

CARL AKELEY

as

Naturalist, Taxidermist, Inventor

Akeley's museum assistant explains how the fighting bull elephants in Stanley Field Hall were mounted more than 70 years ago

AFTER CARL AKELEY'S DEATH in 1926, C. L. Dewey, who had worked as his assistant from 1903 to 1908, wrote the following tribute, which appeared under the title "My Friend Ake," in the December, 1927, *Nature Magazine*:

The number of boys, girls, men and women who have wanted to work for and with Akeley, is unbelievable. Love of Nature, love of the outdoors, and love of animals were the first things that Akeley inquired about of the applicant. Then he wanted to know what you knew about the job that you wanted, and this generally led to downfall. I came out of the tall sticks to ask Akeley for a job, and when I pleaded ignorance of any knowledge whatsoever of the workings of taxidermy and kindred arts, he said he would give me the job if I was sure that I knew nothing about it. He had tried for some years, he said, to break in a young man for the particular job

that he thought I might fill, but they all knew so much about the work they couldn't learn anything from him.

The first trip afield that I made with Akeley was into the lake region of northern Illinois to collect material for the projected Illinois Bird Room for the Field Museum of Natural History, then known as the Field Columbian Museum of Chicago. This plan of presenting the birds of Illinois in their natural surroundings, with photographically reproduced colored transparent background and complete data pertaining to each species, though shelved when partly finished, was the beginning of the plan which has consummated in the projected Roosevelt African Hall in the American Museum of Natural History in New York City, and for which Akeley gave his life.

In the field Akeley was supreme. He knew every species and sub-species of birds, just when and where they nested, could tell from even a partly-constructed nest what species was building. He knew the habits, food, nest sites, songs and, it seemed to me, even the thoughts of the birds and animals. We were collecting material from which to reproduce the natural surroundings of bird homes. This included making plaster casts of leaves and flowers, taking color notes, and other detailed work. Akeley knew just what colors of oil paint and what proportions to use to reproduce in colored wax the first light yellow green leaves of the early-leaving willow as a setting for the early-nesting yellow warbler, or the dark green oak leaf of the mid-summer nesting cedar waxwing. Nothing escaped him to the last detail, nothing was too difficult if it accomplished the desired results....

The papier-maché manikin method developed by Akeley through years of experimenting worked wonders with mammals such as deer and antelope groups, but was not practical for the immense size of a bull elephant. Many years ago Akeley had mounted, or stuffed, as it was termed, Jumbo, the circus elephant that tried to butt off the track a full sized locomotive and gave up his elephantine ghost in the attempt. Since then Akeley had developed in his mind a complete method of mounting one of



Akeley with trophy in 1906 in Somalia, during British East African Expedition.

these huge beasts and the two enormous skins and skulls which he brought back from Africa in 1906 gave him ample opportunity to execute his plan. He first modeled in clay accurate replicas in miniature exactly one-twelfth size of the original animals, working to measurements and photos taken in Africa immediately after the elephants were shot. These were modeled as two fighting bulls, one single-tusker attacking the slightly larger bull, standing on three feet, one foot raised slightly off the ground, with tusks and trunk raised in the air nearly seventeen feet high. Working to this model we laid out with crayons full size on the studio floor, the outline of one of pachyderms, and inside this outline a back bone, neck and legs of structural steel, much as if we had intended to build a steel bridge. The back bone and corresponding members in the elephant's "tummy" were made of two four-inch steel channels, back to back, separated by means of two inch by four inch lumber, about thirty inches long, spaced about two feet apart and standing vertically like spines in some pre-historic dinosaur. Heavy bolts passing through both channels between each pair of uprights clamped the uprights securely, and permitted adjustments for working out details in contour. The ribs were worked out with curved steel angles of suitable weight.

Akeley modeled the head full size in clay over the immense skull with the huge tusks in position. A plaster cast in four sections was then made of the completed model. This cast, when hardened and removed, served as a mold or form into which was fabricated a light steel frame-work following out in detail the plaster mold. This steel-head-skeleton was then added to the body structure and in this manner the complete steel skeleton was constructed. The body or shell was formed of one inch square wire loosely woven so that it was capable of warping without buckling. The ears were made of lighter wire mesh over a light steel frame, as was the trunk, two small steel pipes running the full length of the trunk, raised high in the air. Over this entire steel



and mesh frame was plastered by hand a mixture of plaster of Paris and tow, this being like unwoven rope, to a thickness of about one inch.

