

The

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Young Naturalist



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The Moose—Browser of the North

Part 1 (of a two-part story)



Department of Lands and Forests

The bull moose, like other members of the deer family grows a new set of antlers each year; females, except for a few freaks, do not have antlers.



We call him the moose, which is his Indian name, and means, we are told, the browser. Certainly he browses.

Course twigs of the mountain maple or even balsam, are sweeter to him than the sweetest hay. Let the buffalo have the grasslands, the moose's domain is the northern woods!

Yet he is not ours alone. The Ro-

mans knew him as a denizen of the forests of Germania, the chilly realm that poured invaders into their sunny world, and we know that there are moose all across the northern woods of both hemispheres, from Atlantic to Pacific in both directions.

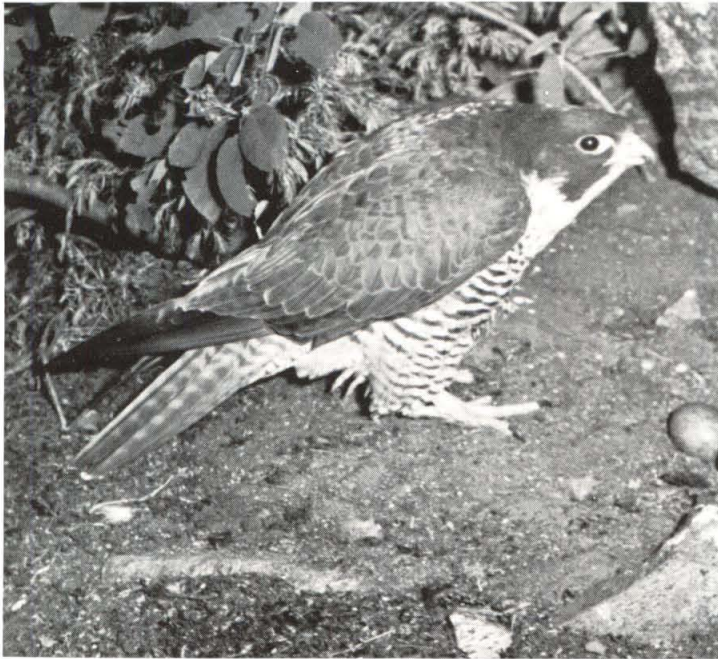
Europeans called him "elk" (from the Latin *alces*) but western Europeans who came to North America knew only that there was such an animal, and

they gave that name to our equivalent of the common European red deer. In South Africa the Dutch affixed their equivalent — eland — on the largest antelope. An earlier generation of naturalists tried to change these "wrong" names. The ornithologists are still trying. Some birds have had two or three "official" English names in a generation, while the scientific name remained constant. The mammalogists long ago gave up. In North America a moose is a moose and an elk is an elk, but in Europe a moose is an elk.

Moose are the largest of the deer family, which means they have antlers that are shed every year. Unlike the caribou, but like the white-tailed deer, the males (called bulls) grow antlers, and the females (called cows), except for a few freaks, do not. Antlers start growing in spring as bulbous projections on the head, and take shape with astonishing speed. At first they are soft and tender, protected by a skin called the "velvet". As summer advances they reach full growth and harden. Moose antlers have broad palms with finger-like tines. They can be as much as seventy inches from tip to tip in Ontario — more in the big Alaska moose — on an animal that is pony-size.

In September when the antlers are hard, the velvet is rubbed off, and the breeding season commences. Cows bleat mournfully by night and bulls have a gruffer, more impatient note. Indians long ago learned to imitate the

See MOOSE — Page 3



Department of Lands and Forests

Some biologists think that they have observed a decline in the numbers of certain hawks, including the Peregrine Falcon (left) and Bald Eagle (right). While proof is by no means conclusive, this decline has been blamed on insecticides.

Insecticides—Threat to Wildlife?

For centuries man has tried to control his environment. To do this he has had to wage war on many forms of insect life, especially when they threatened his crops.

