LARGE MAMMALS AT W. BERLIN ZOO

by H. G. Klos

Director of the West Berlin Zoo

I. ELEPHANT HOUSE

IN 1954–5 the Berlin Zoo had a new, modern and practical lodging for elephants built as a substitute for the Elephant House which was entirely destroyed by war. The building plans for this house were designed by my predecessor, Dr Katharina Heinroth, in close co-operation with Baudirektor Professor Dr Ludwig Lemmer, architect Mr Heinz Diesing and assistant architect Mr Wolff from the building office of the Zoological Garden. We are very much indebted to the Zoological Garden in Basle for the plans of its new Elephant House, which were placed at our disposal, and to the Zoological Garden in Leipzig from whom our Board of Works obtained full information on all details of their Elephant House.

The new Elephant House, 57 m. long, is situated with its west side very near to the borders of our zoo and allows the passers-by a glance directly into the interior of the house via a broad glass front. As can be seen from the ground plan, the visitor enters the house by one of the two doors provided with projections and then stands, only separated by a ditch, directly opposite the elephants. The 300 sq. m. visitors' room is surrounded on three sides by cages. In the middle of the broad east side there is bathing pool about 60 sq. m. in size and 1·6 m. deep. The elephants may also bathe there in winter or during bad weather. To the right and left are two stables for cow elephants, separated from the bathing pool and the bull stables on the north and south by a massive lattice, so that all elephants in the house can easily see one another at any time. A bull stable and a cow stable are joined together by a small lattice passage. These passages may be closed by lattice doors and thus be transformed into squeeze cages for sick animals. Moreover there are birth cages of about 42 m. sq. size between one bull cage and one cow cage, each of which cannot be seen into by the visitors. All cages are reached easily from the attendants' passage (2 m. wide). The north side of the house contains a hay-loft and an attendant's house, the south side a dung-yard with a ramp for loading and unloading of animal transport boxes, which has proved to be excellent. For newly arrived animals we had a device made by which we can place iron rods into prepared holes and thus get an additional separated passage in order to guarantee a safe arrival of the animals in their cages (ground plan, No. 10). The whole interior is very bright and flooded with light and the photograph (Plate X) shows the arrangement of the big windows. In addition, there is a second raised passage for

attendants from which you can overlook all cages from above without disturbing the animals. The open air area consists of four enclosures. The enclosures on the north and on the south are occupied by an Indian and an African elephant, and the two enclosures on the east by the cow elephants. All are separated from the visitors by dry ditches. In case one of the elephants falls into the ditch there are stairs usually covered with thick planks. The separating ditch between the two eastern enclosures is built in such a way that it cannot be seen from one of the narrow sides.

At present the Elephant House contains one bull African Steppe Elephant, one cow African Steppe Elephant, one cow African Forest Elephant and four cow Indian Elephants. Our pair of Black Rhinoceroses and the Indian Rhinoceros are also living here until our new house is ready.

Some minor defects emerged after the opening of the new house, as is usual with new buildings. One of them is the fact that there is no direct connection between the attendants' passage and the visitors' room so that the attendant in case of need always has to make a detour over the dwelling area or one of the cages.

2. HIPPOPOTAMUS HOUSE

An exchange of a tract of land in 1956 made it necessary to replace the old Hippopotamus House at the western border of the zoo which had only been scantily restored, by a new building in the north. The plans were again designed by architect Mr Diesling together with my predecessor Dr Katharina Heinroth. In autumn 1956 the new house was opened. It is 53 m. long and 17 m. deep and extends in east-west direction. The cages with the closely joining open air enclosures, which may be reached over the attendants' passage, lie south of the house, the approximately 5 m. wide visitors' passage at the north side.

The monotonous back wall of the visitors' passage is interrupted approximately in the middle by a wide glass window with a flower tub. Opposite this window there is the big bathing pool for the hippopotamus family. The southern wall of the house is interrupted by a big window front above the bathing pool which allows the view to the open air enclosure and the park lying behind it. The bathing pool is about 14·5 m. long and an average of 1·50 m. deep. It is reached through the east and west cages by stairs. On the west side there are an attendants' room, a hay-loft and three cages. The outer one has a small bathing pool and is meant as a birth cage. Later on mother and child move to the cage east of the pool from where a direct entrance leads to the big bathing pool. Two cages with a night cage each, a large area of land, and a small bathing pool for Pigmy Hippopotamuses of about 6 and 10 sq. m. are adjoining.

In the extreme east of the house a basin for a sea cow is planned, but is not yet built. This area meanwhile serves as winter quarters for the flamingos.

