standing posture (*khaḍgāsana*) or as seated (*padmāsana*); in both postures he is shown as tranquil and absorbed in contemplation. The icons of Pārśva are notable for the elaborate and artistic treatment of the serpent motif. There are some icons which represent his as patiently enduring all the odds and troubles (*upasargas*) that visited him before he attained the kevalajñāna.



A Research Scholar observing the nesting behaviour of the star tortoise at M.S.P.T.



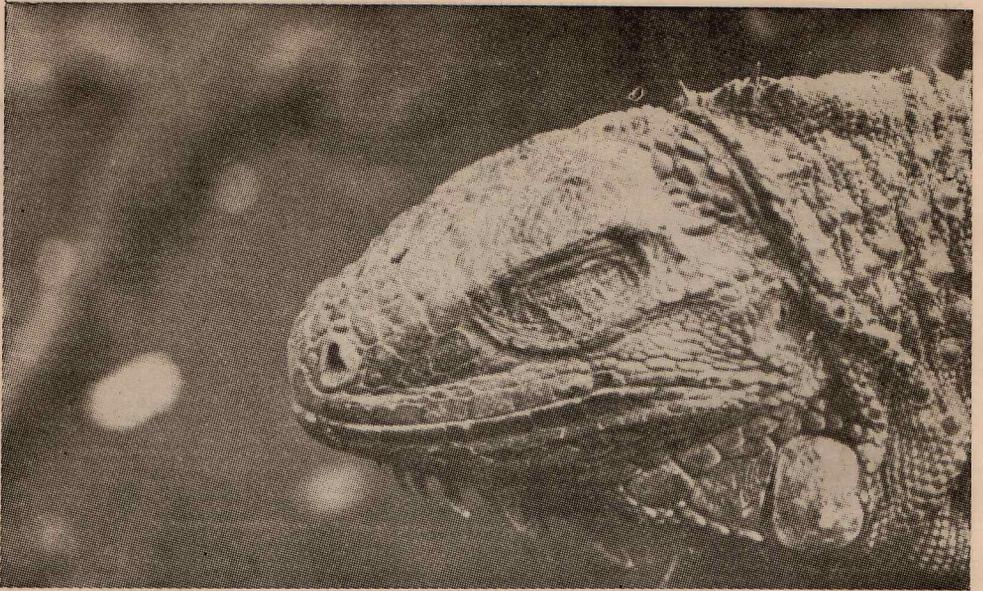
Reticulated Python laying eggs at M.S.P.T.



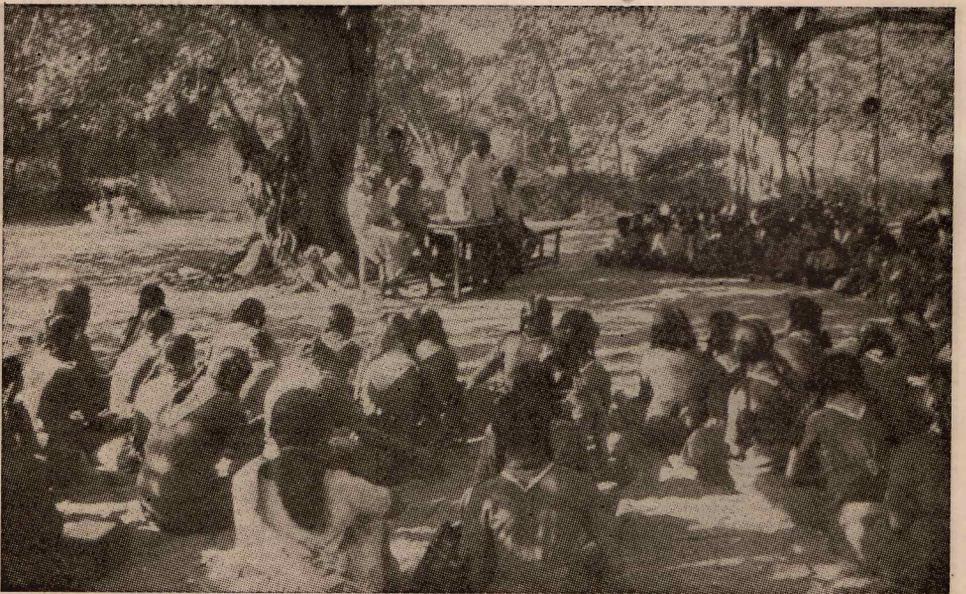
Star Tortoise young one hatched in captivity at M.S.P.T.



