

THE NATIONAL ZOOLOGICAL GARDENS



The Flying Cage



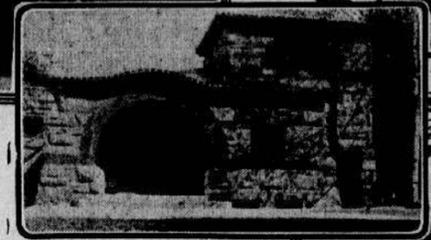
An Avenue of Cages



The Buffalo House



The Bear Dens



Main Entrance to the Lion House



The Monkey House



The American Elk

A fact little known to the general public is that the origin of the National Zoological gardens developed out of a desire of the taxidermists at the Smithsonian institute to have an opportunity to study animals from life. This is absolutely necessary if first-class work in mounting animal subjects is to be expected. At the present time their want is largely supplied.

The act of congress which called for the establishment of a national zoological park was passed in 1899. At present one-half of the appropriation for the zoo is taken by congress from the revenues of the District of Columbia, which are, of course, all turned into the treasury.

A year or more before the above-mentioned act of congress was passed, there was a small collection of animals which were housed in rather small quarters, back of the Smithsonian building in Washington, D. C. The collection consisted of a few young bears, monkeys, rabbits, white mice, guinea pigs, fancy pigeons and various other interesting members of the feathered tribe. This little "zoo" was usually well filled with interested visitors, who managed to find out where it was.

The day came, however, when the little zoo was carted away, bag and baggage, to that beautiful location where it has now developed into one of the largest and finest in the country. It must certainly take first place as far as picturesque and beautiful scenery is concerned, even if it occupies the fourth position regarding size and number of animals—the Bronx ranking first; the Philadelphia zoo coming next, and the large zoo at Cincinnati taking third place.

The little group of animals were not well settled down in their new home amidst the rolling hills, before many others were sent by friends far and near to keep them company—and incidentally to amuse the public.

Among the collections of note may be mentioned the collection of five young lions, two hartebeests, a fine zebra and one wart hog. These constituted the liberal gift of W. W. McMillan, who shipped them from his large farm at Zambesi, Africa.

While Colonel Roosevelt was president, he was presented with several gifts of animals from King Menelik of Abyssinia, among them being a fine Brule zebra, two splendid ostriches, an ape of rare species and two young lions. Private individuals in various parts of the country have sent animals from time to time to be added to the collection at the zoo, where the Roosevelt collections have been placed.

Through the energy and wisdom of the superintendent, Dr. Frank Baker, the zoo has been greatly improved and enlarged of recent years. Inappropriate cages and buildings have been replaced by suitable ones, for the particular needs of the different kinds of animals, which have come from frozen climes as well as torrid ones. The original "Lion house," costing \$22,000, has been added to from time to time. Outside cages were a great need, and the animals have greatly enjoyed that amount of extended freedom which has come about by their establishment. At present, a spacious inclosure is being built at the left side of the lion house, for a recent arrival—the hippopotamus. While this house is called the "Lion house," it contains many other kinds of animals such as other members of the cat family, alligators, lizards, snakes, small and huge, and an interesting spider or so of unusual dimensions.

Just back of and to the left is situated the newer and more up-to-date monkey house. This was erected at a cost of \$20,000, and seems perfect in all its appointments—and every anthropoid therein seems well pleased to have the honor of occupying a "flat" in such elegant quarters.

The light in this house is admitted through glass roofing, just over the sides where the cages are placed, so

the animals are well lighted from above.

Next in order comes the long bird house, containing many interesting birds of many colors, sizes, shapes and vocal attainments(?)

Not far from these two large houses is a good-sized antelope house, well filled with many fine specimens of antelope, and some deer. A white-tailed gnu, of African birth, attracts instant attention by his sharp barking. His makeup seems to be a happy combination of deer and pony, and his antics, when let out in his back yard cover all the actions within the possible for those two animals to perform.

