Skrjabingylus chitwoodorum.—Lesions of what is assumed to be an infestation with this parasite were found in skulls of three *Spilogale* and three *Mephitis*. Damage varied from a marked bulging and osteitis over the frontal sinuses to actual holes in one or both of them. Corresponding openings in the skin which had covered these skulls were not found. The *Conepatus* examined were free from injury. Also, there were no lesions in skunks collected in the Trans-Pecos region of Texas.

Molineus sp.—Three trichostrongylids were found in one vial. Insufficient specimens were available for species identification, but according to Dr. Morgan (personal communication, 1945) they belong to the genus *Molineus*.

Acanthocephala.—Specimens of thornyheaded worms were sent to Dr. H. J. Van Cleave, University of Illinois, for determination.

SUMMARY

Six kinds of parasites were recovered from stomachs and intestines of about 170 skunks of three genera collected in Texas. So far as could be determined, *Molineus* sp. is previously unreported in skunks. *Filaria martis* is reported for the first time from *Coneaptus mesoleucus* and *Mephitis mephitis*. *Physaloptera maxillaris* has not been reported previously in *Spilogale leucoparia*.

Department of Animal Pathology, Michigan State College, East Lansing, Michigan.

GENERAL NOTES

WINTER FOOD HABITS OF THE PINE MARTEN IN MONTANA

During the winter of 1942–43 the writer had the opportunity of serving as leader of the Fur Survey for Montana Federal Aid Project #1R in cooperation with the Research Division of the U. S. Fish and Wildlife Service. Field work was carried on by a six-man crew in the North Fork Fur Management Area which lies west of and adjacent to Glacier National Park. The area is bounded on the other sides by the Canadian border, U. S. Highway 93, and the Great Northern Railway.

During the period from November 15, 1942 to April 8, 1943, 46 pine marten (probably *Martes americana*) scats were collected. The crew of the previous year collected eighteen scats in the same area. The following table summarizes the frequency of occurrence of food items in the two sets of data. Determinations were all made by William H. Stickel of the U. S. Fish and Wildlife Service.

Tracks in the fresh snow indicated three kills of red squirrel, one of flying squirrel, and one of *Canachites franklinii* during the second winter.

These data reaffirm the statements of many authors concerning the importance of the red squirrel in the marten's diet. They also indicate that flying squirrel, red-backed mouse and snowshoe hare—three other small mammals of northern forests—are of considerable importance at least during the winter period. Bird life was of minor value. The deer hair was undoubtedly carrion as may well have been the case with the song birds. The occurrence of lichen, which made up the bulk of one scat, and of grass, which was appreciable in three scats, indicates a casual use of these items.

Unfortunately no data are available on comparative numbers of the prey species. Based on general impression the red squirrels were very abundant, as were the snowshoe hares in local areas of favorable cover. One common small mammal that does not appear in the food items is the weasel, of which both the long-tailed and the short-tailed species

Table showing frequency occurrence of items in Pine Marten scats by percentages

	WINTER 1941-42	WINTER 1942-43
Total number scats	18	46
Tamiasciurus hudsonicus	45	35
Glaucomys sabrinus	10	25
Clethrionomys gapperi	15	14
Lepus americanus	20	5
Odocoileus spp.? (carrion)	5	5
Bonasa umbellus	5	—
Tetraonidae spp.?	—	4
Passeriformes spp.?	—	4
Coleoptera spp.?	—	1.5
Alectoria fremontii (lichen)	—	1.5
Gramineae spp.?	—	5
Total items	20	57

(The contents of three scats obtained during the second winter were unidentifiable. Three others contained in part materials which were camp refuse.)

were present. Grouse were certainly not common and were also highly localized in their distribution. The deer were on winter ranges well removed from the marten habitat.—WILLIAM H. MARSHALL, *University Farm, St. Paul 8, Minnesota.*