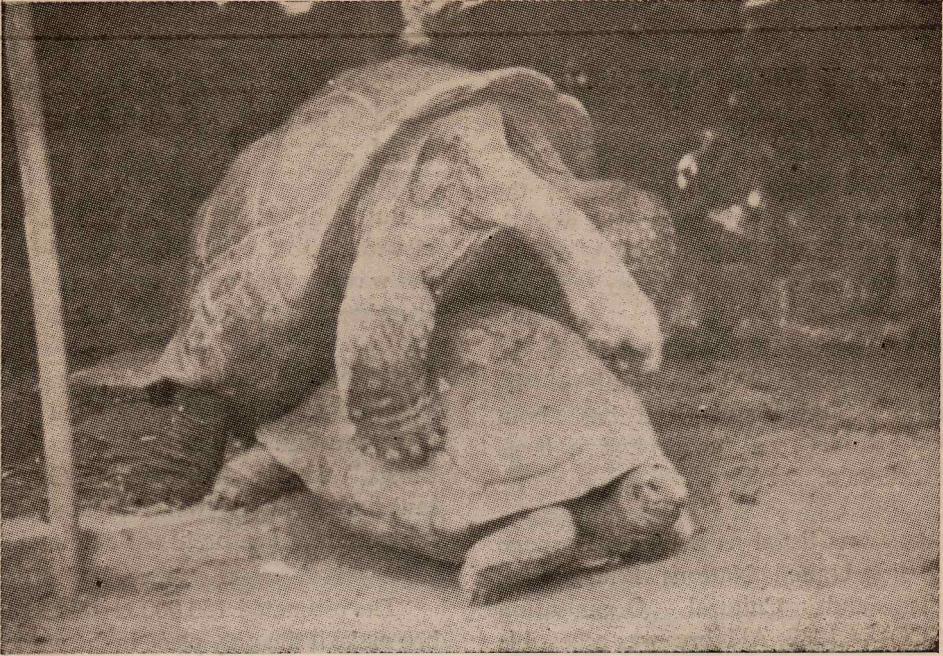
The bifurcated hemipenis in the male Indian python.



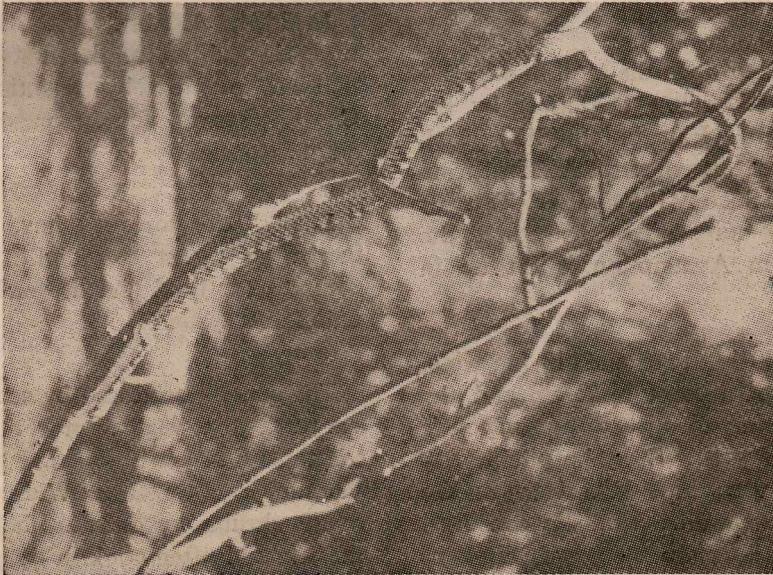
A close view of the head of an Iguana



Educational programme conducted by M.S.P.T. at Bharat Scout camp at Madras



Aldabra tortoises mating



A Flying snake.

REPTILE NEWS IN PRESS

ON HOLIDAY WITH TORTOISES

The Hindu 17-11-91

Aldabra, a remote coral atoll in the Indian Ocean which is home to the world's largest population of land tortoises, will be opened to tourists later this year.

One of the world's largest coral islands, Aldabra lies about 900 km south of the Seychelles capital Victoria. It has about 150,000 tortoises, sea turtles and a large concentration of sea birds.

Before it was listed as a World Heritage site by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in 1982, Aldabra was accessible only by boat—a four-day journey from the main Seychelles archipelago.

However, with the completion of an airstrip on Assumption, a coral island (40 km) away, travelling to Aldabra will take only a few hours.

The decision to open the atoll to selective tourism was taken last December by the Seychelles Islands Foundation (SIF) which took over the management of Aldabra from Britain's Royal Society 10 years ago. Tourists are expected to start arriving as soon as the boat link from Assumption is set up in October.

The atoll, 30 km long and 13 km wide, with just 10 permanent residents and the occasional visiting scientist, is not everyone's ideal tropical resort. The inhospitable terrain is apparent as ships bear down on the long, low, monotonous coral-slip coastline.

Aldabra's huge lagoon of 135 sq. km. of shimmering aquamarine salt water, backed

by forests of mangroves, is unsafe for swimming as its multitude of fish include sharks and barracuda.

But Aldabra is awe-inspiring. It is an elevated atoll rising between 4-6m above the waves, unlike the sea-level atolls found elsewhere in the Indian and Pacific oceans.