Here in the Hippopotamus House, too, the visitors are only separated from the animals by a ditch and a very low lattice. A wing to the north contains an attendant's house and the big pool in which water is pre-warmed for the different bath basins. At the south side of the house is a big open air enclosure for the hippopotamuses. It consists of a small sandy area and the 230 sq. m. curved bathing pool which may be divided in the middle. Next to it there is an open air enclosure for Pigmy Hippopotamuses. This enclosure has a bigger sandy area and a smaller bath basin, according to the habits of Pigmy Hippopotamuses.

3. RHINOCEROS HOUSE AND TAPIR HOUSE

In the spring of 1962 we plan to start with the erection of a new house for rhinoceroses and tapirs. Its place will be directly at the main entrance of the zoo opposite to the Elephant House. Plans and models, again designed by architect Mr Heinz Diesing in close co-operation with me have already been completed.

This house, too, will be located in an east-west direction so that the open-air enclosures and the interior cages lie in the south and the visitors' passage in the north. The main area comprises eight cages of about 32 sq. m. each. From the single cages a way leads directly into the big open-air enclosure. A technical trick which already proved very effective in the Elephant House is the size of the doors which are in the back wall of the cages and may be opened towards the attendants' passage. It is calculated in such a way that two open doors entirely close the attendants' passage and thus form a corridor for the animals between the cages and the open-air enclosures. The open-air enclosure will cover an area of about 1,600 sq. m. It contains two bathing pools and may be divided without great trouble into three areas. The open-air enclosures and the interior cages are separated from the visitors only by ditches. From the main building, visitors go along a wide passage to an outbuilding which will contain an attendants' room, a hay-loft and four cages with one bathing pool each for tapirs. To this outbuilding are attached two open air enclosures, one of which lies on the south, the other on the east.

The model for this house is the excellent rhinoceros enclosure in the Basle Zoo and I am very much indebted to my colleage Dr E. M. Lang for his advice and his help in the planning of our house.

total belt length of 312 ft. The ride takes three minutes. Since the moving sidewalk makes it easy for the visitors to ascend the canyons, it encourages them to see those areas featuring bears, big cats, sea lions, ground birds and small mammals. Additional moving sidewalks are planned for the future so that all remote areas will be within easy foot-distance from the entrance, despite the up-and-down topography of the San Diego Zoo Grounds.

ARCHITECTURE

THE USE OF MOATS IN ZOOLOGICAL GARDENS

by R. Bigalke
Director of Pretoria Zoo, South Africa

MOATS or ditches when used as barriers in zoological gardens in Europe and the United States are nearly always filled with water. It is the water that is actually intended to confine the animals, but there are certain disadvantages in its use. In the first place, the use of water in large quantities is expensive unless an adequate and cheap supply is available from springs, as is the case in the Munich Zoo. Generally, however, water must be drawn from municipal supplies and this makes maintenance expensive.

Another disadvantage is the rapid growth of algae in the water, particularly in the summer months. Good algicides are now available, but the frequent treatment of the water in large moats absorbs much time and labour. If the algicide is a poison, special care must, of course, be taken to prevent animals from drinking the water while it is being treated.

A third disadvantage is the ever-present possibility that dangerous animals may escape by swimming across the moats. If a lion or a tiger decides to do this, the results may well be serious.

In volume one of the *International Zoo Yearbook* (1959) Mr G. S. Mottershead describes three cases in which chimpanzees escaped across a moat in the Chester Zoo. In one instance a female escaped with her baby by wading across the moat. While this was an exceptional case, every director of a zoo must be prepared for unexpected incidents and needs all his ingenuity to design enclosures from which dangerous animals are unable to escape.

The disadvantages enumerated above may be avoided by making the ditches sufficiently deep and dispensing with the use of water. This has been done in the newer part of the National Zoological Gardens (Plate XVIII). Along the northern boundary of the zoo there are low quartzite hills and on their slopes large enclosures have been built for lions, cheetahs, bears, monkeys, Barbary sheep, tahrs and mouflons. The enclosures for lions and cheetahs may be the largest in the world, measuring as they do 285 ft. × 150 ft. On three sides their perpendicular walls are sunk below the surface level to a depth of about 20 ft. with ditches along the walls. The floors and inner slopes of the ditches, which are wide at the top and narrow at the bottom, have been paved with stone and slate. If the animals are in the dry ditches they can get to the large well-wooded middle part of the enclosure by using paved paths and a short flight of steps at the upper end of the lower path (Plate XIX). They use these paved paths, but where the pitching is rough they often climb straight up or down the sloping sides. The dry ditches serve as stormwater channels. In the case of heavy thunderstorms, or after long periods without rain, some silt collects in the ditches, particularly on the front side of the enclosure. But this is not, as a rule, a serious matter and does not require frequent attention.