A NOTE ON THE BEHAVIOR OF THE PRONG-HORNED ANTELOPE

On June 16, 1945, while driving north along the graveled highway between Vya and Mud Lake in Washoe County, Nevada, during mid-afternoon of a bright sunny day, a medium large buck antelope was standing near the middle of the road leisurely and contentedly watching our approach. He stood his ground until our automobile, traveling at a speed of about 35 miles per hour, was within 30 or 40 yards of him. The car was actually slowed down to avoid a possible collision with the buck, when he leisurely turned and started running up the middle of the road, where, within a few yards he deliberately leaped into the air. The action was so sudden and unexpected that my companion exclaimed, "See him kick up his heels; he wants to play." To our astonishment, he again made a sudden leap. After several more leaps, we realized what was wrong with our antelope. A few yards to the west of the road was a telephone line, with poles set every 200 feet. Each pole cast a definite, clearly marked shadow across the road. Our antelope was jumping well over each and every one of these shadows and he kept it up every 200 feet for slightly over a mile. Many times I have seen startled and frightened antelopes pause to crawl under barbed wire fences. Evidently the shadows were a new kind of obstruction to the mind of this antelope. He could not crawl under them, so he jumped over them.—STANLEY G. JEWETT, *Portland, Oregon.*

FOUR RED BATS IN ONE LITTER

On July 5, 1945, a female northern red bat (*Lasiurus borealis borealis*) with four young—two females and two males—was captured in Lincoln, Nebraska. Professor M. H. Swenk, in his unpublished notes on Chiroptera states that in several litters he had observed, "there were only two or three young."

These bats were taken into the laboratory and examined before being released in a small elm tree. The female was unable to fly with four young. The two young males were left in the tree by the female for two days. On the second day they were cold and it was feared

they had been abandoned. They were fed artificially for a few days but failed to mature. —DORIS B. GATES AND JEANNE WOLCOTT, *Department of Entomology, University of Nebraska, Lincoln 1, Nebraska.*

NOTES ON BATS FROM EASTERN WEST VIRGINIA

The following notes are mostly of a distributional nature and serve to supplement the studies of Surber (1909), F. E. Brooks (1911), A. B. Brooks (1929), Kellogg (1937), Wilson and Friedel (1941). Although the records listed are mostly from Hardy County, it seems advisable to include Hampshire, Grant, and Pendleton counties. These counties are situated in that part of West Virginia drained by the Potomac River.

The ectoparasites listed were identified by Dr. J. C. Bequaert and Ensign E. W. Jameson, Jr., USNR. Mr. J. Kenneth Doutt identified or confirmed the species of bats. Through the cooperation of the curators of Mammals of the Carnegie Museum and Cornell University Museum, I was supplied with lists of those specimens in their collections from this area.

Myotis lucifugus lucifugus (Le Conte).—This is the most common species of bat in eastern West Virginia. It is an inhabitant of caves as well as buildings, particularly the older and larger buildings of the area. They are abundant in the attics of the churches and homes erected prior to, or after, the Civil War. In Hardy County, near Moorefield, a colony of these bats, inhabiting the attic of Oakland Hall, a large house erected before the Civil War, has been systematically studied for parasites. As far as I have been able to ascertain, there have been bats in this attic for almost 80 years. Of a total of 100 specimens collected during the summers of 1942 and 1943, 51 were found to be infested with the flea, *Myodopsylla insignis insignis*; 19 with the bedbug, *Cimex adjunctus*; and 21 with mites of the genus *Spinturnix*. The mites were always found on the wing membranes. Of this series of bats only one was of the interesting bronze color.

Seven additional specimens were obtained from behind the shutters of a brick house in Moorefield. Three of these were infested with the engorged larva of a recently described tick, *Ornithodoros kelleyi* Cooley and Kohls. This appears to be the first report of this species of tick for West Virginia.

Myotis keenii septentrionalis (Trouessart).—During October, 1944, a young lady, residing in Moorefield, Hardy County, was waked during the night by a bat flying repeatedly over her head. The intruder, which was killed and brought to the author, proved to be of this species. Measurement of the specimen, a male, are: total length, 89 mm; tail, 39 mm; foot, 8.5 mm; and forearm, 36.5 mm.

A. B. Brooks (1927, p. 540) has recorded one specimen from Braxton County, which is supposedly in the British Museum, and Kellogg (1937, p. 448) lists two specimens from Aurora, Preston County. The Hardy County specimen, therefore, is the fourth record for the state and the first for the eastern panhandle.

Pipistrellus subflavus subflavus (F. Cuvier).—The Georgian bat, quite common in the caves of eastern West Virginia, is often found in company with *Myotis l. lucifugus, Eptesicus f. fuscus*, and sometimes *Corynorhinus r. rafinesquii*. Specimens have been collected in Grant, Hardy, Hampshire, and Pendleton Counties. Reese (1934, p. 50) and Kellogg (1937, p. 449) have reported this species from Smoke Hole Cave and Franklin in Pendleton County.