Aldabra is unique from an ecological standpoint. "It is a living museum, for what you find here are not relics but living things," the SIF chairman, Mr. Guy Lionnet said in an interview. The land tortoise, for example, is a prehistoric animal.

"The estimated 150,000 tortoises on Aldabra make it the only place in the world where a reptile dominates the fauna," said M. Lionnet. The population far outnumbers the 3,000 that survive in the tortoises' only other refuge, on the Galapagos Islands, west of Ecuador.

In 1874, Aldabra's giant land tortoises were the subject of the first official international petition by scientists, including Charles Darwin, for the preservation of an animal species.

Lately, the tortoises have come under increasing threat from wild goats which compete for food and are endangering the unique ecosystem.

The goats, introduced by seamen hunting sea turtles, eat vegetation from ground level to more than 2m high, leaving nothing for the lumbering tortoises. Without the shelter of the shrubs, tortoises are helpless against the sun and often cook in their shells. For this reason they rarely wander far from the nearest bush.

Attempts to eliminate the goats have been only partially successful as the dense undergrowth and jagged coral makes them difficult to find. One of the most astonishing aspects of Aldabra is the formidable concentration of biomass, which scientists say is far greater than anywhere on the African continent, even in elephant reserves.

The hermit crab and the tortoise both live in the shade of bushy cover. In a simple cycle, the hermit crab eats some of the tortoise faeces and distributes the rest over the soil to fertilize the tree, the leaves of which continue to protect them both against the sun.

Another of Aldabra's major wildlife attractions are the huge bird concentrations in the mangroves of the lagoon and along the shoreline.

Compass News Features

★ ★ ★ ★ ★

The Hindu, 27-11-91

Madras : SNAKE SKINS SEIZED: The Wildlife Enforcement Wing has raided the house of Mr. S.F. Hussain of Perambur and seized 4,310 snake skins. The accused was arrested and produced before the fifth Metropolitan Magistrate who remanded him to judicial custody, according to an official release.

★ ★ ★ ★

MASSIVE OPERATION AGAINST TURTLE POACHING

Indian Express, 3-12-91

Madras—The Coast Guard (east) has launched an unprecedented operation this year against poaching of the endangered Olive Ridley turtles in the sea off the Orissa coast.

As part of an intensified "Operation Geerturtle" three ships led by a powerful offshore patrol vessel (OPV), two aircraft and over

160 personnel are guarding the seas from Nov. 15 this year to crack down on poachers looking for the turtles prized for their meat and eggs.

The gentle Olive Riddley turtles (*Lepidochelys olivacea*) present a unique spectacle at this time of the year when about five lakh females arrive on the 35km stretch of Gahirmatha beach in Cuttack district of Orissa to lay eggs. The nesting in the beach sands is normally between late November and January. To prevent them from falling into the hands of poachers the Coast Guard in co-ordination with the Orissa Forest and Wildlife Department has deployed its men.

During aerial surveillance by a Dornier and a Fokker 27 aircraft the reptiles look like "small green islands" from the air, clustered in the sea as they swim to the shore. The sea operation is being conducted by Coast Guard ships "Varad (OPV) "Habba-kathun". "Ganga Devi" and "Kittur Chennamma". Last year, there were only two CG ships and an aircraft involved in the operation.

Commodore J.B. Carneiro, Commander, Coast Guard (east) estimates that the visiting turtles lay about five crore eggs each year. The eggs cornered by poachers are consumed with relish by some, unmindful of the threat to the species. The turtles weigh between 30 kg and 50 kg and a full grown female at breeding time weighs up to 55 kg. The turtle meat is processed at Calcutta for export to Japan and the west—primarily to Italy.

The rookery at Gahirmatha, and another at Devi river estuary in Cuttack district are two of the largest congregation points for Olive Riddleys.

Poachers have been active in the past years, despite the heightened surveillance by the CG and the Orissa Wildlife Department.

Last year, the CG apprehended 17 trawlers poaching Olive Riddleys in the seas off

Orissa. This year there have been no encounters so far.

"The turtles are seriously endangered, as they are relentlessly hunted for their meat, shell, leather and eggs", says Madras Naturalists' Society president T.N. Ananthakrishnan. But Cmde Carneiro, the Orissa wildlife officials and the patrol teams are determined to win the race against depletion of Olive Riddleys.

By G. Ananthakrishnan

★ ★ ★ ★ ★

THE FEMALE OF THE SPECIES

Aside, 15-12-91

Researchers at the University of Texas, Austin have found that applying a drop of commercially produced estrogen (a sex hormone) to a developing egg, results in a female embryo. The estrogen dissolved in alcohol and absorbed through the eggshell proved a simple and safe method to ensure female embryos. The find is important in resurrecting species on the verge of extinction. It has been worked out with alligators, freshwater turtles and lizards, and is now being tried out on the endangered green sea turtles in Mexico.

★ ★ ★ ★ ★

SNAKE BITE TREATMENT

The Hindu 22-12-91

Snake bites are common emergencies encountered in veterinary practice.