The use of synthetic chemicals to kill insects has been known for over a hundred years but it was not until during and after the Second World War that their use became widespread. There are now hundreds of insecticide compounds.

Their indiscriminate use has resulted in the death of wildlife in addition to insects. In North America, for example, biologists have noted that there has been a significant decline in three species of hawks, the Peregrine Falcon, Bald Eagle, and Osprey. While proof is not yet conclusive, this decline has been blamed on insecticides. DDT is a powerful chemical. In some species of birds, one-fifth of the lethal dose of DDT results in fewer eggs being laid and hatched. Since hawks are slow breeders, their numbers may decline drastically. Hawks that eat carrion killed by pesticides and those eating live prey that has been feeding on DDT-sprayed material, accumulate a serious amount of this

insecticide.

Whether the chemical sprays are used locally or over a wide area, all types of insects, both harmful and beneficial, are killed off. The bodies of these insects, now containing poisonous chemicals, litter the ground and are eaten by many different songbirds. The birds then become poisoned and may die. The poisonous chemicals that fall on the ground are also taken into the bodies of many terrestrial grubs and worms, especially earthworms. When such birds as robins feed on these worms, many of them become infertile or die.

Some forms of animal life are affected by poisonous sprays. Squirrels, chipmunks, moles, raccoons and other mammals feed on plants that have been sprayed, or eat insects or birds that have died from chemical poisoning. The chemicals may kill or sicken them for the rest of their short lives.

Fish are very sensitive to foreign chemicals in the water. When chemical sprays are accidentally applied to a stream or lake where there is a good population of fish, a fish die-off results. The chemical does not have to be applied directly to the water. If agri-

cultural fields adjacent to a fish pond, lake, or stream are sprayed regularly, much of the poison is washed down by rains. The resultant dead or dying fish are eaten by Eagles, Ospreys, ducks, raccoons and other animals. Thus an insecticide extends its killing power to fish, birds, and mammals.

Undoubtedly, chemical control is effective. However, it should be remembered that insects develop resistances and thus man is forced to search continually for more potent chemicals. Some races of cockroaches can now tolerate 6000 times the dosage of DDT that killed their ancestors a few years ago.

Obsessed with a desire to get things done in ways that are quick and efficient, man has used the chemical method to the almost total exclusion of natural biological controls. By learning more about the interrelationships of all forms of life, large and small, man should be able to control pests naturally. Wisely applied, some chemicals can be helpful but far more knowledge will be needed before the use of biological controls is properly understood.

ALLAN WAINIO

Club News



Some details on the organization of the Toronto Junior Field Naturalists' Club were presented in this column for September. Now we would like to show you some members of that Club taking part in one of their outings. Perhaps you have some pictures of a similar field gathering; if so, we would be happy to have them. Be sure to describe the event, giving the names of the participants. Write to Mrs. Barbara Wilkins, Editor of *Club News*, 213 Rosedale Heights Drive, Toronto 7, Ontario.



(Above) Looking for fossils is fun. Here we see some members of the Toronto Junior Field Naturalists enjoying themselves as they explore the Kettle Point area, Lake Huron. (Upper right) Mrs. Paul Hobberlin, leader of the geology section, Toronto Junior Field Naturalists, shows a "find" to her group.

Bear Fare

In British Columbia snow slides sometimes damage roads and are a hazard to people. Cannon are used in certain places to shoot at piles of snow and make them slide, before the accumulation is great enough to be harmful. At one time dynamite was placed in the proper locations, before snow fell, and could be exploded as required, to start slides. This would have solved the problem except for

one reason, Bears ate the dynamite. P.S. No! The bears did not explode.

A. A. OUTRAM

A scientific study has shown that an unbroken layer of chalk underlies the English Channel. Some engineers have proposed that a tunnel between England and France be bored through the chalk. It could be operated at first without a protective concrete lining.

MOOSE — From Page 1

calls through a birch-bark megaphone, and lured the animals in. Around Christmas or New Year's the antlers fall off and lie on the ground, where mice and rabbits chew them up.