Lasiurus borealis borealis (Müller).—During the author's field work in eastern West Virginia, the red bat seldom has been encountered. A solitary specimen was observed on October 20, 1944, flying over a forest clearing at a camp near Largent, in Hampshire County. The animal was finally collected with a 12 guage shotgun but was not preserved. Kellogg (1937, p. 449) has recorded one specimen from Franklin, Pendleton County.

Lasiurus cinereus (Beauvois).—A. B. Brooks (1929, p. 541) states that this bat is reported as occurring in West Virginia, and Surber (1909) lists it as a migrant; neither writer cites definite records. The collection, therefore, of a female at Moorefield, Hardy County, appears to be the first authentic record for West Virginia. The specimen was found on the

morning of September 28, 1944, lying on the sidewalk where it had apparently fallen from a nearby tree.

Eptesicus fuscus fuscus (Beauvois).—The big brown bat has been commonly found in attics and under the eaves of buildings, as well as in caves and crevices in cliffs. During August of 1944, in Hardy County, it was frequently observed flying at midday over the South Branch of the Potomac River. In October, 1944, two specimens were collected in Baker's Cave, near Durgon, in Hardy County, in company with *Pipistrellus* and *Corynorhinus*. An additional specimen collected in Moorefield was found to be infested with the engorged larvae of *Ornithodoros kelleyi*. There is one specimen in the museum at Cornell University collected in Pendleton County.

Corynorhinus rafinesquii rafinesquii (Lesson).—Two specimens of the big eared bat were collected in Baker's Cave, near Durgon, in October of 1944. Authentic records of this bat in West Virginia are restricted to Pendleton, Randolph, Preston, and Hardy counties.

The Baker Cave specimens were infested with the parasitic fly *Trichobius corynorhinii* Cockerell.

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L. WAYNE WILSON, *Moorefield, West Virginia.*

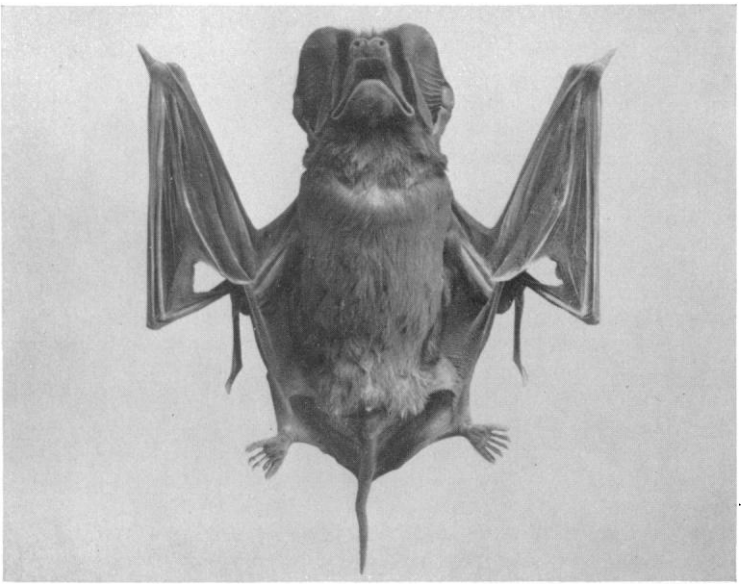
MULE DEER ATTACKS YOUNG CANADA GEESE

The morning of June 20, 1942, a commotion was noted at 5:00 a.m. in a pen at the "P" ranch buildings on the Malheur National Wildlife Refuge, Harney County, Oregon, where four young Canada goose goslings (*Branta canadensis*) were kept with their foster mother, a domestic hen. Investigation revealed that a two point buck mule deer (*Odocoileus hemionus*) was chasing the goslings and hen and trying to jump on them. It was subsequently chased away. At about 9:00 o'clock the evening of June 21 a neighbor lady, Mrs. Matt Morgan, heard a commotion in the vicinity of the goose pen. Going out she saw a young buck after the goslings and chased it away. At about 5:00 o'clock the next morning Mr. Matt Morgan noted what was apparently the same buck attempting to jump on the goslings. He watched it a short while thinking it was just playing before chasing it away. It may be that the deer was playing but in a rather rough manner as far as the goslings were concerned. This activity was deemed somewhat unusual and one wonders what percentage of mortality in the wild is caused by similar incidents.—CLARENCE A. SOOTER, *U. S. Fish and Wildlife Service, Alice, Texas.*