The large elephant house is conveniently located near by; in it you may see "Dunk," who was presented to the zoo by the Adam Forepaugh shows. He has a good-sized yard—with private bath attached, so he does not have to be led down to the creek nowadays to have a bath while trying to stand on its muddy bottom. Dunk's drinking cup holds 30 gallons, the contents of which he squirts into his mouth, after having drawn it most of the way up inside of his trunk.

As we leave the elephant house, we may see the badgers' yard at the rear, then the raccoon cottage with its "lawn," the prairie-dog town, and rab-

bit run. Over across the road we find a splendid outlay of bear dens, made out of the solid rocks—10 of them in a long row, and occupied by some of the most remarkable specimens of bears.

The buffalo house, with the monarch of the plains just outside of it, whose portrait now decorates our 10-dollar bills, is very attractive, being built in rustic fashion. There are several other buffaloes in larger range, over near the main road by the Connecticut avenue entrance. The houses of the camels, llamas, zebras, etc., are also of rustic, or part that, and stucco, which makes a very attractive appearance. By winding paths and shady nooks, we may see the dens of the arctic and beautiful silver foxes. Close by are those terrors of the western woods—the timber wolves and coyotes, whose cunning cannot be surpassed. Nearby are the mink, otter and the timber-cutting beaver, in improvised "Vancouver" homes.

We last come to the great "flying cage" where we may see ibis, storks, blue heron, gulls, pelican and many other interesting birds in a cage large enough for them to spread their wings and get some needed exercise.

When our aviators can reach half the proficiency of some of these creatures of the air, we may well call the

rate of nearly 30,000 square miles a year.

The task of making the topographic map of the United States began in a small way in 1880. In 1882 the preparation of a great geologic map of the country was authorized by congress. The first thing essential to the consideration of such a map was the making of the corresponding topographic surveys. In 1888 the topographic branch of the geological survey was reorganized and extended. The first work done was on a scale of about four miles to the inch. Since that time, appropriations have been increased, and the work has been carried forward more rapidly and more efficiently.

After the author of a map has prepared his work, like the author of a text, it may be that he has omitted important data, and that his manuscript is more or less indefinite and ambiguous. Things which are entirely clear to him in his map language may not be so clear to others. Moreover, the map output of the geological survey is very large, and there

Feeding time at the zoo is the hour of attraction to visitors, as well as "lower animals." In the cellar of the lion house a kitchen is installed, where several great wooden blocks are used to chop up the large quantity of meat used. Meat is usually fed raw to all the animals, but occasionally monkeys are given some of it cooked. Cereals and some vegetables are subjected to the cooking process, but the wild animals almost always prefer having their food in its "natural" state, and the keeper is wise in allowing them their preference in this line they keep in better health.

At present there are about 1,400 animals quartered in this zoo. The carnivorous animals are fed once daily, and allowed to fast on Sunday. This fast is not a hard-hip, as some might imagine, as most meat-eating animals of the wilds can only get their food with great irregularity, and often have to go for days at a time without food. Then, too, they require less food when confined in a zoo and any digestive disturbance which may develop during the week may be easily recognized by the way they take their meals on the Monday following their short fast. That one day without food, will give the stomach rest enough to get it into condition again to handle the food properly. The animals are all fed with great care and everything is kept in sanitary condition, and notwithstanding their comparatively small chance for vigorous exercise—such as they are forced to take in the wilds—they, for the most part, keep remarkably well. Very coarse brown bread is baked at the zoo especially for the bears, and it is amusing to see them enjoying it while seated upon their great haunches. Keepers enter the cages of many of the animals, but no one risks entering the enclosure with the polar bears, as one swing of the forepaw of those creatures would put any man out of business in short order. The grizzlies are little better, as it only takes one of their swings to lay out a steer or horse, but the great, shaggy battering-ram of the American bison furnishes their Waterloo.

The herbivorous animals are generally more docile, and are fed twice

daily, at 10 a. m. and 3:30 p. m. Many amusing stories have been told the writer by the keepers who are so familiar with the various creatures under their care. One keeper had to remove a tie, collar, and collar button, and everything from his pockets before entering the cage of a certain monkey, who would have rapidly removed them had he been given the opportunity. Very few accidents to the keepers have occurred here. The most serious one, which attracted a good deal of attention at the time, was the case of Rodney Rosa, who was bitten by a diamond back rattler, on the second finger of his right hand. He spent some weeks in one of the Washington hospitals, but is now back at the zoo, minus that second finger. The keepers, for the most part, learn the dispositions of the animals under their charge and take no chances, but everybody knows the "disposition" of a rattlesnake!

