

Description of type.—Nose, lips, and front of face white; ears white, with a patch of cinnamon-buff at base; head and fore back black, sprinkled with cinnamon; hinder back cinnamon, shading on sides to orange-cinnamon; front legs blackish, washed with orange-cinnamon, the feet and toes white, faintly shaded with buff; hind legs orange-cinnamon shaded with black; hind feet blackish, mixed with grayish white and broadly edged with whitish; toes white; thighs with a long black patch on outer side; tail above, orange-cinnamon, mixed with black (the bases of the hairs black) shading on sides to hazel; under surface of tail rich tawny, the hairs with a subterminal band of black; terminal central portion of tail white for about 3 inches; underparts dull orange-cinnamon, washed on throat and breast with black and white.

Measurements.—Type (adult ♂): Total length, 535; tail vertebrae, 260; hind foot, 75. *Skull.*—Occipito-nasal length, 65.5; zygomatic breadth, 37.4; mastoid breadth, 25.4; interorbital breadth, 20.6; least postorbital breadth, 19.5; length of nasals, 25.2; maxillary tooth row, 13.

GENERAL NOTES

THE GEORGIAN BAT, *PIPISTRELLUS SUBFLAVUS*, IN WISCONSIN

Under the name *Scotophilus georgianus*, *Pipistrellus subflavus* (F. Cuvier) was recorded from Wisconsin by Strong who merely listed it without exact locality or date of capture (Geol. Wisconsin, Survey of 1873-1879, vol. 1, p. 438, 1883). In view of the fact that Strong apparently treated in a like manner all the bats known from eastern and northern states without having local records, Hollister rightly considered this one not to be entitled to a place in the Wisconsin list (Bull. Wisconsin Nat. Hist. Soc., vol. 8, p. 31, 1910). It is of more than local interest to place on record a skin and skull (No. 229219, U. S. National Museum, Biological Survey collection) of an adult male of this species collected by the writer, August 29, 1918, at Devil's Lake, in the Baraboo Range, Sauk County, Wisconsin. It was shot in the dusk of late evening as it was flying over a narrow road through heavy deciduous woods at the base of rugged and rocky hills.

—Hartley H. T. Jackson.

IS THE JAGUAR ENTITLED TO A PLACE IN THE CALIFORNIA FAUNA?

Several of the early voyagers who touched in California enumerate the jaguar (*Felis onca*) among the native mammals. Thus, in the early part of the last century Langsdorff mentions it as among the species occurring in the Monterey region (*Voyage and Travels*, II, 213, 1814). And Beechey, in describing the region between San Francisco and Monterey, under date of December, 1826, says: "The lion (*felis concolor* ?) and the tiger (*felis onca* ?) are natives of these woods, but we never saw them; the inhabitants say they are small, and that the lion is less than the tiger, but more powerful." (*Beechey's Narrative*, Vol. 2,

p. 79, 1831). In this connection it should be observed that to this day the Spanish Californians and Indians invariably apply the term 'lion' to the mountain lion or cougar. A little later Saint-Amant, in a work published in Paris in 1854, recorded the jaguar as a California mammal. (*Voyages en Californie et dans l'Oregon*, p. 537, 1854).

It has been customary to look askance at these early records, but the detailed account of a family of jaguars seen repeatedly in the Tehachapi Mountains by James Capen Adams, as recorded by the late Judge Theodore Hittell, is so circumstantial as to admit of no question as to the identity of the animal. Adams either saw a pair of jaguars and their young, or he lied out of whole cloth. While neither the date nor the exact locality are stated, we are told that Adams, after leaving the Tejon and traveling over a rough mountainous country, camped at a spring in a gorge facing the Great Basin. The rough mountainous country traversed was of course the Tehachapi Mountains, and the part of the Great Basin looked out upon must have been the western part of the Mohave Desert.

The first night of his stay at the spring he was awakened by a fearful snuffing and snorting among his animals and saw in the darkness two spots like balls of fire, which he recognized as the eyes of the beast that had frightened his horses. The next day, taking his hunting companions—a tame grizzly named 'Ben' and his dog 'Rambler'—he followed the trail of the animal for four or five miles to another gorge, where he finally located the den in a cave on the side of a cliff in an exceedingly rough and inaccessible place. "In its mouth, and scattered below it, were multitudes of bones and skeletons of various kinds of animals, and among others, of Mountain Sheep, making the place look like the yard of a slaughter-house."