THE DAYTIME RETREAT OF A CALIFORNIA MASTIFF BAT

On May 2, 1945, Miss Mary Ramage and the writer discovered a mastiff bat (*Eumops perotis californicus*) at Silver Creek, 7½ miles east southeast of Panoche, San Benito County, California. This is near the northern edge of the range of the species, although H. W. Grinnell (Univ. Calif. Publ. Zool., vol. 17, no. 12, pp. 223–405, 1918) reported a specimen from Fresno, California, and von Bloeker (Jour. Mamm., vol. 24, no. 4, pp. 403–404, 1943) recorded specimens from still farther north and west, in Monterey County. Most published records of this bat mention individuals found in buildings or collected while in flight. The following note on its natural daytime environment may be of interest.

At the above listed locality, Silver Creek is a rather slow-moving, alkaline stream



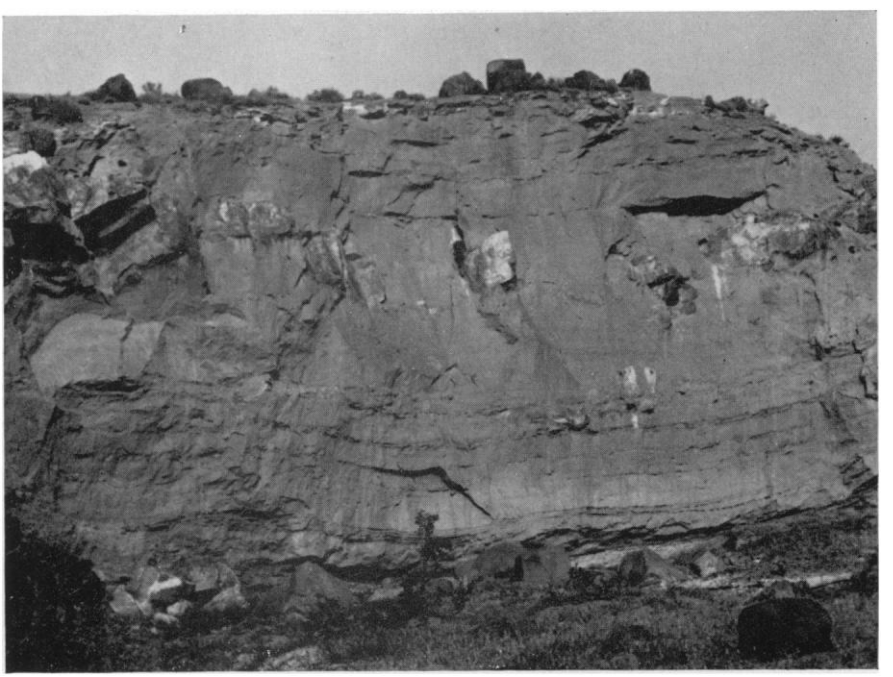


PLATE 1

TOP: Ventral view of a mastiff bat from Sierra Madre, Los Angeles County, California (Mus. Vert. Zool. Photo 1093).

LOWER: A sandstone cliff 7½ miles east southeast of Panoche, San Benito County, California. The angular crevice (lower middle) was the daytime retreat of a mastiff bat. (W. W. Dalquest photo).

averaging, at the time of our visit, about 4 feet in width and 6 inches in depth. It flows through an area of soft shale and loose sandstone strata. Cliffs of these soft rocks occur at intervals along the stream valley. Concretions, varying from a few inches to many feet in diameter, have weathered from the sandstone layers and lie as round boulders in the stream bed. Shallow caves show where concretions have weathered out of the cliffs and the cliff-faces are pitted by wind and water. These openings, in addition to numerous crevices formed by fractures of the cliff rock, offer shelter to bats.

The hills above the cliffs are smoothly rounded and clothed with sparse dry grass. The grass was brown and the soil parched on May 1, indicating the arid condition of the locality in summer. In the creek valley, brome grass and black sage (*Salvia mellifera*) form the principal vegetation. Mammals other than bats and pocket gophers were extremely scarce. We saw one cottontail and one ground squirrel (*Citellus beecheyi*) in two days' hunting while 300 trap-nights caught only two deermice. Reptiles of desert types were common.

