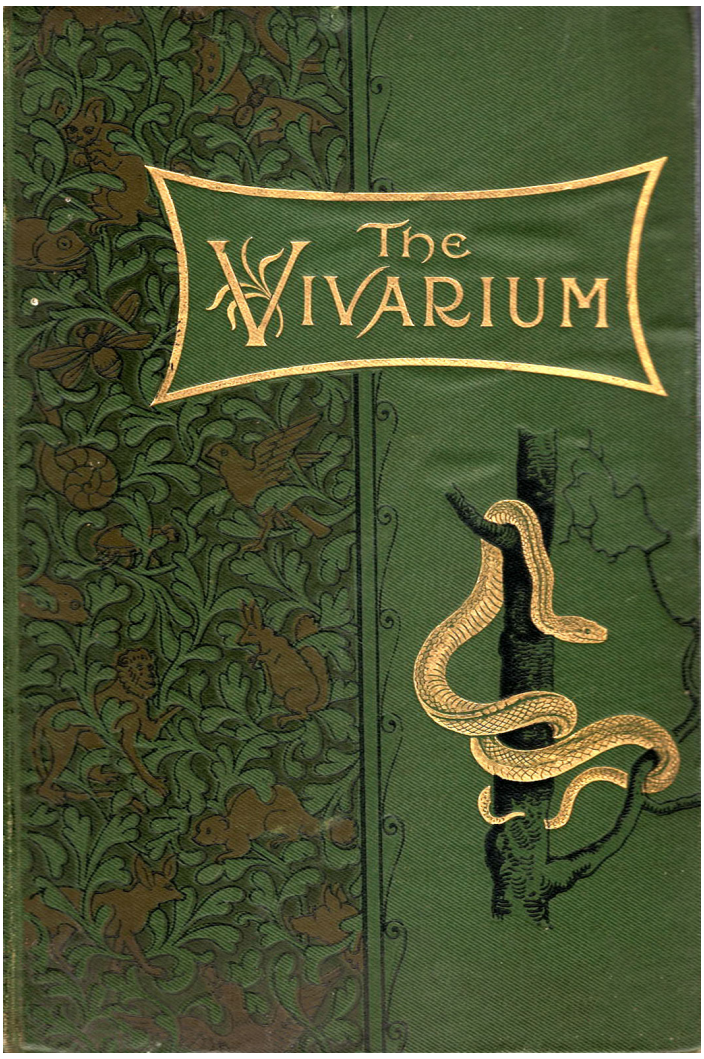
The Early History of Western Herpetoculture, Up to the Year 1900-Part 2

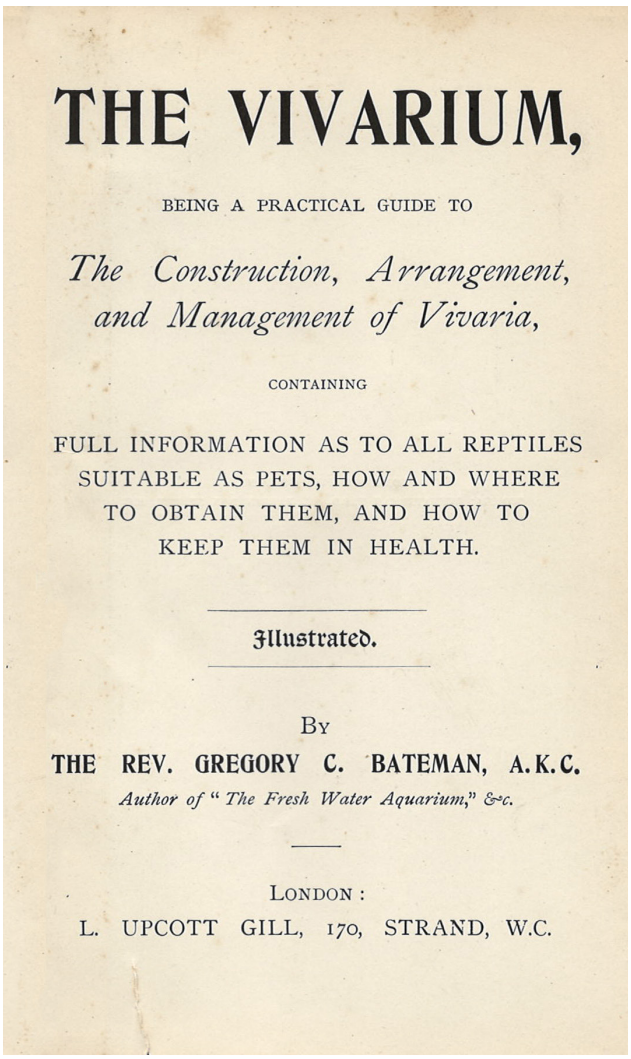
By Jon Coote

The Nineteenth Century

So began the 735-year history of the famous Royal Menagerie, which lasted until 1835. In the 15th century, both the 13th Earl of Oxford and Sir Robert Brakenbury served as keepers, continuing the tradition of noblemen in this position. During the 16th and 17th centuries, the management of the collection was undertaken by commoners, namely successive generations of the Gill family from Essex.



Cover of 'The Vivarium', published 1897.



THE VIVARIUM,

BEING A PRACTICAL GUIDE TO

The Construction, Arrangement, and Management of Vivaria,

CONTAINING

FULL INFORMATION AS TO ALL REPTILES SUITABLE AS PETS, HOW AND WHERE TO OBTAIN THEM, AND HOW TO KEEP THEM IN HEALTH.

Illustrated.

By

THE REV. GREGORY C. BATEMAN, A.K.C.

Author of "The Fresh Water Aquarium," &c.

LONDON:

L. UPCOTT GILL, 170, STRAND, W.C.

Inside cover of 'The Vivarium'.

