the volcanic or the impact activity every movement of material covers existing landscape features including the rays, which, having little height, would be early obscured and so observable only in connection with the later craters. Indeed, it is quite probable that the rays, which to us are such an important feature of the lunar face, would be quite undetectable to one on the moon itself.

To secure such a ringing blow as is evidenced by Tycho would undoubtedly require a rare combination of high meteoric speed with favorable angle of impact.

Interpreted thus, the rays form valuable corroborative evidence that a portion of the lunar craters are of meteoric origin.

Regarding meteoric velocities, Olivier[1] has assembled a great amount of observational data, indicating that meteors enter our atmosphere with velocities ranging up to 80 Km per sec. (50 miles per sec.), a velocity capable of giving a truly sharp concussion if unchecked by a protecting atmosphere. In this connection it should be recalled that the earth's dominating gravitational field would quite effectively screen our side of the moon from the impact of low velocity meteoric matter.

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HIGHWAY MORTALITY AMONG MAMMALS

IN the course of an automobile trip taken recently (October 13 to 16, 1934) between Iowa City, Iowa, and Albany, New York, a distance of 1,063 miles, Mrs. Stoner and I kept a record of the larger mammals lying dead on the thoroughfare. All highways traversed were paved, and practically the entire distance was covered during the hours of daylight. Our journey carried us successively through Davenport, Iowa, Ottawa and Joliet, Illinois, Valparaiso and Elkhart, Indiana, Ypsilanti and Detroit, Michigan, Windsor, Hamilton and St. Catharines, Ontario, Canada, and Niagara Falls, Batavia, Auburn, Pompey and Cherry Valley, New York.

It seemed apparent that all the mammals counted had been killed by passing automobiles. Some of the bodies were badly crushed and evidently the animals had been dead for a few days. However, most had met death but a short time before we passed. A few were scarcely mutilated.

While neither the number of individuals nor of species represented by our records is strikingly large, the mortality rate among a few species due to rapidly driven motor cars is comparatively high. And when account is taken of the thousands of miles of excellent paved roads which extend throughout the United States and Canada, it becomes apparent that the total mammal mortality due to the constantly increasing number of high-speed automobiles driven over constantly improved and extended super-highways attains rather appalling proportions. Particularly is this true among skunks and cottontail rabbits.

The list of six identifiable species of mammalian casualties encountered on this trip in Table 1 also includes a number of individuals which, in passing, it was not possible to determine satisfactorily. It is

[1] "Meteors," Charles P. Olivier, Williams and Wilkins Company, 1925.

TABLE 1

TABULAR SUMMARY OF MAMMALIAN CASUALTIES ENCOUNTERED ON THE HIGHWAY BETWEEN IOWA CITY, IOWA, AND ALBANY, NEW YORK

State or province	Date	No. of miles	Name of mammal							
			Common skunk	Domestic cat	Gray squirrel	Muskrat	Brown rat	Cottontail rabbit	Undetermined	Totals
Iowa	Oct. 13	58	1					2	2	5
Illinois	Oct. 13	183	2	3				4	3	12
Indiana	Oct. 13 and 14	97	1	3		1	1	3		9
Michigan	Oct. 14	165		6				1	2	9
Ontario	Oct. 14 and 15	255	1	3	1			3	3	11
New York	Oct. 15 and 16	305	9	3	1			4	3	20
Totals		1,063	14	18	2	1	1	17	13	66

altogether likely that at least some of the undetermined individuals, upon closer examination, could have been assigned to certain of the forms definitely enumerated.

Several points of special interest are associated with these findings:

(1) The consistency of the destruction by motor traffic on our highways of two species of mammals, the cottontail rabbit (*Sylvilagus floridanus*) and the common skunk (*Mephitis mephitis*) is at once apparent. Both species are more or less nocturnal in habits and evidently many individuals meet death while feeding or seeking food. During the entire trip we saw neither a live cottontail nor a skunk.