The feces of the *Eumops* were found as we searched for bat droppings beneath crevices in the cliffs. The feces were first mistaken for those of a small wood rat but closer inspection showed them to be more irregular in shape with bits of insect chitin visible in places. About 25 feet above the droppings, a yard-thick slab of sandstone leaned from the cliff and formed an angular crevice 15 feet long and 3 to 5 inches wide. A beam of sunlight was reflected into the crevice and disclosed the bat hanging head down about 3 feet above the opening. When wounded with a charge of dust shot, it screamed and chittered in a loud, shrill voice. The bat was an adult male with a wing-spread of 21 inches. The mummified body of another *Eumops* was removed from the same crevice. Other species of bats collected within 100 feet of the daytime retreat of the *Eumops* included: *Myotis subulatus melanorhinus*, *Myotis thysanodes thysanodes*, *Pipistrellus hesperus merriami* and *Tadarida mexicana*.—WALTER W. DALQUEST, *Museum of Vertebrate Zoology, Berkeley, California.*

A MUSKRAT HOUSE ON THE LOWER COLORADO RIVER

On November 22, 1944, while we were checking beaver and muskrat (*Ondatra zibethica bernardi* Goldman) abundance on the Imperial National Wildlife Refuse approximately 30 miles north of Yuma, Arizona, on the lower Colorado River, a muskrat house was observed.

Grinnell (*An Account of the Mammals and Birds of the Lower Colorado Valley*, Univ. of Calif. Publ. Zool., vol. 12, no. 4, p. 237, 1914) stated, "No signs of houses were seen anywhere, the muskrats appearing to resort entirely to holes in the banks where the current was sluggish." On page 737, volume 2, of *Fur-Bearing Mammals of California*, 1937, by Grinnell, Dixon and Linsdale, is found this statement, "We have observed that the muskrats of the Colorado River and Imperial Valley never build houses, but live entirely in burrows, underground."

The house noted by us was constructed of lengths of cut *Typha* and located in a thick growth of the dominant cat-tails or "tules" in a quiet "lake" or backwater above Picacho on the western side of the main river channel. The stems forming the foundation of the abode were laid parallel for the most part and wedged between standing plants which were growing in water 2½ to 3 feet deep. The one central shelter or room consisted of a small dry nest of finely shredded cat-tails located at the top of the cut tules a few inches above the high water mark. This room was but a small part of the entire structure which covered an area of approximately 2½ x 3½ feet. Several local muskrat trappers state that although a few such houses do exist in this area they are not numerous. It is noted that this muskrat construction is not as elaborate as the muskrat dwellings of more northerly latitudes well described by Hamilton (*American Mammals*, 1939, pp. 218–220).

In recent years the series of dams constructed on the lower Colorado has had a stabilizing effect on the flow of the river. The extreme seasonal floods of this stream as described by Sykes (*The Colorado Delta*, Carn. Inst. of Washington and Amer. Geo. Soc. of New York, 1937) and others have, to a large extent, been eliminated. Above the Imperial Dam (com-

pleted in 1938) in the area under discussion are now found large expanses of quiet backwaters that have fairly stable year-round water levels. These acreages are, however, in many cases, rather rapidly filling with silt and vegetation. It is possible, therefore, that changing conditions of habitat have had an effect on the local muskrat population and a few houses are now being built in restricted suitable environments that did not exist when the lower Colorado River was entirely uncontrolled and more subject to extreme seasonal floods with the resultant widely fluctuating water levels.—ARTHUR F. HALLORAN, *Fish and Wildlife Service, Yuma, Arizona.*

WATER SHREW FROM POTTER COUNTY, PENNSYLVANIA

Four specimens of the water shrew, *Sorex palustris albibarbis*, were caught near Carter Camp, Post Office, Potter County, Pa., on the northeast slope of Mount Broadhead, on one of the head waters of Little Kettle Creek, at an altitude of 1663 feet. This locality extends westward in northern Pennsylvania the known range of this shrew.

All the specimens, two males and two barren females, were taken from May 21 to June 21, 1945, from the same place—a small spring that runs from the side of the hill under a maple tree that is forked at the ground level. One fork stands upright; the other, covered partly with moss, lies along the ground for 15 feet then turns upward for about 25 feet.

The little spring runs from under the part of the tree on the ground and is about 5 inches across at one outlet and about 3 inches across at an other, with only a few inches of ground between the two. The water level never varies.

The surrounding area is a narrow, dark, damp hemlock hollow, with moss-covered hemlock logs criss-crossing each other. The creek takes up most of the bottom of the hollow. The chief plants, besides hemlock, are shinleaf, jewel weed, Indian pipe, naked mitrewort, creeping buttercup, rough bedstraw, partridge berry, marsh fern, turtlehead, and moss.