All English monarchs appeared to enjoy the menagerie and provide it with their full support, except for Oliver Cromwell, who took power after the English Civil War, and the execution of Charles I for treason. He became known as Lord Protector, having refused to be crowned as k ing. Cromwell tried to close the menagerie but failed. He did, however, stop much of the excessive baiting of the animals that had taken place previously. By 1831 most the Tower's inmates had been transferred to the newly formed Zoological Society of London, the Dublin Zoological Garden, the United States, and the Exeter 'Change (This is about the dispersal of reptiles from the Tower of London, when it closed. They went to the new London Zoo, the new Dublin Zoo, exported to reptile showmen and dealers in the USA, and the Exeter 'Change menagerie on the Strand in London.)*

Tower of London Stereoview.

Tower of London

Visitors to the Tower of London today can still see the site of this ancient menagerie. In front of the Middle Tower, at the entrance to the Tower of London, you can see the foundations of a semi-circular building. A plague informs that this, recently excavated site, was once the location of the famous Lion Tower, the original menagerie of the kings and queens of England.

In its later years of existence, the Tower of London maintained an alligator, which was fed once a week on raw beef, and a pair of probably Burmese pythons, which subsequently bred and laid 14 eggs after two years in the collection, but unfortunately failed to successfully incubate them. This is perhaps not surprising when you consider that the Tower comprised stone-built and metal-barred enclosures designed for large mammalian carnivores. Probably these would have been difficult to heat adequately at the best of times.

The Tower was also recorded as having a collection of over 100 rattlesnakes! They were described as being between four to six feet in length and differing considerably in color and markings. Unfortunately, no other information about this fascinating snake collection appears to have been recorded. This data does perhaps indicate that their keeper, Mr. Alfred Cops, was surprisingly successful at keeping reptiles in less-than-ideal facilities.

As described above, the animals at the Tower were mostly transferred in 1831, on the instruction of King William IV, to the Zoological Society of London. A female American crocodile, *Crocodylus acutus*, recorded as alive in the Gardens in 1831, and the first individual of this species to be received by the Society, may have been the Tower "Alligator." Similarly, Burmese pythons, *Python moloru bivittatus*, were recorded as first received before 1833 and could also have been those previously kept and unsuccessfully bred at the Tower. There is no record of the collection of over 100 rattlesnakes going to the Zoological Society of London or anywhere else. The Zoo's earliest record of receiving one is that of a timber rattlesnake in either 1842 or 1843. We can perhaps assume that their keeper Alfred Cops, left with them in his possession.

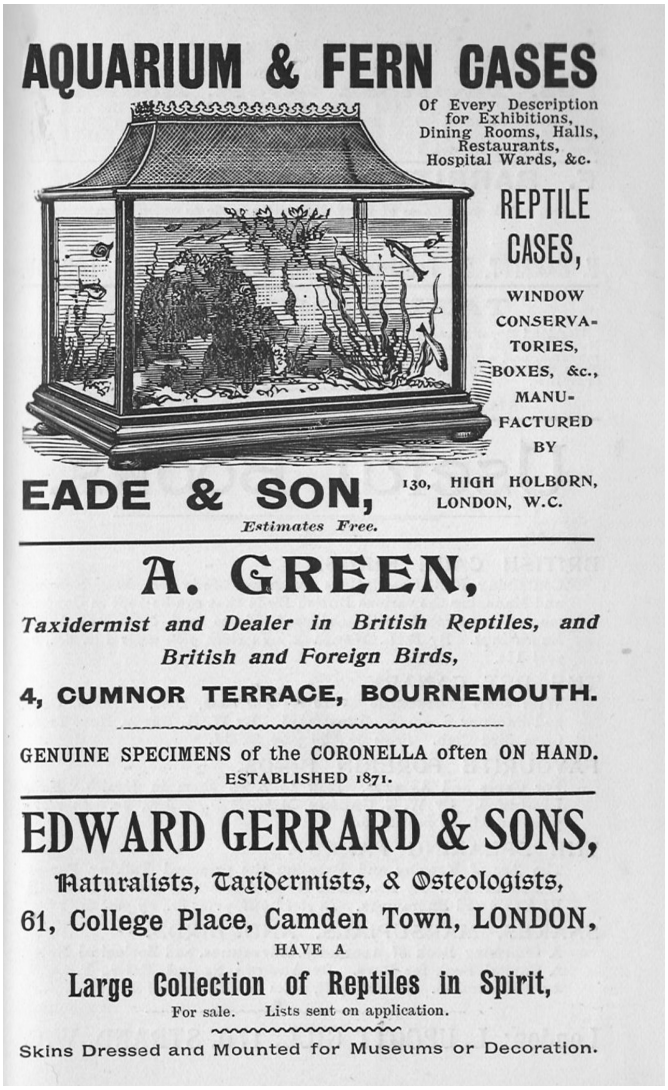
Chunee, the famous elephant, shot by a firing squad in 1826, lived at the Exeter 'Change in the Strand and was looked after by the same Alfred Cops. Cops, however, left this position in 1822 to take charge of the Royal Menagerie at the Tower of London, as indicated above. He transformed and improved this collection and became a useful contact and animal supplier for visiting American showmen, who frequently stayed with him whilst in London, including one who went on to marry his daughter in 1841. It is interesting to speculate if it was this close contact with the Americans which led to the intriguing collection of 100 rattlesnakes at the Tower mentioned above.

It was also Cops who came close to successfully breeding the Burmese pythons at the Tower. At the same time, he had a large snake described as an *"Anaconda, from Ceylon, which in no way differed from the Burmese Python though of a lighter color."* This is an accurate description of the Ceylonese python, *Python molorus pimbura*. This snake nearly killed Cops when it grabbed his hand when being fed. It was at the time "almost blind from the approaching change of its skin." It managed to get two coils around Cops' neck, and he had to be rescued by an assistant keeper.