Some of the animals confined there have met death in peculiar ways. An elk was killed by a fellow elk, and more recently, the little zebroid banged his cranium against the wire fence enclosure—or one of its posts more likely—and committed suicide! A mother camel was found calmly dragging her youthful offspring about the yard, by one leg, and relieved of such an unnecessary and inhumane performance by the head keeper. The new-comer was placed in a separate enclosure immediately, and is doing finely. No one would think he was homesick to look at him—and he doesn't miss such a parent, unappily, no doubt.

As this zoo is not far from the northwestern section of Washington city, it is well attended by visitors, especially during the heated season, when many picnic parties may be seen enjoying its cool, shady places, and getting better acquainted with the "lower animals." It is free to all, but there are watchmen about to see that animals or shrubbery are not abused. It is one of the many interesting and educational attractions of the Capital city, where everybody wants to go before they leave Washington—and many go there first thing so as to be sure to not miss it.

Government Topographers

By Frederic J. Haskin

The topographic service of the United States geological survey employs a remarkable lot of men. Engaged in making the actual surveys for the great topographic map of the United States, the map from which all other accurate maps are made, they must possess a versatility wide in its range and useful in its application. It is their task to take a plane table and a sheet of paper, and with these simple instruments to measure distances and to map out elevations in such a way that the person acquainted with the topographic map they make, may, upon examining the map, make a correct and accurate mental picture of the region thus plotted.

In this the topographer has to do many things which seem to be wholly unrelated to the science of measuring and accurately picturing long stretches of landscape. He must be able to bake biscuits in a frying pan, for the topographer cannot always command the services of a cook. He must be something of a diplomat, for often there are land owners who seriously object to having the points of their landed possessions placed upon government maps, as, for instance, a man who believes that there are rich mineral deposits on his land about which he is not willing that the world should know.

He must be a mountain climber who can get to the summit of the highest mountains without a guide; for it is upon such high places as these that the topographer becomes the monarch of all he surveys, so far as the work of plotting the adjacent country on his plane table paper is concerned. He must be a leader of men; because each topographer must have a force of assistants with him, and often his work takes him into places where civilization does not reach, and where the topographer must be as absolute in his authority over those under him as is a steamship captain over those in his world afloat. He must know how to doctor a sick man, to treat a sick horse, and to shoe a bad mule.

One of the most unique organizations of men in government service is the body of veteran topographers who have been more than 20 years' work in the field of topography. These men organized a club last year, and the toastmaster of the annual dinner was the oldest man in the topographic service presided. Succession to the year the next oldest man in the service presided, a succession to the toastmastership henceforth will be determined by length of service.

The government topographer must be willing to undergo many hardships and sometimes to stake his all when the issue is life or death. For instance, some years ago, a topographer who was at work on the Yukon river, in Alaska, decided that he would go through to the Arctic ocean, with the hope that there he might find a

delayed-whaling vessel, and thus get back to civilization. He knew that if he failed in this, death would probably be his portion. By one of those strange chances of life, although he did miss the last whaler, he fell in with some Indians from Point Barrow, who brought him down to civilization again. One might tell many stories illustrating the devotion of the government topographer to his duties. Upon one occasion, a man was badly injured by being kicked by a horse. While a relief expedition was coming, he climbed to the summit of the mountain to complete his work of plotting the surrounding region. Another topographer was caught in the quicksands of a dangerous western stream, but he threw his plane table and notes ashore before undertaking to extricate himself.