I had five traps set only a few inches apart and baited with bacon rind. Other mammals taken at the same spring, which holds not much more than a saucerful of water, were short tailed shrew, meadow mouse, jumping mouse, white-footed mouse, pine squirrel and chipmunk. Also, an olive-backed thrush, a large toad and a wood frog were taken in the traps.

All specimens are in the Carnegie Museum, Pittsburgh.—MARY WIBLE, *Carter Camp, P.O., Potter County, Pennsylvania.*

A RECENT RECORD OF THE YUMA MOUNTAIN LION IN ARIZONA

Grinnell, Dixon, and Linsdale (*Fur-Bearing Mammals of California*, Univ. of Calif. Press, vol. 2, p. 587, 1937) could find no positive record of the Yuma mountain lion (*Felis concolor browni*) since 1909. It seems appropriate, therefore, to record a recent occurrence of this subspecies. On February 17, 1944, William Casto, a hunter of the Fish and Wildlife Service, trapped a mountain lion in the Kofa Game Range, about 50 miles northeast of Yuma, Yuma County, Arizona. The animal was taken near Squaw Tank, in the Kofa Mountains, in country well over 1000 feet above sea level and of typically rough desert terrain.

The specimen was submitted to the Carnegie Museum for identification and under date of April 28, 1945, Caroline A. Heppenstall, Assistant Curator of Mammalogy wrote concerning it, in part, as follows: "The data on the original tag of the Mountain Lion in question are as follows: male; total length, 2070 mm; tail, 787 mm; hind foot, 292 mm; weight, 125 lb.; . . ."

"The skull measurements are: Greatest length of skull, 205 mm; condylobasal length, 187.1; basilar length, 166 mm; palatilar length, 76 mm; zygomatic breadth, 141.1 mm; mastoid breadth, 86.1 mm; breadth across postorbital processes, 105 mm." The subspecific character of this very old individual was definitely established by J. Kenneth Doutt, Curator of Mammalogy, Carnegie Museum.

Inquiry was made of E. M. Mercer, Predator and Rodent Control Division, Fish and Wildlife Service, Phoenix, Arizona, relative to southwestern Arizona records of mountain

lions. His letter of April 24, 1945, stating that their files contained no records from the lower Colorado River area, excepting the specimen under consideration, emphasizes the rarity of this subspecies.

During the past winter and spring (1944–45) old signs of mountain lions have been noted in the Kofa Game Range and a few reports of sight records from the Imperial National Wildlife Refuge, Arizona, on the lower Colorado River have been received, but to date no other specimens have been taken.

The cover of the September 1944 issue of the *Arizona Wildlife and Sportsman* carried a picture of this mountain lion taken following its capture.—ARTHUR F. HALLORAN, *Fish and Wildlife Service, Yuma, Arizona.*

RECORDS OF WOLVERINE FOR WISCONSIN AND MINNESOTA

Records of wolverine (*Gulo luscus*) for Wisconsin are few and none too definite. Mather (Forest and Stream, vol. 51, p. 109, 1898) states that during the winter of 1855–56, he trapped in western Wisconsin with an old Canadian, Antoine Gardapee, and took two wolverines on the Bad Axe River, Vernon County. Two chapters of his book (Men I have Fished With, Forest and Stream Publishing Co., N. Y., pp. 200 and 217, 1897) give circumstantial accounts of the capture of the two wolverines.

The library of the Wisconsin Historical Society contains a typed copy of the Journals of Rev. E. F. Ely, the originals being in the custody of the St. Louis County (Minnesota) Historical Society. On March 24, 1837, he left Fond du Lac (Superior) for Sandy Lake, Minnesota, by way of the St. Louis River. The entry for March 25 reads: ". . . A multitude of tracks crossing & recrossing . . . the river . . . of Rabbits principally . . . Minks & fisher . . . at Vshkibuaka, saw a fisher crossing . . . just ahead. A little farther on . . . saw a Wolverine coming toward us on the Ice. He did not discover us. When quite near we lay down upon the Ice. About 8 or 10 Rods distant, he stopped . . . looked at us, & again approached . . . stopped again . . . & took alarm & ran. William sprang upon his feet . . . flourished his hatchet . . . ran after him a few rods uttering a *Yell* that only tended to quicken the animal's speed. We could see him for a Mile or more, pursuing his run up the River."