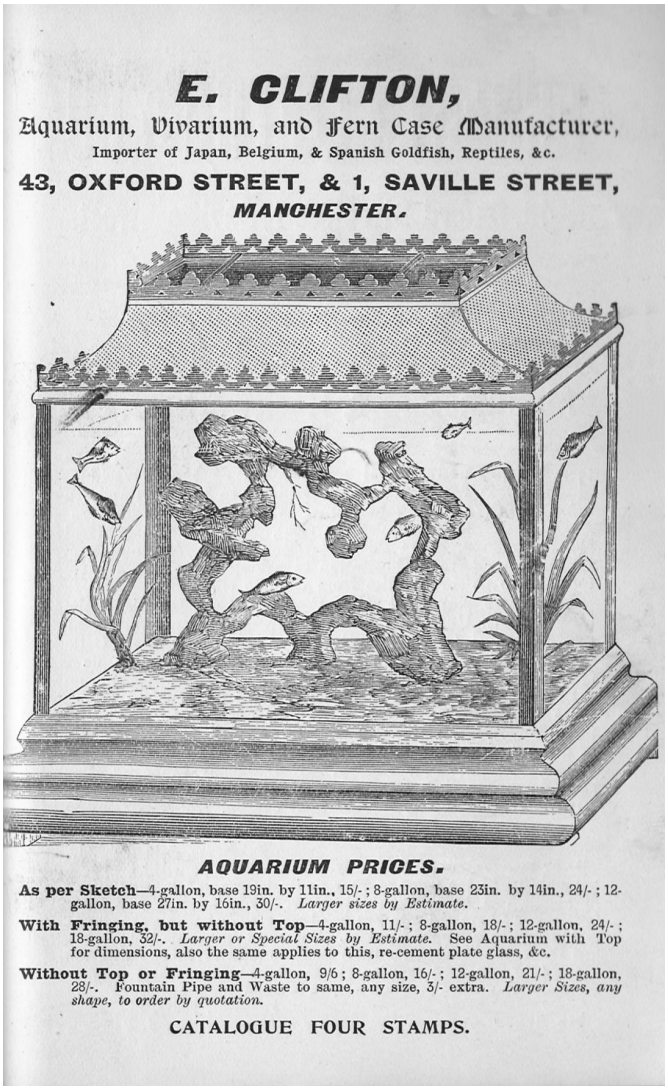
It is interesting to speculate about what became of Mr. Alfred Cops (he lived until his death in a tied cottage at the Tower). After the Tower Menagerie finally closed in 1835, an Englishman from London, called Cops, is known to have arrived in the United States, complete with what was perhaps the first mobile USA reptile show. With such an unusual surname and his previous dealings with American showmen, surely this must be the same Alfred Cops. If it was, then he would certainly have taken his knowledge and husbandry techniques with him, and perhaps even the rattlesnake collection. This would also provide a more realistic opportunity for one of his American showman friends to become his son-in-law six years later, as described above.

If this is so, then this could be one of the first transfers of the technology of herpetoculture from Europe to the United States. It would be most likely that Alfred would have shared his knowledge and experiences with at least his son-in-law. It is also probable that he shared his expertise with those who purchased reptiles and other animals from him, both in London and later in the United States.

Due to my historical research, it surprises me less to discover that something we thought was a recent invention or technique in herpetoculture is something that has been developed or invented in the past but then mostly forgotten again. It makes you speculate just how much we may have tragically lost and forgotten forever.



Aquarium and reptile case ad from 'The Vivarium'.



Aquarium and reptile case ad from 'The Vivarium'.

An example that is fortunately not lost and forgotten is the interesting tale of the Pinky Pump. This invaluable device for force-feeding hatchling snakes, I had previously considered to be the original invention of a friend of Ernie Wagner's in Seattle in the late 1970s. Ernie Wagner in 1980 was the Curator of Reptiles at the Woodland Park Zoo. He was also then a good friend of the cartoonist Gary Larson, before he had become famous. Gary Larson was still a teenager back then.

I was able to obtain an original Pinky Pump from another friend of Ernie's, called Warren Jones, during a visit to Ernie in 1980. On returning to England, I believed this to be the first mechanical device in the UK to assist with the force-feeding of snakes. From this example, a number of UK herpetoculturalists had additional Pinky Pumps made, and so it became an important tool for practically all serious captive breeders of Colubrid snakes in the UK during the 1980s.

So there we have it. I wonder how many times "the wheel" has been reinvented in herpetocultural terms. There is clearly much that we can learn from the past that is still relevant to how we keep our reptiles today.

The Exeter Exchange and Animal Dealers

*The Exeter Exchange, previously mentioned, was a famous indoor menagerie at 287 The Strand, London, established in the 1770s it lasted until 1829. As its name suggests, it was also an important supplier of exotic species including reptiles. Soon known to all simply as the Exeter 'Change it was in reality an early shopping mall or arcade, housing a variety of retail shops and market stalls. One section, the 'Change, was rented by a Goerge Pidcock, and used as the headquarters for his summer traveling-menagerie. On his death in 1810 the Exeter "Change was purchased, at auction, by a Mr. S. Polito. He added several large snakes, and the title 'Royal' to the name.

In the 17th and 18th centuries, the Dutch East India Company were the main suppliers of reptiles and other exotic livestock into Europe through the port of Amsterdam, where they constructed special holding facilities. They also constructed a depot and holding facility at the Cape of Good Hope in South Africa, which operated until 1832. This was clearly additional to their more important trade in traditional dry goods. Other reptiles would have arrived either as the speculative initiative of ship owners or even individual seamen. It is perhaps most likely that such a seaman was the source of the two escaped two-and-a-half-foot-long green lizards which caused such alarm to the villagers of Woscot and Penbury, in rural Worcestershire, in England, in 1741.