When this was completed, there stood an elephant minus his hide, twelve times the size of the working model and exactly his counterpart as he roamed the slopes of Kenya for probably more than a century.

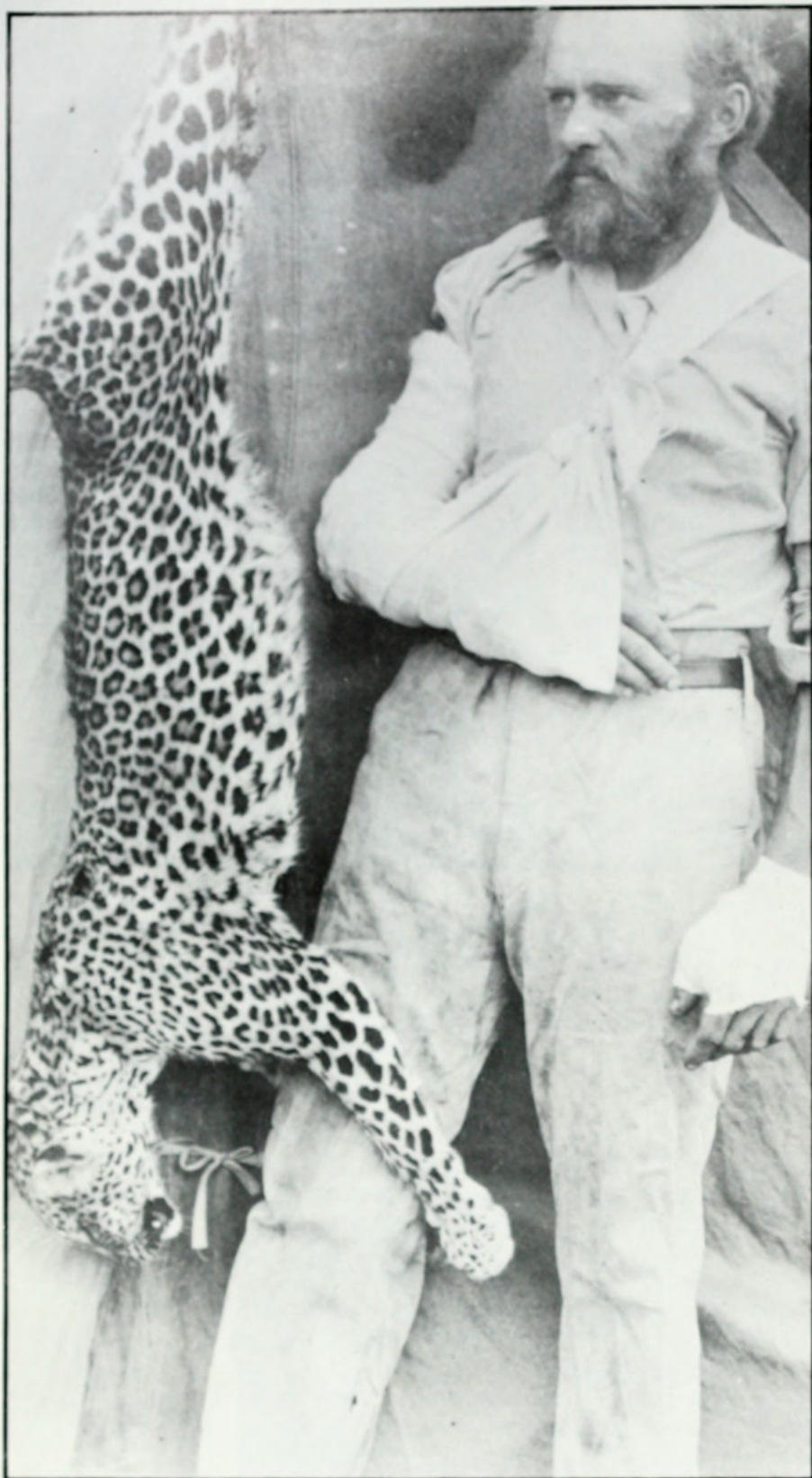
It is a problem successfully to bring out of Africa the skin of an elephant in condition fit to mount. These huge hides are from an inch to two inches in thickness when removed from the carcass. They are cut in five or six pieces and immediately work must be started in the dense wet bamboo forests to pare the skin down by hand to a thickness of about one half inch. These are then heavily salted and loosely rolled together, bound securely in native cloth, and made ready for transportation many miles to the nearest point where oxen could be secured. Each section would weigh several hundred pounds and be carried by eight or ten native porters for the magnificent sum of thirty cents per month—and grub.