As the object of this short article is to emphasize the advantages of dry ditches or moats for confining wild animals in zoological gardens, the modifications in some enclosures for some of the animals referred to in the previous paragraphs need not be dealt with here.

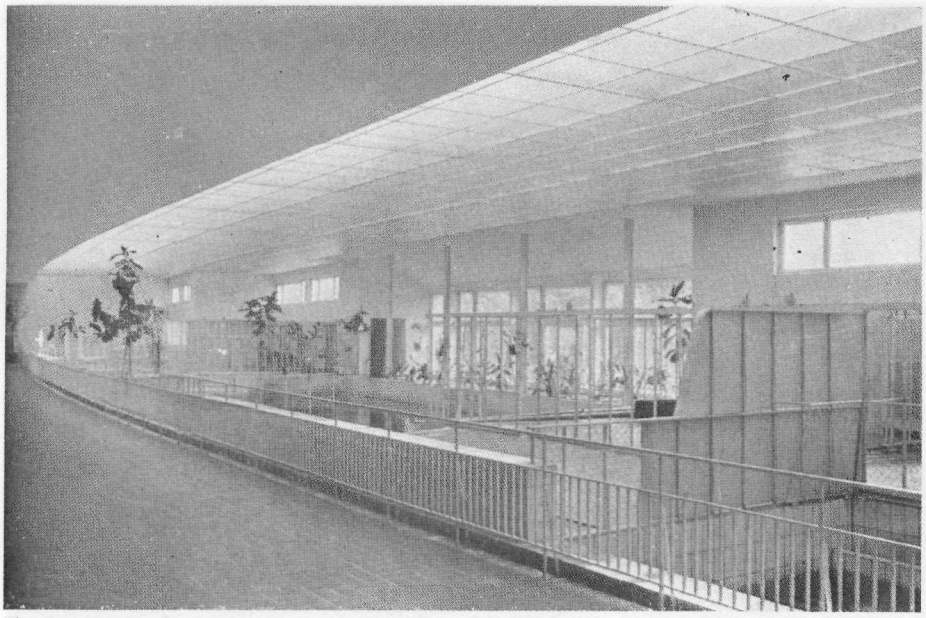


Plate IX *A. C. Lasberg*

Interior of the new Hippo House at West Berlin Zoo. (*See pp.* 45-74.)

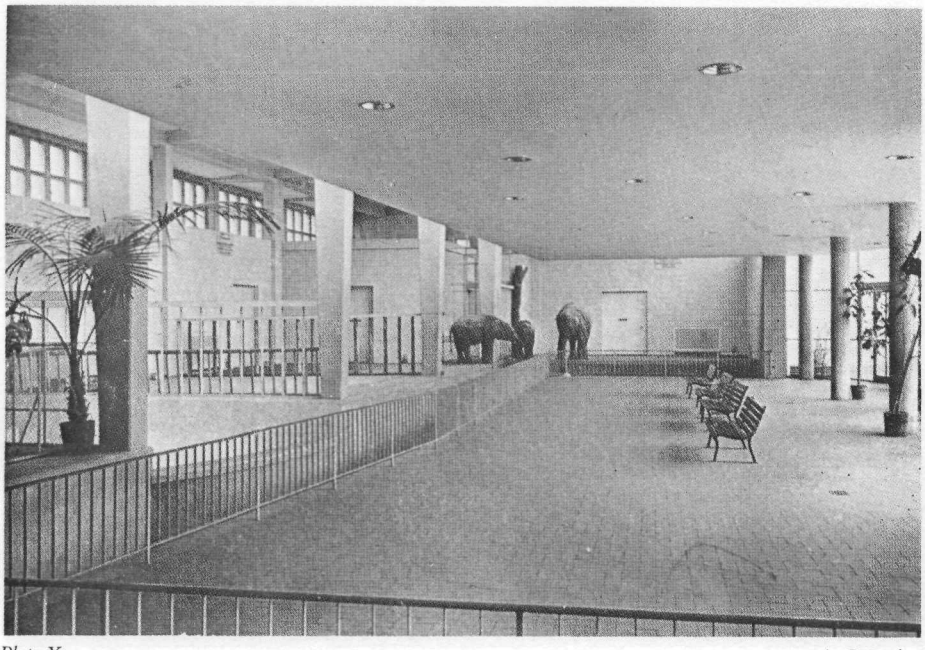
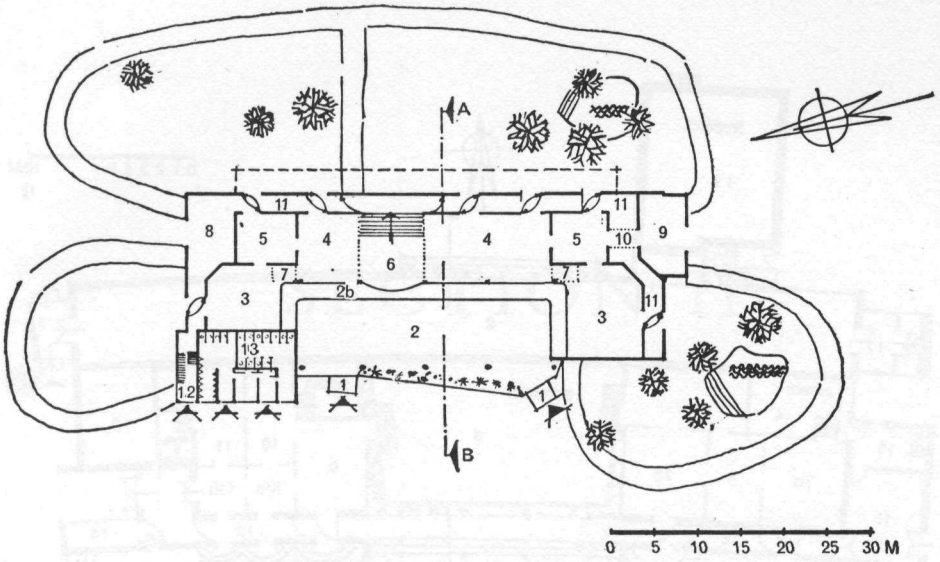