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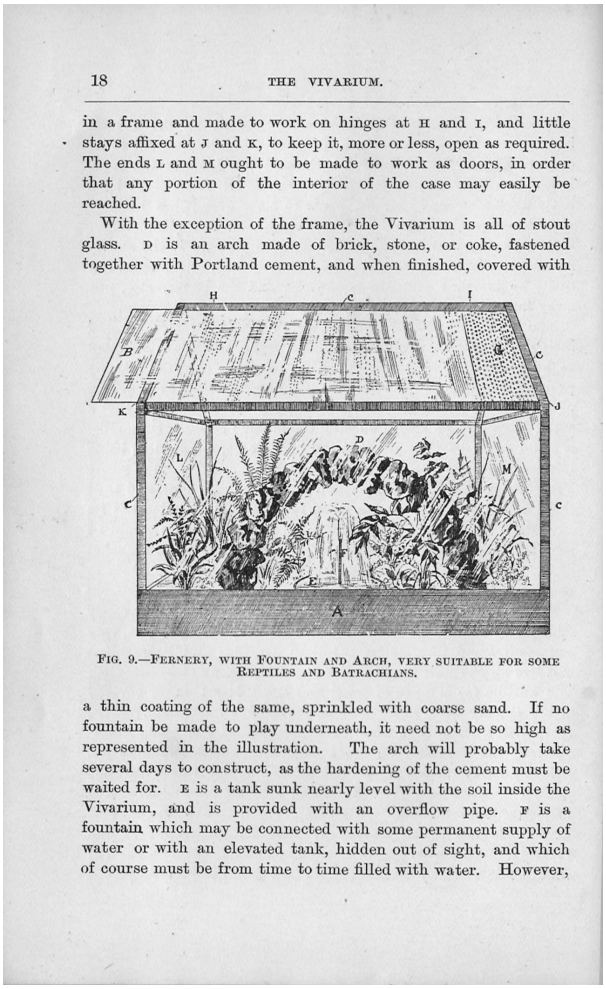
Within only seven years, this gentleman sold out to Mr. Edward Cross, who quickly expanded the collection and now called it the Royal Grand National Menagerie, perhaps to more successfully compete with the nearby and previously discussed Tower Menagerie. Cross became an important animal dealer supplying other menageries and dealers both in Europe and the USA. In 1820 Cross published a guide called "The Companion to the Royal Menagerie, Exeter 'Change." It included details of the most famous inhabitant there, an elephant named Chunee. This was first exhibited on the stage at Covent Garden in 1810 and had by then apparently doubled his size to 10 feet at the shoulder and a weight of 5 tons. This unfortunate animal was shot by firing squad on March 2nd, 1826, as previously described. It had refused poison placed in its food when it became intractable due to an infection in a damaged tusk. The only reptile listed in this guide to the collection was the *"Boa Constrictor, the Giant Serpent of Tara."* An old poster of the time, however, advertises the *"Enormous Serpent of Java, which regularly swallowed six large fowls with their feathers at a meal,"* which appears to refer to a reticulated python. Also advertised was *"the Spectacled or Hooded Serpent,"* clearly an Indian cobra, *Naja naja*, from the description of the spectacle marking on the back of its hood.

Harry Richardson, who previously worked at the Exeter 'Change, later owned a traveling menagerie of snakes and other reptiles known as "Richardson's Menagerie of Reptiles." Records show that he exhibited these at the Bristol Fair in September of 1825 and again in 1828. In August of the same year, he is recorded as exhibiting at Camberwell Fair in London a collection including *"the boa constrictor serpent, the anaconda serpent, six live crocodiles, a pair of alligators, and a beautiful Circassian lady. The association is remarkable as a lady is seldom found in such company....."*.

This association was to become almost obligatory with future similar exhibits. Cyril Bloor recalls a traveling menagerie at Ashton-under Lyne, UK, in 1931 or 1932, called Manders' Lion Arena. The truly magnificent "tilt" (painted and decorated show-front) depicted lions, tigers, leopards, and hyenas leaping and snarling around splendidly uniformed trainers on the two main panels, whilst over the doorway, a buxom young lady clad in a leotard and Greek sandals blithely wrapped huge pythons around her ample curves. Bloor goes on to describe the actual show - "when a suitably big enough number of people was assembled, a young woman in a leotard covered by a cloak drew our attention to the case from which she took the Python, placing it on her shoulders whilst she gyrated and posed." As late as 1970, I recall visiting a reptile sideshow at the famous Goose Fair in Nottingham. It comprised an illuminated glass case containing a wide range of pythons, boas, and large lizards crawling over a young lady in an inadequate bikini. My main recollection of the event was how dirty the young lady's canvas shoes were!

A more detailed experience of a reptile show from Cyril Bloor recalls his visit to one in Stretford in 1936, in the UK. It was called Parry's Reptile Wonders and had a very ornate "tilt" with a gilded walk-up to allow paying viewers to look over the top of three sides of a six-foot high wooden walled pit. The pit was floored with thick coconut matting and divided into four sections, each containing various types of snakes; boas and pythons in one; venomous snakes in another; monitor lizards, etc. in another. There was no performance as such, but a fellow in a compartment overlooking the pit pointed out various specimens with the use of a long forked stick. The exhibit was very brightly lit, perhaps to provide sufficient heat as well as illumination.