Moose have a dark coat; it is black in older animals. They also have long legs and heavy front quarters, both of which fit a life in deep snow. The weights of moose are always exaggerated in the newspapers. A big Ontario bull moose will have a live weight of a little over a thousand pounds. A few reach twelve hundred, and a very few somewhat larger. Cows are much smaller. The "giant" moose of Alaska might "dress" over a thousand pounds, which means that they might weigh that much with their insides removed, which is the first step in reducing them to roasts and steaks. An Alaskan bull of fourteen hundred pounds, or even a little more, but one ton moose grow only where there are no scales. A one-thousand pound moose is not what you would call puny.

C. H. D. CLARKE

Answer to Puzzle

1	M		2	M	3	E	4	T	5	E	6	O	7	R	8	S
8	A	9	C	U	T	E			10	B	O	A				
11	G	A	S				12	S	13	E	V	E	N			
	N		K				14	T	R	I			D			
15	E	L	E	16	C	T	R	O	N	S						
S			17	G	N	U			U							
18	I	19	S			20	B	A	S	22	S	O				
23	U	R			24	G	E	M			25	I	N			
26	M	Y	C	O			27	P	O	R	E					

METEORS — From Page 4

server can expect to see twenty to twenty-five meteors per hour.

Persons interested in keeping a record of large meteors and fireballs (meteors which are observed to explode and create noise during passage through the atmosphere) should write to Meteor Centre, National Research Council, Ottawa 2, Ontario.

DOUGLAS P. HUBE



J. Klepestra, Prague, Czechoslovakia/David Dunlap Observatory

While this photograph of the spiral galaxy M31 in the constellation Andromeda (top) was being taken a fireball, an exploding meteor, passed through the field of the telescope. The fireball travelled from left to right. Bright meteors frequently explode near the end of their path. Find the three small explosions shown in the path of this fireball.

Meteors and Meteoroids

In addition to the nine planets, the asteroids, and the comets that orbit about the Sun, the solar system contains an unlimited number of small solid particles called "meteoroids". These meteoroids range in size from particles so small that one would need a microscope to see them, to chunks of rock weighing as much as several hundred pounds. These particles frequently strike the Earth's atmosphere at speeds of about thirty miles per second. Such a collision produces a great deal of heat and light and the passage of a meteoroid through the Earth's atmosphere is signalled by the appearance of a meteor, or what is commonly called a "shooting star", although there is absolutely no connection between a meteor and a star.

Most meteoroids move in random orbits about the Sun, but some move together in groups containing perhaps billions of individual particles. When the Earth passes near or through such a group of meteoroids, a large number will enter the Earth's atmosphere and a meteor shower is observed.

In a normal evening a person watching the sky continuously can expect to see about five meteors per hour. During a meteor shower usually about fifteen to fifty meteors can be seen in one hour. However, in the last century, several showers were observed that were so intense the meteors were said to fall as thick as snow in a snow-storm.

Several meteor showers recur each

Crossword Puzzle Fun

1		2	3	4	5	6	7
8	9				10		
11			12	13			
			14				
15			16				
		17					
18	19		20	21		22	
23		24				25	
26				27			

ACROSS

2. Space Objects
8. Sharp
10. Snake
11. State of Matter
12. Number
14. Three
15. Part of Atom
17. African Mammal
18. Pronoun
20. Very Low (Music)
21. Symbol: Uranium
24. Precious Stone
26. Refers to Fungus
27. Hole in Skin

DOWN

1. Metal
2. Filled-in Lakes
3. And (French)
4. Experimental Equipment
5. Evident
6. Eggs (Fish)
7. Sedimentary Rock
9. Symbol (Calcium)
13. Make Mistake
14. Railway System
19. Attempt
21. Electrical Unit
22. Title
24. Race Signal

(Answer Page 3)

year and can be predicted in advance. The next meteor shower, the Orionids (named after the constellation Orion), occurs on *October 20*, when an ob-

See METEORS — Page 3

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