The Milwaukee Public Museum contains two mounted specimens of the wolverine labeled "Wisconsin," but without further data. C. B. Cory (Mammals of Illinois and Wisconsin, p. 355, 1912) says they "may or may not have been actually taken in the state." The Wisconsin Historical Society has a letter written July 5, 1876, by Charles Mann to A. L. Kumlien, Busseyville, Wisconsin, asking him what he would charge to mount the skins of two wolverines from Colorado. Mann was corresponding secretary of the Natural History Society of Wisconsin, predecessor to the Museum. It therefore seems very improbable that the Museum's specimens are of Wisconsin origin.—A. W. SCHORGER, *Madison, Wisconsin.*

WEIGHTS OF A MINNESOTA MOOSE

Comparatively few exact weights of many of our large game mammals are recorded. It, therefore, was thought advisable to place on record the following data, although somewhat incomplete, on a moose taken October 18, 1944, about 15 miles south of Roosevelt, in Lake of the Woods County, Minnesota. This specimen, a vigorous young bull judged to be five or six years old, was taken for a habitat group in the Minnesota Museum of Natural History. The animal was shot in a sedge swamp bordered by low spruce and jack pine-covered ridges. It was taken out to a headquarters camp on a stone boat or skid drawn by a caterpillar tractor where it was weighed on two platform scales. All these facilities were the property of the State Conservation Department. The data are thus made available through the much appreciated cooperation of that department.

Measurements in feet and inches: Total length, 8; height at shoulder, 5–11; chest girth of carcass, 6–3; spread of antlers, 3–8.

Weights in pounds: Heart, 5; remaining viscera (stomach ¼ full), 234; hide, 80; remainder of carcass, 720; total weight on scales, 1039; blood loss, 26; total live weight, 1065.

Dr. Wm. E. Petersen of the University of Minnesota Dairy Department stated that a cow's weight comprises about 7% blood. Dr. Willard L. Boyd of the University of Minnesota Veterinary Department estimated that about ⅓ of the blood was probably lost. The above weight of blood loss was based on these statements.—W. J. BRECKENRIDGE, *Minnesota Museum of Natural History, University of Minnesota, Minneapolis, Minnesota.*

TAPIRELLA DOWII A SYNONYM

From evidence reaching me I believe most mammalogists are inclined to doubt that two species of *Tapirella* occur in Central America. However no one has gone so far as to establish this fact in literature.

The only characters differentiating *Tapirella dowii* from *Tapirella bairdii* are nothing more tangible than a difference in the ossification of the nasal bones. The difference between the two supposed species can be briefly described as follows: in *bairdii* the nasal bones are well developed, each ossified from a single center, thick at base and articulated with each other for the greater part of their length; in *dowii* the nasal bones are small, thin, each ossified from two centers and separated from each other by an anterior prolongation of the frontals.

Individual variation in the ossification of the nasal bones in *Tapirella* is so extreme that I find it impossible to use these characters as a determining factor. Furthermore all of the characters attributed to both *dowii* and *bairdii* I find clearly displayed in one skull at the American Museum of Natural History. Inasmuch as there are no other visible characters separating *dowii* and *bairdii* I see no alternative but to place *Tapirella dowii* in synonymy under *Tapirella bairdii*, which is the older name.

Dr. Thomas Barbour, at whose suggestion I publish this note, tells me that both Dr. Remington Kellogg and Dr. Wilfred Osgood, as well as himself, have independently reached this same conclusion.—GEORGE G. GOODWIN, *American Museum of Natural History, New York, N. Y.*

THE IDENTITY OF MUS LONGIBARBUS PHILIPPI

Among the numerous names given by Philippi to Chilean mammals, that of *Mus longibarbus* was unmentioned in *The Mammals of Chile* (Zool. Series, Field Mus. Nat. Hist., vol. 30, 1943). This inadvertence has been called to my attention by Dr. Remington Kellogg. On referring to notes made in Santiago I find the name in a list with others of which no type specimens were found in the Chilean National Museum.