18 THE VIVARIUM.

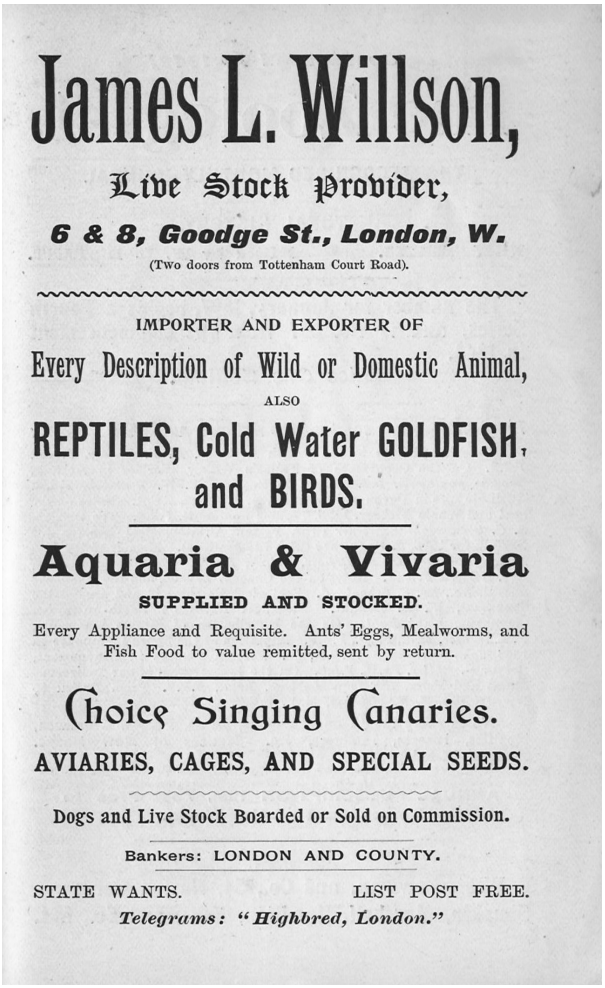
in a frame and made to work on hinges at H and I, and little stays affixed at J and K, to keep it, more or less, open as required. The ends L and M ought to be made to work as doors, in order that any portion of the interior of the case may easily be reached.

With the exception of the frame, the Vivarium is all of stout glass. D is an arch made of brick, stone, or coke, fastened together with Portland cement, and when finished, covered with

FIG. 9.—FERNERY, WITH FOUNTAIN AND ARCH, VERY SUITABLE FOR SOME REPTILES AND BATRACHIANS.

a thin coating of the same, sprinkled with coarse sand. If no fountain be made to play underneath, it need not be so high as represented in the illustration. The arch will probably take several days to construct, as the hardening of the cement must be waited for. E is a tank sunk nearly level with the soil inside the Vivarium, and is provided with an overflow pipe. F is a fountain which may be connected with some permanent supply of water or with an elevated tank, hidden out of sight, and which of course must be from time to time filled with water. However,

Fern case featured in 'The Vivarium'.



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Live Stock Provider,

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Every Description of Wild or Domestic Animal,

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Livestock provider ad published in 'The Vivarium.'

Mr. Kendrick, an animal dealer who also sold reptiles in London, had premises in Piccadilly in the early 1800s and seems to have been fond of telling his customers that "it" came from Brazil! One of his regular reptile customers was Sir Robert Heron, a one-time member of Parliament for Peterborough, who had an estate at Stubton in Lincolnshire, where he kept an extensive private menagerie. In 1808 he was breeding goldfish, originally supplied by Kendrick, in an aquarium, and by about 1819, Heron describes some terrapins received from the same dealer. *"About 4th June, I received from Kendrick three Brazil tortoises, two and three-quarter inches in the greatest length of the shell; the flesh green and yellow striped, the shell of a dingy green, brown and red. They delight in the warm water of the aquarium, but when the sun shines, sit basking on a pot, a stone, or gravel. They will eat insects, small fish, and almost any animal food; they are active and tame and in three months, have grown three-quarters of an inch."* This description could be for the Central American ornate slider, *Trachemys scripta ornata*, which the London Zoo had to wait until 1838 before it received one of the same species, presented by Dr. Harlan.

Robert Heron also wrote about a chameleon that he purchased in 1820. *"On Tuesday 28th March, a chameleon was sent me, about eleven inches in length, tail included. It came in a wicker basket covered with flannel; it was then entirely of a light yellow. I had it put into the pine stove. The next morning I found it on the stem of a vine; it was then entirely of a bright green, like the leaves of the vine. These colours, however, are not from reflection, as they do not change immediately on arrival. I have since always found it green, but, sometimes, with broad perpendicular stripes of a dark brown. Once, on being repeatedly molested, I saw the bag of the under jaw swell to an enormous size and become yellow, whilst the rest of the body was covered with multitudes of spots, yellow and brown, completely circular."*

"The house adjoining its abode being painted, so I moved it (the chameleon) into the house for forcing cherries, but in the night, it suffered so much from cold that the next morning it seemed to be expiring. On being restored to its former residence, it soon recovered; it was, however, three days without recovering its appetite. It now eats freely, and even voraciously, all flies, bees, etc., put within its reach: when apparently dying, it did not change colour. I do not know the country from whence it came."

"The crown of the chameleon does not differ from Buffon's (this Frenchman's book on Natural History described previously) description: the only points in which the animals differ are that the openings of the membranes which covers the eyes are perfectly circular and that I have not found any grey colour upon it. The chameleon continued in perfect health until this morning (22nd June 1820), when a stupid under-gardener destroyed him by hastily closing one of the lights on which he had climbed. He was brought from Brazil (chameleons, as we know, do not occur in the Americas). During a journey of six months, no food was given him, and it was a month longer before he recovered his appetite. His brother, who traveled with him, is at the Exeter 'Change."