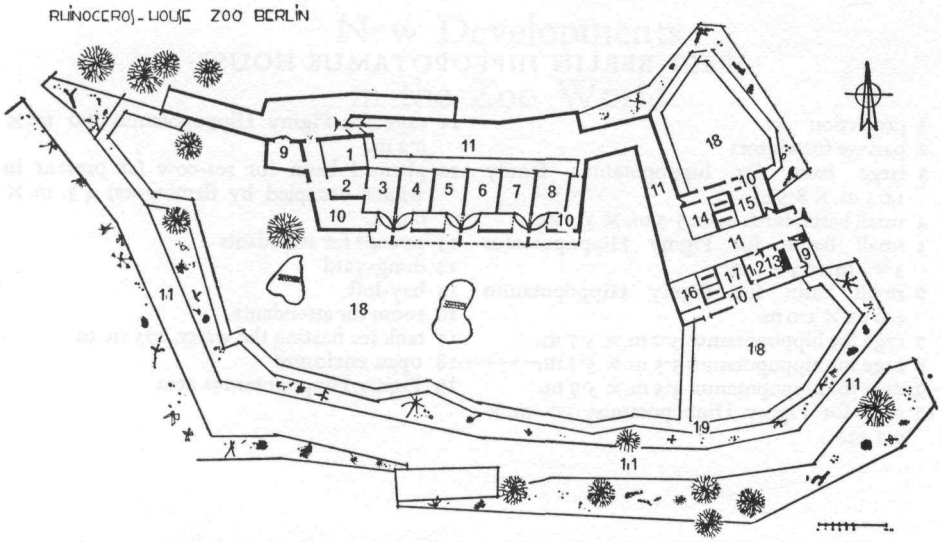
Plate X *A. C. Lasberg*

Interior of the new Elephant House at West Berlin Zoo. (*See pp.* 45-47.)



WEST BERLIN ZOO ELEPHANT HOUSE

1 projection
2 visitors' room; 2b ditch
3 stables for bull elephants
4 stables for cow elephants
5 birth stables and stables for sick elephants
6 bathing basin
7 lattice passages
8 hay-loft
9 dung-yard with loading ramp
10 lattice for passage of animals (can be removed)
11 passage for attendants
12 vestibule in the living quarters
13 toilet rooms



WEST BERLIN RHINOCEROS AND TAPIR HOUSE (planned)

1 bathing basin
2 separate stable
3–8 stables for rhinoceros 4·5 m. × 6·0 m. each
9 dung-yard
10 passage for attendants
11 passage for visitors
12 room for attendants
13 hay-loft
14–17 four stables for tapirs with one basin each; size of stable 4·0 m. × 5·0 m.
18 open-air enclosure
19 ditch