A few nights later he was wakened by a roar, and in the feeble light of a new moon saw "a spotted animal, resembling a tiger in size and form, with two young ones." Another night, soon after dark, the male appeared at the mouth of the den, "looked around, and sniffed the air, and then leaped down, and going a few yards placed his paws upon a rock, and stretched himself, yawning at the same time as if he were waking up out of a sleep. A few minutes afterwards the female appeared, and approaching, lapped his brawny neck." The male, as nearly as could be seen, "was twice as large as the ordinary cougar, and appeared to be covered with dark round spots of great richness and beauty."

For several weeks Adams continued his fruitless attempts to trap or kill the animals, obtaining from time to time passing glimpses of them, until finally he unexpectedly came across the mother and cubs in a gorge far away from the den. He fired at her, whereupon his grizzly 'Ben' and dog 'Rambler' bounded forward and "engaged with her in a terrific combat, but she tore them dreadfully and managed to escape." (*Adventures of James Capen Adams, Mountaineer & Grizzly Bear Hunter of California*, by Theodore H. Hittell, San Francisco, 359-369, 1860).

Since writing the above, Vernon Bailey has called my attention to an old record by Pattie, which I read many years ago but had forgotten. Pattie states that when on islands in the delta of Colorado River, they killed an animal like an African leopard which came into their camp, and was the first of its kind they had ever seen (James O. Pattie, *Personal Narrative*, Cincinnati, 1833).

Still another bit of evidence comes from the Indian tribes of Southern California. An old chief of the Kammei tribe (called by the Spanish 'Diegenos') told me that in the Cuyamaca Mountain region in San Diego County, the 'Tiger,' while rare, was well known to the old Indians, who call it the "Big-spotted Lion," *Hut'-tē-kul'*^{CH}.

—C. Hart Merriam.

AN EASY METHOD OF CLEANING SKULLS

One of the chief factors which deter ornithologists from taking up mammalogy is the lack of a standard method by which skulls may be cleaned quickly and in a satisfactory manner. All of the old published information in regard to maceration and boiling is of a very hazy character, and there are few of us who have not ruined valuable material while trying these methods.

The writer has been especially interested in the preparation of skulls and skeletons, and has not only tried every method of which he could learn, but has experimented and tested many modes of procedure which held even slight prospect of success. My experience has made me very skeptical of employing chemicals, for one cannot be sure of their future effects on skulls. Although some of them apparently are satisfactory for the present, we have no means of being sure that they will not have destroyed the skulls within twenty or thirty years, and it would be nothing short of a calamity if the types of today are not preserved for far longer than that. Usually the skull is of more importance than the skin, and much care should be employed in its preparation.

The cleaning of a skull really begins when the animal is skinned. As soon as the skin is turned right side out, the skull should be detached from the body, the tongue and flesh between the lower jaw and the muscles below the zygomata carefully cut away, a durable tag with waterproof ink attached, the brains removed with a syringe, and the skull dropped into a jar of denatured alcohol. The latter will replace the water in the skull and "dry" it at once, and the skulls can be removed in a couple of days, or left indefinitely. It is of the greatest importance to dry all skulls quickly (but not by artificial heat), for if decomposition once starts, the sutures are loosened, and this can never be remedied in the future. If one has no alcohol at hand, drop the skulls into a can of water for a couple of days, after which dry them as soon as possible. The water will soak out most of the blood, and the finished specimen will be much whiter. Needless to say, the alcohol does this also. If the skulls become infested with maggots, pour a little gasoline or alcohol over them, or soak for an hour in water, but *never* pour boiling water over them, for the sudden change in temperature will crack the canines of the carnivores, and render the molars of some rodents so brittle that they continually break off.

At home I keep a large jar of naphtha into which I place all skulls which are dry. I am not sure that this is necessary after the alcohol bath, but it finishes the process of degreasing, and greaseless skulls will turn out several hundred per cent whiter than those which have not been so treated. I take them out of the naphtha several days before I intend finishing them, or long enough ahead for the liquid thoroughly to evaporate.