In about October of 1825, Robert Heron wrote of another chameleon. *"A chameleon I brought down with me from London in March died this month. It had appeared healthy lately when its appetite fell off, and it appeared restless and generally on the ground. It was perhaps looking for a place in which it could repose itself for the winter, but it must be always very difficult in this country to provide it with a hibernacle sufficiently cool for its purpose and yet warm enough to preserve its life." Chameleons do not generally hibernate, so was this a female searching for somewhere to lay her eggs, perhaps?*

Finally, in 1827 he wrote: *"Mr. Reid, near York, has two water tortoise brought over from the Siege of Belle Island, which commenced in 1761; one of them having wandered, was missing*

for 16 years when it was found on cleaning out another pond. After 66 years, both are alive and very tame." These were probably painted turtles, *Chrysemys picta*, as the Siege of Belle Island took place between Newfoundland and the Canadian mainland as part of the Seven Years War, when the British were at war with the French for the possession of Canada.

In Hamburg, Germany, from 1841 until 1863, Carl Hagenbeck Senior, a wholesale fishmonger, had a small pet store devoted to exotic species. Legend has it that this side of his business began with six Harbour seals caught in a fisherman's net, who supplied him. During the 1860s was a boom period for the supply and sale of wild animals and zoological gardens became established in Europe at the rate of almost one a year with a similar increase in interest from private keepers. In 1863 Hagenbeck's animal business became independent of his wholesale fish business and was located on Spielbudenplatz, or Gaming Booth Square, in the heart of the red-light district, as it is today.

The shop had two sections on the street devoted to the sale of monkeys and parrots, respectively. In a courtyard at the back, amongst stacked cages of birds, were wooden tubs of water containing seals. An 80 x 30-foot barn at the back housed larger mammals, including elephants and rhinoceroses. It was here also that crates housing boas and pythons were located, lined up along the center aisle. In 1866 Hagenbeck Senior passed on the animal business to his son Carl Hagenbeck Junior. Within ten years, he had become the largest dealer in exotic species in the world and, in 1874, relocated the business to a two-acre site in Neur Pferdemarkt, or New Horse Market, a mile and a half north of his previous premises, where he constructed special buildings to display his animals to the public, including a reptile house. This 'zoo' was stocked to overflowing with the rarest and most valuable specimens and was the first to exhibit a wide range of new species. Hagenbeck supplied animals, including reptiles, to the USA, to both animal dealers and zoos, as well as for exhibition at two World Trade Fairs, first in Chicago in 1893 and again in St. Louis in 1904.

Dante Gabriel Rossetti, miserable after the death of his wife in 1862, moved to 16 Cheyne Walk, Chelsea, London, close to the banks of the Thames river. Here he was to live for the rest of his life. There was almost an acre of garden, which became more and more overgrown. Here he established a menagerie of bewildering variety, much to the despair of his neighbors. He is recorded as keeping a chameleon, green lizards, and salamanders. A local cook was shocked to discover an armadillo burrowing through the floor of her kitchen; another became enraged at a raccoon that stole her eggs. Amongst other animals were two kangaroos, the mother subsequently being killed by her son, peacocks, one of which had its tail stamped off by the deer, and a Brahmin bull. This animal, on its first day with Rossetti, charged through the house and out into the garden. On the second day, it charged back through the house and out onto the street with Rossetti in hot pursuit. He even tried to buy an elephant to clean his windows, but wombats were always his favorites, which spent most of their time sleeping inside hanging lamps.

Zoological Gardens

The earliest public aquariums were established in the second half of the 19th century. Many of these housed aquatic reptiles and amphibians, including the Berlin Aquarium in Germany, which opened in 1869 and was the first facility in the world to exhibit the Chinese alligator. Today it still houses reptiles, concentrating on endangered species breeding programs, including one for Komodo dragons.

The Calcutta Zoological Gardens were first established in 1875. In 1876 they employed a remarkable young Indian from Bengal called Ram Bramha Sanyal, who was to become the most influential person in the development of this zoo. His contribution to the captive care of wild

animals, including reptiles, was outstanding, culminating in the publication of his book, in March 1892, *A Handbook of the Management of Animals in Captivity in Lower Bengal,* for which he was honored as a "Corresponding Member" by the London Zoological Society in England. Between 1895 and 1896, Sanyal conducted a whole series of valuable experiments into the action of reputed antidotes to snake venom. These and other studies led to him being sent to Europe in June 1898 to get experience from the various zoological collections there and to attend the Fourth International Congress of Zoology at Cambridge in August of the same year.

By the early 1830s, a constant stream of new reptile specimens was arriving at the new London Zoo, including those from the Tower Menagerie mentioned earlier, and preceded by the first reptile to arrive there in June 1828, an Aldabran giant tortoise, which, unfortunately, lived only until 2nd December of that same year. The first Galapagos tortoise, of unknown species, was presented to the Zoo on 22nd October of the same year by Mr. Stuge of 8 Newington Butts, Elephant & Castle, London. What intrigues me about this is that there was a specialist retail reptile shop at 8 Newington Butts exactly 150 years later, run by John Picket and Graham Ruthven, from where I purchased several reptiles.

In 1834 a Reeves turtle, *Chinemys reevesii*, was presented to the Zoo by Mr. John R. Reeves, after whom the species was named by J. E. Gray in 1831. Gray based his description of this new turtle species on a drawing of a specimen sent to him by John R. Reeves, who lived in Macao and worked in Canton for the Dutch East India Company, as previously mentioned. Reeves presented the zoo with a number of other specimens of Chinese turtle species at the same time, including the four-eyed turtle or Beale's box turtle, *Sacalia bealei*, and the big-headed turtle, *Platysternon megacephalum*. An Australian snake-necked turtle, *Chelodina longicollis*, was kept in the private collection of Dr. Thomas Bell, a well-known herpetologist who wrote his book, A History of British Reptiles, as in 1839. There is no record of this species at the Zoo until one was presented on 9th January 1861 by Mr. P. Joske.