Dogs are commonly bitten on the face or jaw, cats on the paw and large animals on the lowers limbs or muzzle. Snake bites occur more commonly in the warmer months of the year. The venom contains the following toxins in varying proportions according to species.

Neurotoxin—immobilises the prey and leads to respiratory failure. Cytolysin and haemorrhagin break down tissues, especially blood vessels and visceral organs causing

vomiting, shock, cold extremities, weak pulse, intra vascular coagulation.

Haemolysin—destroys RBC's' causing haemorrhage on mucus surfaces, haematuria and haemoglobuinuria. Coagulant or thrombose: causes thrombosis abdominal pain, diarrhoea. Myotoxin: affects skeletal muscle weakness.

The venom is rapidly absorbed through the lymphatic system. The local-lymph nodes become swollen and painful. Death within two hours of a bite in humans is rare, but animals can die faster. The clinical signs include salivation, vomiting, absence of pupillary reflex, ataxia of hind limbs, tachypnoea and shock.

The first principle of treatment is to reduce the absorption of the venom. Swab the venom from where the animal has been bitten, or suck out the blood. Remove venom along with the involved tissue, wash the wound. Immobilise and pressure bandage the area to prevent any unnecessary activity of the patient.

Early remedial measures help. As anti-venom is of equine origin the possible sensitisation to equine serum must be ascertained and precautionary measures adopted. Supportive treatment includes: Artificial respiration/oxygen therapy, treatment of shock with intravenel fluids, adrenalin and corticosteriods. If haemorrhage is extensive blood transfusion is advised, give analgesics and sedatives.

DR. S. Nedunchelliyan

The Hindu 27-12-91

SNAKE OR GOURD ? It is a freak snakegourd feigning a cobra with raised hood. This specimen grown at a home garden in Ramachandra Street, T. Nagør in the city is a talking point in the neighbourhood. "The snakegourd strikingly resembled a cobra, and we wish to preserve this as a curioso," said Mr. P.S. Vijayaraghavan, a keen garden enthusiast in whose garden the snakegourd was found.

NEWS FROM MADRAS SNAKE PARK TRUST

1) **Wildlife Seminar on current trends in the Wildlife management : 10th October 1991**

The Madras Snake Park Trust was represented by Hony Secretary Mr. A.N. Jagannatha Rao, Dr. R.S. Pillai, Research Officer and Research Scholars. Mr. A.N. Jagannatha Rao delivered a talk on "Conservation of Reptiles". The seminar was conducted by Madras Veterinary College Wildlife Club, Madras-600 007.

2) **First National Symposium on unconventional pests: Control Vs. Conservation : 14-16 October 1991.**

The Symposium was organised by the University of Agricultural Sciences at G.K.V.K. Campus, Bangalore. The MSPT was represented by Mr. A.N. Jagannatha Rao, Hony Secretary, Dr. R.S. Pillai, Research Officer and Research Scholars. Live specimens of snakes were displayed and a 20 minute video presentation on Rodent control by using harmless reptiles was made.

3) **Narmada valley project report on Herpetofauna submitted on 30th October 1991**

As assessment of the impact of Indira Sagar submergence of Narmada river (M.P.) on the Amphibia, Reptile fauna and Island Ecology was made by Madras Snake Park Trust Research Team. The report was submitted to Friends of Nature Society (FONS) Bhopal.

4) **International seminar on Veterinary medicine in wild and captive animals, 8-10 November 1991.**

Organised by the Veterinary College, Bangalore MSPT was represented by Mr. A.N. Jagannatha Rao, Hony Secretary,

Dr. P.D. Jagannathan, Veterinary consultant and Mr. T. Raveendra Babu, Research Scholar M.S.P.T. Dr. P.D. Jagannathan presented a paper.

5) **Snake survey at Cochin Refineries, Cochin**

As requested by Cochin Refineries, M.S. P.T. did a snake menace consultancy at their premise on 21-27 November 1991. The team consisted of Mr. A.N. Jagannatha Rao, Hony Secretary, Dr. R.S. Pillai, Research Officer, Mr. R. Aengals, Research Scholar and two snake catchers, Subbiah and Kumar.

6) **Seminar on Enviromental awareness and self employment, 19-21 December 1991.**

The seminar was organised by Bharathidasan University, Trichi, Swadeshi Science Foundation, Karaikudi, Central Electrochemical Research Institute, Karaikudi and A.V.C. College (Automomous) Mayiladuthurai. The M.S.P.T. Research team participated and the following papers were presented:

- 1) Snakes and their conservation by V. Kalaiarasan and B. Rathinasabapathy (Review paper).
- 2) Lizards, Turtles and Crocodiles conservation by R. Aengals and P. Tamilarasan (Review paper)
- 3) Rodent control by using harmless reptiles by T. Raveendra Babu.

7. **Snake skin identification**

The Madras Snake Park Trust research team as sisted in snake skin identification for Department of Wildlife Preservation, Southern region, Madras in December 1991.