Take a batch of skulls of the same size and place them in soft water—use distilled water if that from the tap is hard. Soak an hour for shrews and the smallest bats, six hours for mice, twelve for rats, and twenty-four for larger forms. They should be soaked slightly longer during cold weather than in summer, or in a warm room. Next prepare a one per cent solution of hydrogen peroxide—two parts of water and one of the commercial product,—put the skulls into a small covered pan and pour on just enough of the liquid to float them. Place on a stove and time from when the boiling point is reached—three minutes for shrews and small bats, eight or ten minutes for mice, fifteen for rats, and longer in proportion for larger species. One must not fail to cook skulls of juveniles for a shorter time than those of adults. At the expiration of the cooking period, place the pan under a trickle of cold water until fully cooled. Remember never to douse cold skulls in hot water nor hot skulls in cold. The skulls, especially the larger ones, may be left for twenty-four hours as they now are, but I always like to begin work on them at once. The instruments which I have found to be of most help in the actual cleaning are two knife blades, one of them the smallest which can be procured, and the other a trifle larger fine tweezers, fine scissors, and an embryo hook or bent pin for removing bits of brain. The rest is patience, perseverance and great care.

By this method I can clean a dozen or more small skulls an hour, and so perfectly that not one zygomatic arch in a hundred will be broken, nor a lower jaw disarticulated. If I cooked them longer, I could do much faster work, but the sutures would be loosened, and I would not have any skulls of mine cooked to the point where twenty-five or thirty could be cleaned in an hour.

If these instructions are followed, the skulls will dry out as white as one could wish, the smaller ones especially, absolutely free from blood stains, all sutures firm and in such condition that they should last indefinitely. Also, there is no chemical present to work possible harm, for the peroxide is more of a mechanical mixture than a chemical one. In the case of skulls of coyote and larger, it is probably advisable to soak in melted paraffine and dry in a moderate heat. This closes the pores and prevents the teeth from splitting, but it will detract somewhat from their appearance. Skulls may be bleached snow white, but in a large working collection, this is hardly advisable, for the sutures are then almost invisible, and comparative work is done with considerable difficulty.

—A. Brazier Howell.

WHY SHOULD EVERY SPECIMEN BE NAMED?

The desire on the part of museum curators and others to identify and label the specimens that come into their possession is natural and commendable, but like many other good things may be carried too far.

In the course of my personal experience—and doubtless the same is true of others—I have been urged by professional naturalists to name specimens which to my mind were unidentifiable. A name was demanded to put on the label, and the mere fact that the specimen could not be satisfactorily identified was set aside as of minor consequence. The cry was, "What are you going to call it? Give it a name. What name shall we write on the label?" And I have known naturalists of reputation, in revising groups, to write names on the labels

of many specimens that could not be referred with certainty to any species. To my mind this is bad science, bad example, and bad morals.

Specimens of mammals and birds are subject to several conditions and vicissitudes, any one of which may render identification doubtful if not positively erroneous. Among these may be mentioned immaturity, poor or imperfect condition, worn pelage or plumage, intermediate position between two or more described forms, or—most distressing of all—peculiarities exhibited by the single specimen from a remote locality—a specimen which, until others are received, cannot be satisfactorily disposed of, either by referring it to an unknown geographic race (subspecies) or by regarding it as a case of individual or fortuitous variation, thus leaving the author's best judgment enshrouded in doubt.

The pernicious practice—one might say mania—of naming every specimen is a stumbling block in the progress of science and is particularly unfortunate when done by the revisor of a group, whose authority is accepted by students. For students naturally adopt as final the determinations they find in the handwriting of the expert, regarding specimens so labeled as typical of the species or subspecies whose names they bear. But as a matter of fact many of the specimens so labeled are not only not typical, but are either unidentifiable, or so exactly intermediate between the species in question and some other, that the name of the other would be equally applicable.

In this connection, a recent protest by P. A. Taverner of the Geological Survey of Canada is worth repeating. He says: "The truth is, we cannot with absolute certainty identify every specimen we study. Why then deceive ourselves and mislead others by making a bluff at doing the impossible? Why not own up honestly and admit that we cannot name such material? We may state that we think it is so and so and where necessary give reasons for the conclusion, but to pass as fact what is only opinion is not the spirit of modern science." (*The Auk*, Vol. 36, No. 2, p. 317, April, 1919.)

—C. Hart Merriam.



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