The tools with which the topographer works in making the surveys upon which all of the scientific maps of the country are based, are as intricate and delicate, extremely simple. His plane table is usually a board about 18 by 24 inches square, mounted on a simple tripod. Upon this board is fastened an instrument known as an alidade; a telescope mounted like a transit, except that it has no horizontal movement. The base of this instrument is a flat piece of brass, usually about 18 inches long, which is made in such a way as to permit it being used as a straight-edge. With this simple instrument the topographer needs only to know one distance—the length of a base line—and with this he constructs a network of triangles. By trigonometric methods he is able to measure the length of the lines for the remaining two sides of his first triangle, and each of these in turn serves as the given side of subsequently constructed triangles.

In this way he is able to compute mathematically the length of each of his lines, and thus to place each point in its proper position on his plane table sheet. He then reads the landscape as if it were a book, and makes an appropriate and comprehensive digest of what he sees on his plane table sheet. When he has finished this, he has a map which may give even the geologist the information he needs, for his work of geologic surveying. The map he constructs, made on the ground, becomes the legal map of the United States. The layman scarcely can imagine what it means to place in a single square inch the topographic features of two square miles, yet this must be done with an accuracy approaching perfection.

Not only must the map show distances, but it must show the drainage of the region plotted, all of the hills and valleys, all of the cities and villages, and all of the important rural buildings. It must outline the wooded areas, the roads, both first

and second class, and any other notable features of the landscape. The water features are represented on the map in blue, elevation in brown, and features constructed by men, in black.

The uses to which the topographic maps are put are many and important. The postoffice department uses them in laying out rural free delivery routes and in making its maps. In time of war they would prove of inestimable value in the handling of the armies of the country. They render subsequent preliminary surveys for each new work unnecessary. For instance, prior to the existence of these maps, when a city wished to secure an adequate water supply, it had to spend more money on its preliminary surveys than the first cost of the topographic map. Railroads and dozens of other private enterprises use these maps almost every day in the year. The states use them in the work of constructing good roads. In the making of these maps the country is divided into quadrangles, ranging from half a degree

to a full degree square. Each of these quadrangles comprises from 125 to 400 square miles of territory. In the rougher portions of the country the map is made on the scale of four miles to the inch. The usual scale is two miles to the inch. In the densely populated portions of the country it has been brought down to one mile to the inch. Special larger scales are employed in important mining regions, on irrigation projects and in drainage works. Sometimes these are brought down to 100 feet to the inch. When the topographic map of the country is completed, if all of the 3,000 sheets it will comprise were placed together, each of them being 13 by 17 inches in dimensions, it would make one large map over 3,000 feet wide and 4,000 feet long. The cost of the topographic surveys on the scale of two miles to the inch, ranges between \$7 and \$11 to the square mile. The work is now only about three-eighths finished. To date about 1,150,000 square miles of the territory of the United States has been surveyed. The work is going forward at

the rate of nearly 30,000 square miles a year.

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is a consequent necessity of eliminating personal characteristics from the maps of each topographer, in order that they may have uniformity and system, as well as clearness and accuracy.

It is, therefore, necessary that there should be a topographic editor. He goes over the maps with utmost care. He must see that it conforms to the standard in form, dimensions, scale, contents and symbols. It must correspond exactly with the map of the adjoining region, so that two sheets may form a continuous map without overlapping. He must go over it inch by inch and see that every

part of it agrees entirely with the standards set by the geological survey.

It is said that nowhere else in the world is there such an efficient corps of topographic engineers as that possessed by the United States geological survey. So efficient has the topographic service become that other nations have borrowed many ideas from it, and many of the universities of the United States have asked the service to let them have men from the service to teach courses of topographic engineering in their scientific schools.

Unique Pageant for Public School Teacher



PLAY BY VAN WINKLE DREAMS BY VAN WINKLE WORK BY VAN WINKLE

New York City, Feb. 24—Since the river pageant of last summer commemorating the anniversary of Fulton's first steamboat trip up the Hudson river, many public functions have been following in this line.

Among the most unusual pageants ever presented was the one on January 23, to the public school teachers. The above photograph shows five of New York's leading high school teachers posed as (left to right) Play, Rip

Van Winkle, the Spirit of Dreams, Rip's Wife, and Work, with Rip's Dog. This was one of the chief features of the 15 poses of the pageant, which was attended by 1,500 teachers.

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