A Jamaican land iguana, *Cyclura collei*, was presented to the Zoo on 31st July 1849 by Dr. Andrew Smith. It died on 29th December 1852, having lived in captivity for 3 years, 4 months, and 29 days. This species may be the rarest lizard species in the world today. Its population in Jamaica crashed following the introduction to the island of the Indian mongoose in 1872. In 1940 a total of 22 specimens were brought into captivity to try to save the species from extinction. The last one of these died 6 years later, with none of them ever reproducing. Apart from a dead male found in 1970, there were no more sightings until 1990, when a small breeding population was discovered. It is still under considerable threat of extinction, though head starting of hatchlings and other conservation methods may yet save it.

The first veiled chameleon, *Chameleo calyptratus*, to reach the zoo was caught in Aden, in South Yemen, on 15th March 1885 and presented on 3rd June 1885 by Lt.-Col. J. W. Yerbury, R.A.

One of the reasons why so many reptiles arrived at the London Zoo in such good condition, particularly lizards, may be explained by an early document surviving from those times instructing those who were shipping animals. *"Correspondents should engage some individual of the ship's company to take charge of the animals on board and guarantee him a handsome recompense on bringing them safely to their destination....."* Food was also important for reptiles on the long sea journeys, and correspondents were advised: *"ants eggs, which are*

abundant in tropical climates, may be preserved in a jar, well tied down and with the addition of the Blattae or cock-roaches so generally obtainable on board in all their stages of growth, and of mealworms, which are equally abundant in the bread room.....”

In June 1849, the London Zoo opened the world’s first known specialist reptile house. The building, in truth, had first been designed for and housed carnivorous mammals and was built in the then-popular ‘chalet’ style. Once the famous Terrace was constructed for big cats, it became available for conversion for reptiles. It was less than ideal for reptiles, being described as very unhygienic. It was said that the cock-roaches, that bred freely in the high humidity of the steam pipes beneath the dens, became a useful source of food for the lizards.

On the 4th of December, the first pair of alligator snapping turtles, *Macroclemmys temmincki*, at the Zoo were presented by a Mr. G. Hagenbeck, perhaps related to the more famous Hamburg animal dealer Carl Hagenbeck Junior.

The cage design in this first reptile house left much to be desired, servicing from the front being accessed by hoisting the plate glass fronts up with a system of chains and pulleys. The fact that this was not particularly secure is born out by a story of an 18-foot anaconda recently introduced into one of the cages from close confinement in a large wooden tub used as its traveling container. This snake, simply by stretching its coils when wedged between a tree trunk and the front of its new cage, managed to push out the whole front plate glass. This would have fallen and broken had it not been for the quick reaction of Mr. Frank Buckland, who caught the frame and held it in place until it could be properly secured. The den into which this anaconda had been placed already contained another two plus a large python and was weakened by age and damp. This particular anaconda subsequently proved to be a female, for she produced a number of fully developed but unfortunately died young. It was thought that she had retained her progeny too long due to capture and her long sea voyage in such close confinement. Later described as showing signs of disease, she, unfortunately, had to be destroyed.

In this first reptile house, painted turtles, *Chrysemys picta*, presented by Dr. Harlan in 1838, were bred for the first recorded time in the UK between 1860 and 1861. The first New Guinea blue-tongued skink, *Tiliqua gigas*, purchased on 17th June 1852, led to this species producing 27 babies in the period between 1866 to 1893, with Rattlesnakes producing young on 9th November 1867, and Boa Constrictors producing young on 30th June 1877.

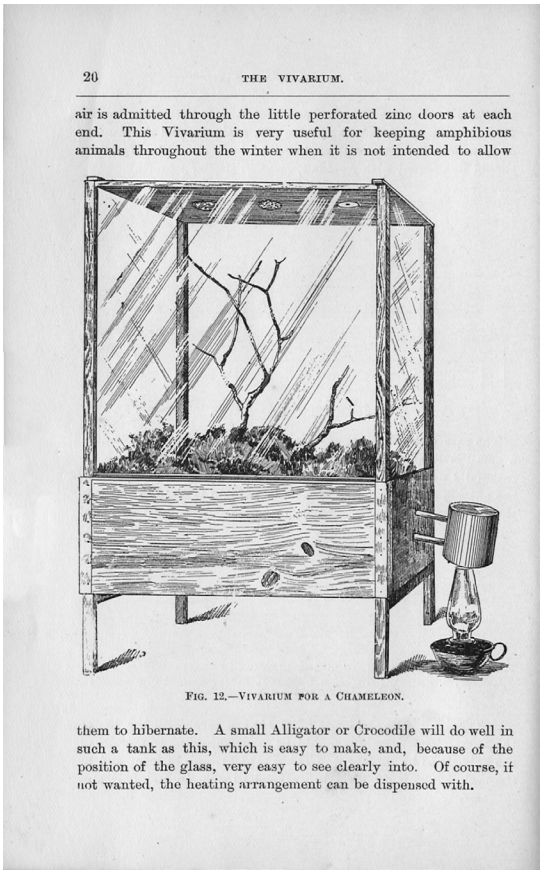
Two live hybrid babies were produced from the pairing of a male pale-headed boa (Cuban boa), *Epicrates angulifer*, and a female yellow boa (Puerto-Rican boa), *Epicrates inornatus*, on the 9th of September 1871. The same pair produced three more hybrid babies 7 years later, on 30th August 1878. Captive longevity and breeding successes were being achieved even with what we would today consider to be inadequate facilities.

Water moccasins, presented by Mr. Odo Russell in 1858, were recorded as breeding between 1860 and 1861. As were a pair of seven-banded snakes, *Tropidonotus septemvittatus.* Perhaps more easily recognized today as North American queen snakes, *Regina septemvittata*, purchased on 6th August 1872, which produced 48 young between 1872 and 1880. It is perhaps fortunate that this species will also accept small fish, frogs, and newts in captivity, as well as its preferred diet of freshly molted crayfish, which may have been an unlikely snake

food resource for the early reptile keepers at the zoo. In his book “Snakes of the United States and Canada, Keeping them Healthy in Captivity,” published by Krieger in 1992, John Rossi had no knowledge of the queen snake ever having been bred in captivity.