COMMENTS BY SOME IMPORTANT VISITORS TO MADRAS SNAKE PARK TRUST

8th October 1991

A most enterprising organisation who are doing highly significant work in the fields of conservation and education. Their reference collection of papers and reports is of significance and all herpetologists should be aware of this.

Keep up the good work.

Sd.....

Peter M.C. Stevens

Director,

Paignton Zoological & Botanical Garden,
Totnes, Paignton, Devo TQ4 7EU

19-10-91

We visited the Snake Park, Madras on 19-10-91 & discussed about various research studies undertaken by Mr. Jagannatha Rao and his group of students. These were excellent and need encouragement at all levels.

M/s Chauhan, Scientist,

Animal Damage Control,

Dehradun

Snake Park is doing an excellent work through educating people about all the four reptilian groups and further research with additional funds is urgently required. I am really impressed after visiting the Park. The concept of biological control of rodents is the way out & I hope will be widely accepted.

Sd.....

19-10-91

Ranveer Singh, SRF,

Wildlife Institute of India

P.O. New Forest

Dehradun-248006

Snake Park Trust is an extremely motivated organisation with a clear perspective of the relative method of captive wild animal husbandry. I was most impressed by both the educational materials and original research involvement and thus committed to progressive conservation.

Deck Gen

Wildlife Warden

Scotland

The snake park has varied collection of snakes. It is well maintained by the Trust Office and it needs encouragement both from Govt. as well as non-govt agencies. It is through this park that we can see mini-India collection of snakes from various parts of the country.

22-11-91

Sd.....
Director,
National Commission for SC,
Govt of India,
New Delhi-110 003

The Snake Park is nicely maintained. Has a vast collection of snakes. Staff is well behaved. It is great pleasure to me to visit this park.

30-12-91

Sd.....

U.R. DHYANI,
Duputy director
Environment and Forests
New Delhi.

PAPERS ON AMPHIBIA

In deference to the wishes of a number of herpetologists, it has been decided to enlarge the ambit of COBRA to incorporate articles and papers on Amphibia as well. Contributions on ecology, conservation, fauna, behaviour and other aspects on Amphibia may be sent to Dr. R.S. Pillai Editor, COBRA, Madras Snake Park Trust, Guindy Madras-600 022.

MISCELLANEOUS NOTES

COBRA invites contributions under "Miscellaneous Notes". Short notes and interesting personal observations on Reptiles and Amphibians are invited for publication. Myths, lores and beliefs which highlight these animals from the cultural and traditional point of view are also welcome.

—Editor

CURRENT RESEARCH PROJECTS AT MADRAS SNAKE PARK TRUST

1, Status, distribution and Ecology of Reptiles pertaining to Tamil Nadu by Mr. V. Kalaiarasan M.Sc., M. Phil. for his Ph.D. Programme under the guidance of Dr. R. Kanakasabai, M.Sc., M.Phil, Ph.D. Prof. and Head, Dept. of Zoology A.V.C. College Mayiladuthurai and field guidance of Dr. M.V. Rajendran M.A. Ph.D.

This project is being co-ordinated by Mr. A.N. Jagannatha Rao, Hony. Secretary of Madras Snake Park Trust, and Dr. R.S. Pillai, Research Officer, MSPT.

2. Studies on chamaeleon by Mr. R. Aengals M.Sc., Mr. B. Rathinasabapathy M.Sc., M.Phil and Mr. P. Tamilarasan, M.Sc., under the guidance of Dr. R.S. Pillai M.Sc., Ph.D., Dr. M.V. Rajendran M.A. Ph.D. Dr. G. Durairaj, M.Sc., Ph.D., Dr. R. Kanakasabai M.Sc., Ph.D., Mr. M. Krishnan M.A..

B.L., and Jagannatha Rao who is the co-ordinator of the project.

3. A research project on "Rodent control using harmless Reptiles" is being undertaken by Mr. T. Raveendra Babu M.Sc., M.Phil. B.Ed. at MSPT under the guidance of Dr. P. Vivek Raja M.Sc. Ph.D., Senior lecturer of Zoology Govt. Arts College, Madras-35 coordinated by Shri. A.N. Jagannatha Rao Hony. Secretary and Dr. R.S. Pillai Research officer, MSPT.