Philippi's description and figure (Anal. Mus. Nac., Chile, Zool., ent. 14a, pp. 51–52, pl. XXI, fig. 4, 1900), together with the stated locality (Province of Valdivia), are quite sufficient to indicate that the animal concerned was the common *Akodon* to the several forms of which Philippi gave no less than nineteen names. *Mus longibarbus*, therefore, is a synonym of *Akodon olivaceus brachiotis* Waterhouse 1837.—WILFRED H. OSGOOD, *Chicago Natural History Museum, Chicago, Illinois.*

EQUUS FROM THE PLEISTOCENE OF ILLINOIS

In 1938 the writer published an account of a late Pleistocene fauna obtained from a series of gravel pits in the valley of Pole-cat Creek near Ashmore, Coles County, Illinois. Since then (1942) workmen, opening a new pit in the same locality, found portions of a sacrum and pelvis of *Equus*—the first record of horse from this series of gravels. The bones were found in a gravel deposit of post-Shelbyville age, characterized by numerous larch cones, and considered to be a remnant of a terrace or fan somewhat older than the widespread alluvial gravel beds covering the valley floor that have yielded most of the fossils heretofore found (Galbreath, Geol. Ser., Field Mus. Nat. Hist., vol. 6, pp. 303–313, 1938). However due to the method of removing the gravel from the pits, it is possible that the fragments came from the younger gravel deposits bordering the older "larch cone" gravels.

The fragment of the pelvis, consisting of a portion of the right ilium and acetabular region of the ischium, indicates an animal of unusually large size:

Width of the iliac shaft at its narrowest point	73.0 mm
Thickness of the iliac shaft	36.5 mm
Anterior-posterior diameter of the acetabulum	70.5 mm
Superior lip of the acetabulum to anterior notch of oburator foramen	83.5 mm

Other rather puzzling differences from *Equus* pelves examined are the flatness of the wings of the ilium, and the presence of a distinct ridge of bone bordering the iliac notch. It is doubtful if these characters are of taxonomic importance, but our knowledge of the skeletons of Pleistocene horses is too inadequate to be certain.

The specimens have been presented to the Chicago Natural History Museum, Chicago, Illinois.—EDWIN C. GALBREATH, *Springfield, Illinois.*

REVIEWS

Swanson, Gustav, Thaddeus Surber, and Thomas S. Roberts. THE MAMMALS OF MINNESOTA. Minnesota Department of Conservation, Technical Bull. no. 2, 108 pp., fronts., illustr., 1945. Free distribution.

This is an almost completely rewritten and slightly enlarged edition of Surber's "The Mammals of Minnesota." In the introductory part of the brochure, three sections have been added, i.e. Fossil Mammals of Minnesota, Economic Importance of Minnesota Mammals, and Collecting Minnesota Mammals. These are all short accounts as are the other general headings. Six species are added to Surber's list. These are *Pipistrellus subflavus, Ursus horribilis, Felis concolor, Thomomys talpoides, Microtus chrotorrhinus,* and *Pitymys pinetorum. Vulpes regalis* is considered a subspecies of *fulva* and *Odocoileus virgultus* is placed in synonymy under *Odocoileus h. hemionus.* The names of all species are those in current usage. Eight of Surber's illustrations are used again; nineteen new ones appear. Under each species, in the systematic catalog, there is a brief description, a statement of distribution in Minnesota, a list of known specimens from Minnesota, and a statement on the subspecies that occur in the state. An important part of the description is the listing of weights of individuals.

A list of type localities of mammals for Minnesota, selected references, and an index to the species complete the booklet. Limitations of space prevented the inclusion of life-history notes for each species, but the selected references will guide the student to the principal sources for that type of information.

Some of the illustrations are not up to standard; others are good. Better illustrative material would have added much to the general appearance of the publication.—WILLIAM HENRY BURT.

Hamilton, William J., Jr. THE MAMMALS OF EASTERN UNITED STATES. Comstock Publishing Company. Ithaca, N. Y., pp. 1–432, 184 figs. 1943. Price $4.00.

This book, volume 2 in the series of Handbooks of American Natural History edited and projected by Dr. A. H. Wright and published by the Comstock Publishing Company, is an account of the Recent land mammals occurring in the United States east of the Mississippi River, exclusive of the section of Minnesota east of the river.

In all, 258 kinds (species and subspecies) are treated. This figure is of considerable interest because it indicates that the entire area east of the Mississippi River has been conservative in developing geographic races. In contrast, Grinnell's last review of the mammal fauna of California (1933) lists 460 kinds of mammals as occurring in that state. Twenty-eight of them are Primates, seals and their relatives, and whales and their relatives, leaving a land fauna of 432 kinds. The state of Texas, with its 218 kinds of land mammals, has a diversity of kinds nearly equal to that of the entire Eastern United States. Some genera