Although all of these captive-bred snake species produce their young alive, so there is not the problem of successfully incubating eggs, it is still a sobering thought that, as early as 1872, an apparently difficult snake species, the queen snake, was being bred regularly in captivity, which has apparently never been repeated in modern times.

Until 1903 keepers at the London Zoo were not forbidden to trade in surplus animals to the general public and jealously guarded this valuable perk. They became an important source of supply of reptiles and amphibians to an increasingly large and interested circle of amateur British herpetoculturalists. The best known of these is the previously mentioned Reverend Gregory Climenson Bateman, who, at the age of 43, committed his previous 30 or so years of experience of keeping reptiles and amphibians to print in his book ‘The Vivarium.’ This book was probably first published on 28th July 1897, by L. Upcott Gill, of the Strand, London. Copies of ‘The Vivarium’ exist, which are undated and could, therefore, either be earlier or later editions. A brass cross on the chancel wall of his church in Bratton Clovelly, Devon, England, commemorates “Gregory Climenson Bateman,” rector of this parish, 1899 – 1909, at rest, June 25th, 1909, aged 55 years. This, the first book in English on herpetoculture provides a fascinating insight into the care and availability of species during the latter part of the reign of England’s Queen Victoria (1837 to 1901).



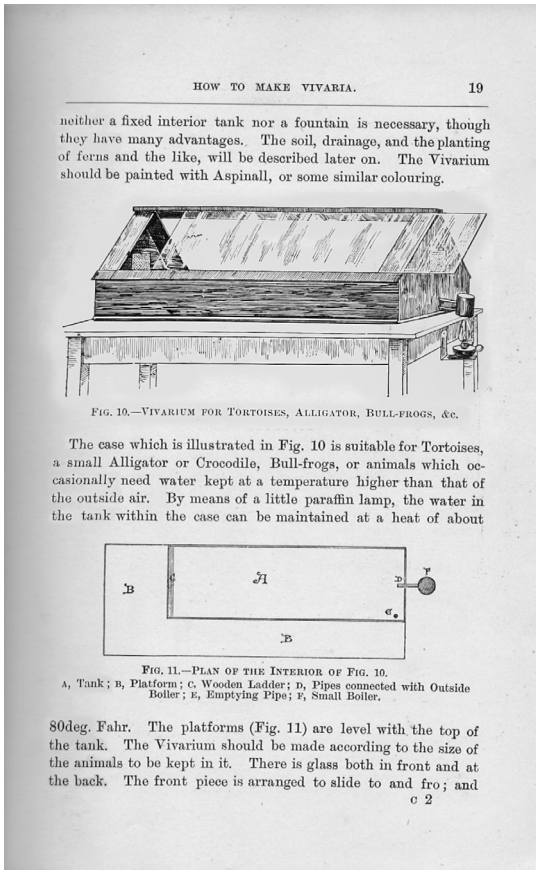
20 THE VIVARIUM.

air is admitted through the little perforated zinc doors at each end. This Vivarium is very useful for keeping amphibious animals throughout the winter when it is not intended to allow

FIG. 12.—VIVARIUM FOR A CHAMELEON.

them to hibernate. A small Alligator or Crocodile will do well in such a tank as this, which is easy to make, and, because of the position of the glass, very easy to see clearly into. Of course, if not wanted, the heating arrangement can be dispensed with.

Bateman’s heating system was featured in habitat diagrams published in ‘The Vivarium’.



HOW TO MAKE VIVARIA. 19

neither a fixed interior tank nor a fountain is necessary, though they have many advantages. The soil, drainage, and the planting of ferns and the like, will be described later on. The Vivarium should be painted with Aspinall, or some similar colouring.

FIG. 10.—VIVARIUM FOR TORTOISES, ALLIGATOR, BULL-FROGS, &c.

The case which is illustrated in Fig. 10 is suitable for Tortoises, a small Alligator or Crocodile, Bull-frogs, or animals which occasionally need water kept at a temperature higher than that of the outside air. By means of a little paraffin lamp, the water in the tank within the case can be maintained at a heat of about

FIG. 11.—PLAN OF THE INTERIOR OF FIG. 10.
A, Tank; B, Platform; C, Wooden Ladder; D, Pipes connected with Outside Boiler; E, Emptying Pipe; F, Small Boiler.

80deg. Fahr. The platforms (Fig. 11) are level with the top of the tank. The Vivarium should be made according to the size of the animals to be kept in it. There is glass both in front and at the back. The front piece is arranged to slide to and fro; and

C 2

The same heating system, mounted to the side of a table. Image taken from ‘The Vivarium’.

Bateman's most useful invention was his system of a miniature hot water boiler heated by the chimney of a paraffin lamp. Additionally, he proposed the use of felt covers and curtains to retain the heat produced. By placing the boiler between two stacked cages, the upper one had its floor heated for terrestrial species, and the lower one had its ceiling heated, which was more suitable for arboreal species. Although some private individuals had access to coal gas at this time, only a few progressive businesses had access to electricity. We can only be amazed at what they achieved in keeping their animals successfully without the benefits of electricity.

Bateman describes vivariums with gravity-fed fountains, natural plants, and a variety of construction methods to suit various different species. He particularly advocated the use of canvas as a covering for the sides and tops of cages, and especially for those designed to house snakes in the summer. For this idea, he gratefully acknowledged the series of articles on "The Treatment of Snakes in Captivity" by Dr. Stradling, published in the *Zoologist* from 1882-1883. Another innovative idea was to use a length of wire attached to a piece of bark, used as a hide and passed up through the top of the cage. The hide could then be gently lifted, without opening the cage, to view the inmate inside.

End of Part 2

Final Part 3 Next Month in February MOAPH Release!