4. Studies on Turtles and Tortoises by Mr. R. Aengals M.Sc., Mr. B. Rathinasabapathy M.Sc., M. Phil and Mr. P. Tamilarasan M.Sc., M. Phil., under the guidance of Dr. R.S. Pillai, M.Sc., Ph.D., and being co-ordinated by Mr. A.N. Jagannatha Rao

5. Relationship between morphology and habits of reptiles to be proposed soon. by Mrs. R. Chitra B.Sc.

SURPLUS REPTILES AVAILABLE AT MADRAS SNAKE PARK TRUST IN EXCHANGE

(Subject to approval by the Government)

Snakes

1. Indian Python (*Python molurus*)
(Babies and Sub-adults)
2. Reticulated Python (*Python reticulatus*)
(Single specimen, not pair)

Turtles, tortoises and Crocodiles

3. Pond turtle (*Melanochelys trijuga*)
4. Star Tortoise (*Geochelone elegans*)
5. Marsh Crocodile (*Crocodylus palustris*)
(4 year old)

WANTED IN EXCHANGE

Snakes

1. Black Cobra (*Naja naja oxiana*)
2. King Cobra (*Ophiophagus hannah*)
3. Banded Krait (*Bungarus fasciatus*)
4. The Indian Egg-Eating Snake
(*Elachistodon westermanni*)
5. Flying Snake (*Chrysopelea ornata*)

Monitor Lizards

5. Desert Monitor (*Varanus griseus*)

6. Yellow Monitor (*Varanus flaveseens*)
7. Water Monitor (*Varanus salvator*)
8. Common Indian Monitor (*Varanus bengalensis*)

Turtle

9. River turtle (*Hardella thurgi*)
and
Fresh water turtle—any species.

Crocodile

10. Estuarine Crocodile (*Crocodylus porosus*)
(Juveniles and sub adults)
11. Preserved specimens of 5 species of
Sea turtles
 - a) Leather back turtle (*Dermochelys coriacea*)
 - b) Green turtle (*Chelonia mydas*).
 - c) Logger Head turtle (*Caretta caretta*)
 - d) Olive Ridley turtle
(*Lepidochelys olivacea*)
 - e) Hawksbill (*Eretmochelys imbricata*)

An Appeal

The Madras Snake Park Trust has obtained, with the help of the Govt. of Tamil Nadu, 2.5 acres of land on the old Mahabalipuram Road on the outskirts of the city of Madras to establish an elaborate Reptilium on modern scientific lines to promote Tourism, Conservation, Education, Service and Research on Reptiles.

The proposed layout and estimates of the various units are shown on the next page. The total cost of the project is estimated around Rs. 125 lakhs or 60,000 \$ (US).

The MSPT now seeks financial contributions from various organisations and individuals to fulfil this ambitious future programme unit/block-wise.

Grants and donations are exempted by the Income tax authorities under 80G vide Ref No. DITE/1146(34)/78 dated 1-4-89 to 31-3-92.

Generous contributions are solicited. Contributions may be sent to "The Madras Snake Park Trust" Guindy National Park—Guindy, Madras-600 022 India.

Trustees of the Madras Snake Park Trust, Madras-600 022.

DETAILS OF COST OF CONSTRUCTION AND DISPLAY

Building 1 and 2 (3 floor)

Each floor has 40' × 40' area and will house Rooms, Mess, Recreational area for Research students, each building 12 students.

Cost per floor Rs. 4 lakhs or \$ 20000.
Total cost of building 12 lakhs or \$ 60000.

Building No. 3 and 4 (3 floor)

Each floor has 70' × 40' area and will house Research Division, i.e. Library, Laboratory etc.

Cost per floor Rs. 7 lakhs or \$ 35000.
Total cost of each building Rs. 21 lakhs or \$ 105000.

Pit No. 5 and 6 (1000 sq.ft.)

Specially designed, natural setting with pond etc., to house 3 species of Indian Crocodiles.

Cost Rs. 1,00,000 or \$ 5000.

Pit No. 7

This will house exotic reptiles like Iguanas, etc., in 500 sq. ft. area.

Cost Rs. 50 000 or \$ 2,500.

Pit No. 8 and 9 (area 1000 sq. ft.)

Skunks, Chamaeleons, Monitors etc., will be exhibited in these enclosures in specially designed habitats.

Cost Rs. 1,00,000 or \$ 5000.

Pit No. 10 and 11 (area 1000 sq. ft.)

Specially landscaped to display land tortoises, marine turtles and fresh water terrapins.

Cost Rs. 1,00,000 or \$ 5000.

Pit No. 12 (Area 500 sq.ft.)

Giant tortoise of Seychelles, Komodo dragon etc., will be procured and displayed.

Cost Rs. 50,000 or \$ 2500.

Building No. 13 and 14 (area 1000 sq.ft.)

Different poisonous and non-poisonous snakes of India will be exhibited in specially designed habitats. King Cobra will find a special habitat cooled by air cooler.

Cost Rs. 1,00,000 or \$ 5000

Building No. 15 and 16.

Indian snake lore and myths which are in plenty will be elegantly brought out and made interesting and attractive for tourists. Simple hall 40' × 40' with a sloping roof.

Cost Rs. 4 lakhs or \$ 20,000 — each building.

Building No. 17 (Demonstration shed—3000 sq.ft.)

To educate the public on reptiles. Hourly display of live reptiles with commentaries in English, Tamil and Hindi. Tapes in 10 Indian languages and choice of 6 Foreign languages will be available for large groups for a special fee.

Cost Rs. 7,00,000 or \$ 35,000.