To mount "green" skins is not practical, so Akeley developed a special method of tanning never before used. As a result the elephant skins were turned into a high grade leather hide presenting the same exterior as worn by "Tembo" in his native haunts—sparse, stiff hairs, wrinkles, warts, tick-holes and all. The big sections of skin were first laid in their proper position on the finished manikin and by means of huge syringes somewhat like the present day auto grease gun, a mixture of hydrated plaster of Paris and glue was shot in under the skin through small slits easily closed, and then the skin

Akeley's fighting bull elephants, secured in Africa in 1906 and now on view in Stanley Field Hall.

Lower left: Akeley relaxes at day's end.





Akeley was fortunate to emerge the victor in his 1906 match with the leopard. Weaponless, he subdued the 80-pound cat by thrusting one hand down its throat and choking it with the other.

modeled into shape with numerous wrinkles as in actual life, the plaster of Paris and glue hardening and holding the skin in exact position. Akeley did practically all of this modeling with his own hands. The edges of each section were then sewed together with hidden stitches and filled with colored beeswax so that when finished even the most critical eye could not detect the seams. As a rural visitor once said, "That old bull looks just like he grewed into his hide." . . .

There have been many stories told as to the origin of the cement-gun, the invention for which Akeley received the Scott Medal issued by the Franklin Institute of Philadelphia. The generally ac-

cepted story is that Akeley developed this for use in constructing plaster manikins for huge mammals such as elephants and rhinos, but this is not true. At no time did Akeley seriously consider this, but it made an acceptable story so he let it go at that.

The Field Columbian Museum of Chicago in 1907 occupied the old Art Building built in 1892 for the Chicago World's Fair, constructed of brick with plastered exterior, the plaster of Paris or staff columns and trim. It presented a sorry spectacle in 1907. One day F. J. V. Skiff, the Director of the Museum, was in Akeley's studio where we were mounting the pair of African elephants, now the center of all exhibits in the new Field Museum. I was at the time using an enlarged handmade atomizer operated by compressed air, to paint some imitation rocks for another group under construction, using a combination of thin colored plaster of Paris. Mr. Skiff, who generally brought all of his troubles to Akeley, was talking about the complaint that he received from the South Park Board regarding the condition of the exterior of the Museum. He said that no painting or plastering contractor could be found who would take the chance on the job, and while talking he suddenly said, "Ake, why can't you and Dewey make a big machine like that squirt-gun that Dewey is using, and paint this old shack with plaster of Paris?" It never took much of a hint to start Akeley off on a new idea, so at once we started to develop a big "squirt-gun." These walls consisted of plaster, brick, concrete, wood, tin, iron, copper, tar paper and about everything that could be assembled together on one building, and as this structure covered several acres there was ample space for a generous assortment.

The method of mixing plaster and water in a container under pressure and then spraying out in a hydrated state, worked fairly well when only a few feet of hose was used, but when this was attempted with the machine on the ground and the nozzle operator fifty or seventy-five feet up on a swinging scaffold, the plaster began to set in the hose after a few minutes' operation and soon the hose plugged tight. We then worked out a method of shooting hydrated plaster through the hose for a few minutes and then by means of a three-way valve we shot through water to clean out the hose, and then back to the hydrated plaster again. This, however, was a very messy operation and was abandoned. Then one morning Ake came in and said, "We're on the wrong track. What we want to do is build a machine to handle dry plaster. Shoot it through a hose to a nozzle where it will mix with water coming to the nozzle through a separate hose, the volume of water to be controlled at the nozzle with water pressure greater than the air pressure carrying the plaster, and have them mix partly in the nozzle and finish up in the air and on the wall. I have an idea for a nozzle, and it's up to you to build a machine to feed plaster evenly." In less than two weeks or, to be exact, on June 24th, 1907, the "cement-gun" was put in operation and worked about an hour before it broke down, but this was long enough to prove that the theory of hydrating plastic material in transit was practical, and resulting from this were basic patents which have never been successfully contested. . . .



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