(2) So far as could be judged from highway mortality, the mammal population of Ontario is considerably less than that of any state through which we passed. However, it should be noted in this connection that at this season of the year, automobile traffic in the province is scarcely as heavy as that in any of the states under consideration.

(3) The average per mile mortality rate of mammals in the States varied from .054 individuals in Michigan to .091 in Indiana. A total of 11 examples recorded on the 255 miles traveled in the Province of Ontario gives an average of only .043 individuals per mile.

(4) While the domestic cat ranked highest in point of number of individuals recorded, with the cottontail and the skunk second and third, respectively, more dead skunks were noted on the 305 miles of New York road traveled than on the 758 in the other four states and the Province of Ontario combined. The carcasses of the 9 New York skunks discovered give the comparatively high average of .029 individuals of this species per mile or 1 dead skunk for each 34 miles traveled in the Empire State. Remains of at least one skunk were recorded for Ontario and for each of the states except Michigan. The mortality figures suggest that this mammal is considerably more abundant in New York State than in any other here considered.

(5) Further interest attaches to the present enumeration of mammalian motor car casualties on the highways when it is compared with the records obtained by the writer on two other extended automobile journeys. The first (SCIENCE, 61, No. 1568, 56–57, 1925) concerned a round trip from Iowa City, Iowa, to Lake Okoboji, Iowa, a distance of 632 miles, made in June and July, 1924. On the highway, about 400 miles of which were graveled, while the remainder was simply graded earth, a total of 42 dead mammals, representing 9 species, was recorded. In this lot the thirteen-lined spermophile headed the list with 18 casualties, while the cottontail ranked second with 12. Only 1 skunk was noted.

The second (SCIENCE, 69, No. 1800, 670–671, 1929) concerned a trip from Iowa City, Iowa, to Sanford, Florida, a distance of 1,400 miles, made from October 1 to 11, 1928. The route "led through southeastern Iowa, central Illinois, southwestern Indiana, western Kentucky and Tennessee, central Georgia and north central Florida." On the highway, approximately 1,000 miles of which at that time were paved, we recorded 45 examples of dead mammals represented by 10 species. The cottontail led the casualty list with 7 individuals. Second in point of numbers was the domestic cat, with 6 individuals, while but a single dead skunk was observed.

Of course so many variables are involved in a consideration of data of this sort that far-reaching conclusions are scarcely warranted on the basis of the bare facts as here outlined. Nevertheless, the observations seem worthy of comment and provide food for reflection and speculation for the student of distribution and ecology as well as for the conservationist.

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THE PAINT CREEK METEORITE

THE department of geology of the College of Wooster recently received from Dr. J. H. Todd, a physician of Wooster, Ohio, a splendid specimen of an iron-nickel meteorite. The donor, now ninety-eight years of age, is the oldest practicing physician in Ohio, if not in the United States, and is the oldest member of the Ohio Academy of Science. As a young man he became interested in geology and archeology and has, during his long life, given much attention to the collection of geological and archeological specimens, having donated no less than 35,000 Indian relics to the Ohio State Archeological Museum, 5,000 to the City Museum of Wooster, Ohio, and a large number of geological specimens to the College of Wooster.

According to Dr. Todd the meteorite fell, in 1868, in the vicinity of Paint Creek, on the property of William Johnson, located about three miles from Hopewell Church in Holmes County, Ohio. Johnson, who lived on a terrace, a short distance back from Paint Creek, heard the noise of the approaching meteorite and ran to his porch. Upon looking up, he saw the flaming body approaching with a trail of fire behind it. As he watched it, it exploded almost directly over him, breaking into what appeared to him to be thousands of fragments. The larger portion then started almost straight down, striking a fence about a quarter of a mile down stream, toward the mill. It seared the fence for some distance and then buried itself in the ground. Johnson dug the meteorite from a depth of about 4 feet, where it was resting on bed rock. He told of the incident to Dr. Todd at the time he gave the latter the meteorite