Building No. 18 and 19.

40' × 40' to house preserved specimens of Indian and exotic reptiles for Research purposes. Sloping roof.

Cost Rs. 4 lakhs or \$ 20,000 each building.

Building No. 20.

This is a 3-storyed building. The ground floor to be used by visitors as a Rest-shed. The second floor for the Administrative Office of the Madras Snake Park Trust. 3rd floor for Guest house.

Each floor is 70' × 40'. Cost Rs. 7 lakhs or \$ 35000. Total cost of the building would be 21 lakhs or \$ 105000.

Building No. 21.

3 floors each of 70' × 40'. To house an auditorium, a conference hall and a records room.

Each floor costs Rs. 7 lakhs or \$35000 and the total cost of building Rs. 21 lakhs or \$ 105000.

Building No. 22 and 23.

These are quarters for watchman, on either side with 300 sq. ft area.

Cost Rs. 75,000/- or \$ 3500. The 2 units cost Rs. 1,50,000 or \$ 7,000.

Building No. 24 and 26

Open wells of 6' diameter each costing Rs. 25,000/- or \$ 1250. Together they cost Rs. 50,000/- or \$ 2500.

Building No. 25

General store Room of 20' × 10'.
Costing Rs. 50,000 or \$2500.

Building No. 27 and 31

Large underground storage tanks to hold water, each 15,000 litres capacity.

Cost Rs. 50,000/- or \$2500/ each. 2 sumps together would be Rs. 1,00,000 or \$5000.

Building No. 28 and 30

10' × 10' rooms for electric meters and water pumps, each room Rs. 25,000/- or \$1250.

Cost of 2 rooms Rs. 50,000 or \$2500.

Building No. 29

10' × 10' Security room. Cost Rs. 25,000/- or \$1250.

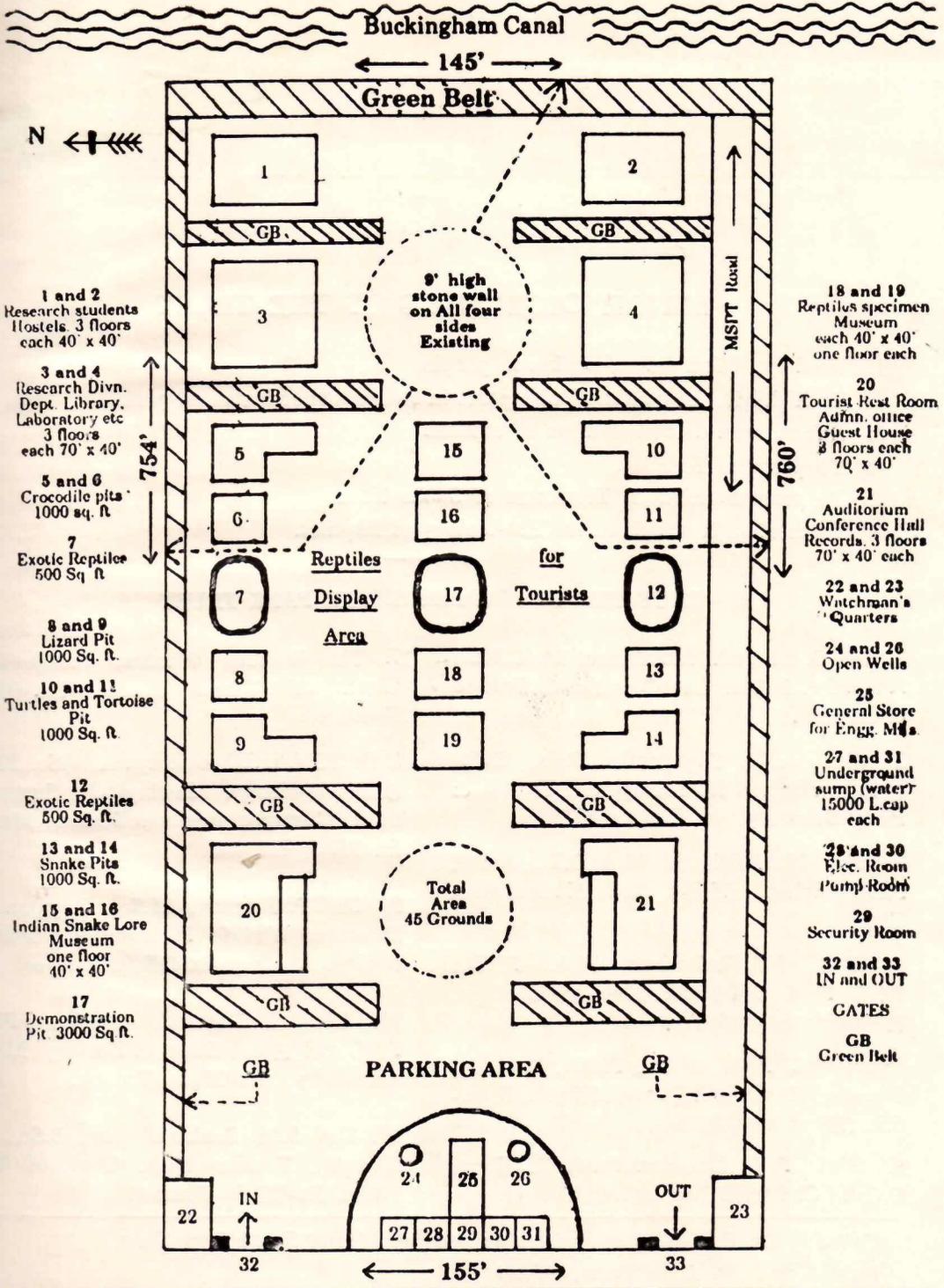
No. 32 and 33

IN and OUT gates Each cost Rs. 10,000/- or \$500. Cost of 2 gates Rs. 20,000/- or \$1,000.

All costs are worked out on present exchange rate of US \$ = 18.50 as on date 1.9.1990.

ALL GRANTS WILL BE DISPLAYED ON A MARBLE SLAB ON THE RESPECTIVE FLOOR/BUILDING.

Proposed Layout of Madras Snake Park Trust at Kottivakkam, Madras



Buckingham Canal

145'

Green Belt

N

MSPT Road

754'

760'

PARKING AREA

155'

- 1 and 2 Research students Hostels. 3 floors each 40' x 40'
- 3 and 4 Research Divn. Dept. Library, Laboratory etc 3 floors each 70' x 40'
- 5 and 6 Crocodile pits 1000 sq. ft.
- 7 Exotic Reptiles 500 Sq. ft.
- 8 and 9 Lizard Pit 1000 Sq. ft.
- 10 and 11 Turtles and Tortoise Pit 1000 Sq. ft.
- 12 Exotic Reptiles 500 Sq. ft.
- 13 and 14 Snake Pits 1000 Sq. ft.
- 15 and 16 Indian Snake Lore Museum one floor 40' x 40'
- 17 Demonstration Pit 3000 Sq. ft.

- 18 and 19 Reptiles specimen Museum each 40' x 40' one floor each
- 20 Tourist Rest Room Adm'n. office Guest House 3 floors each 70' x 40'
- 21 Auditorium Conference Hall Records. 3 floors 70' x 40' each
- 22 and 23 Watchman's Quarters
- 24 and 26 Open Wells
- 25 General Store for Engg. Mts.
- 27 and 31 Underground sump (water) 15000 L. cap each
- 28 and 30 Elec. Room Pump Room
- 29 Security Room
- 32 and 33 IN and OUT

9' high stone wall on All four sides Existing

Reptiles Display Area

for Tourists

Total Area 45 Grounds

To Adyar Madras ← Old Mahabalipuram Road → To Mahabalipuram

(NOT TO SCALE)

SEP 1990



MAJOR OBJECTIVES OF THE TRUST

1. To dispel blind fear of snakes in people
2. To highlight the usefulness of reptiles in controlling rodents and pests.
3. Efforts towards conservation of reptiles.
4. To promote Tourism.
5. To promote scientific Treatment of Snake bites.
6. To conduct Research on the Eco-biology of Reptiles.

TRUSTEES OF MADRAS SNAKE PARK TRUST

- | | |
|---|--|
| 1. Shri S. Meenakshisundaram, M.A.,B.L., Advocate, Labour Law Consultant, Trustee & Chairman. | 7. The Wildlife Warden, Forest Dept. Govt. of Tamil Nadu, Ex-Officio, Trustee. |
| 2. Shri A. N. Jagannatha Rao, B.E., Industrialist and Retd. Engineer, Trustee & Hony Secretary. | 8. Dr. K.V. Lakshminarayana, M.Sc., Ph.D., Officer-In-charge, Zoological Survey of India, Southern Regional Station, Madras. Ex-Officio Trustee. |
| 3. Shri M. Krishnan, M.A.,B.L., Artist, Photographer, Writer and Naturalist - Trustee | 9. Shri P. Kannan, M.Sc., Regional Dy. Director, Wildlife Preservation, Southern Region, Madras. Ex-Officio Trustee. |
| 4. Dr. M.V. Rajendran, M.A., Ph.D., Retd. Prof. and Head, Dept of Zoology, Herpetologist and Trustee. | 10. Dr. G. Durairaj, M.Sc., Ph.D., Prof. and Head, Dept. of Zoology, Madras University. Ex-Officio Trustee. |
| 5. Dr. R.S. Pillai, M.Sc., Ph.D., Retd. Jt. Director, Zoological Survey of India, Scientific Officer and Trustee. | 11. Shri S.M. Sankaralingam, B.Sc., B.L. Director, Tourism Dept. Govt, of Tamil Nadu, Ex-Officio Trustee. |
| 6. Shri P.V. Laxminarayana, B.Com., F.C.A., Chartered Accountant, Trustee. | |

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