

The

Young Naturalist



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The Big Mice of the Arctic

Part I (of a two-part series)

Lemmings may be described as "big mice of the treeless Arctic". In Canada, there are two kinds. One, *Lemmus*, or the Brown Lemming, is brown all year and might be called the "true" lemming, because it is like the one found in arctic Europe. The other, *Dicrostonyx*, or the Varying Lemming, is smoky-grey in summer and white in winter. In some ways, such as turning white, it is more "arctic" than its cousin, but their habits are generally identical.

Lemmings are five to six inches long. Their tails are so short that they might just as well not be there at all. In appearance the lemming is "chunky", broader and flatter-looking than most mice, and less suggestive of a furry cylinder.

Lemmings Like Low Areas

You may go to the Arctic and not see a lemming, because in winter they live under the snow, and, in summer, in tunnels and burrows in the arctic vegetation. You won't find them in sphagnum bogs because, in the real Arctic there are no such bogs. However, lemmings do like low areas where there is lots of vegetation. There, if you look, you can find their runways neatly chewed out in the hummocks, and if you set a mouse trap you may catch one.

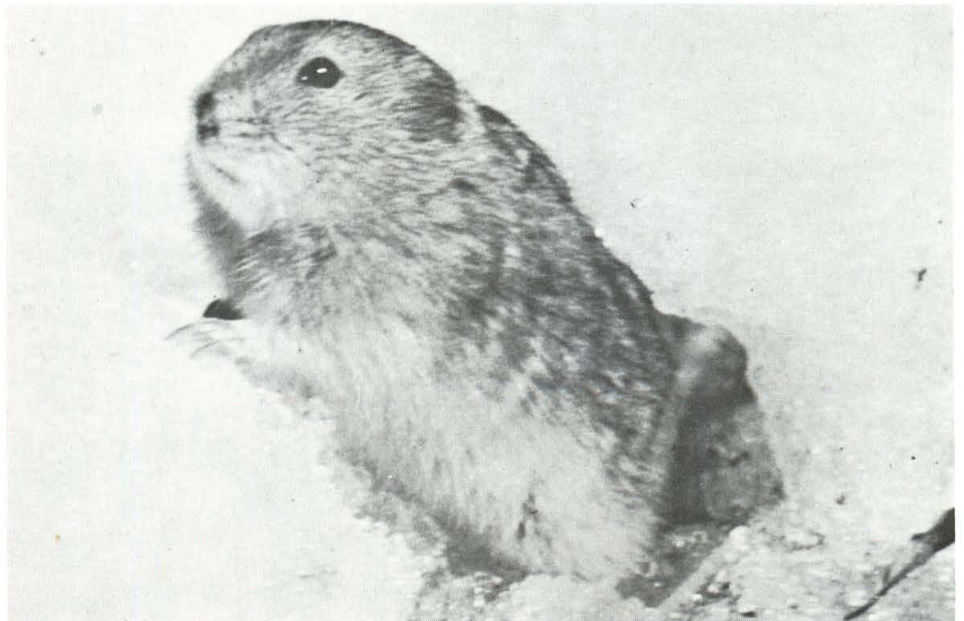
There are plenty of different kinds of plants in the Arctic, and lemmings eat a great variety of them. Things

like seeds and tubers are not available all year, and, like many other animals, lemmings seek out these foods when they are common and store the surplus. They are very fond of the little tubers of *Polygonum* or bindweed. The Eskimo enjoys these too but he would sooner have the lemmings do the hard work of gathering them. He does his gathering by turning over stones and looking for the store-houses underneath. Sometimes, when he does this, he sees the lemming. Often, too, he watches his dogs or an

Arctic fox dig one out. He may see lemmings running across the few inches of open space between hummocks, or even across larger bare patches.

A place where lemmings have to do a lot of running makes a good hunting ground for snowy owls. In summer you will see them hunting in the daytime. In fact—but wait a minute—maybe you know why snowy owls have to learn to hunt in daytime?

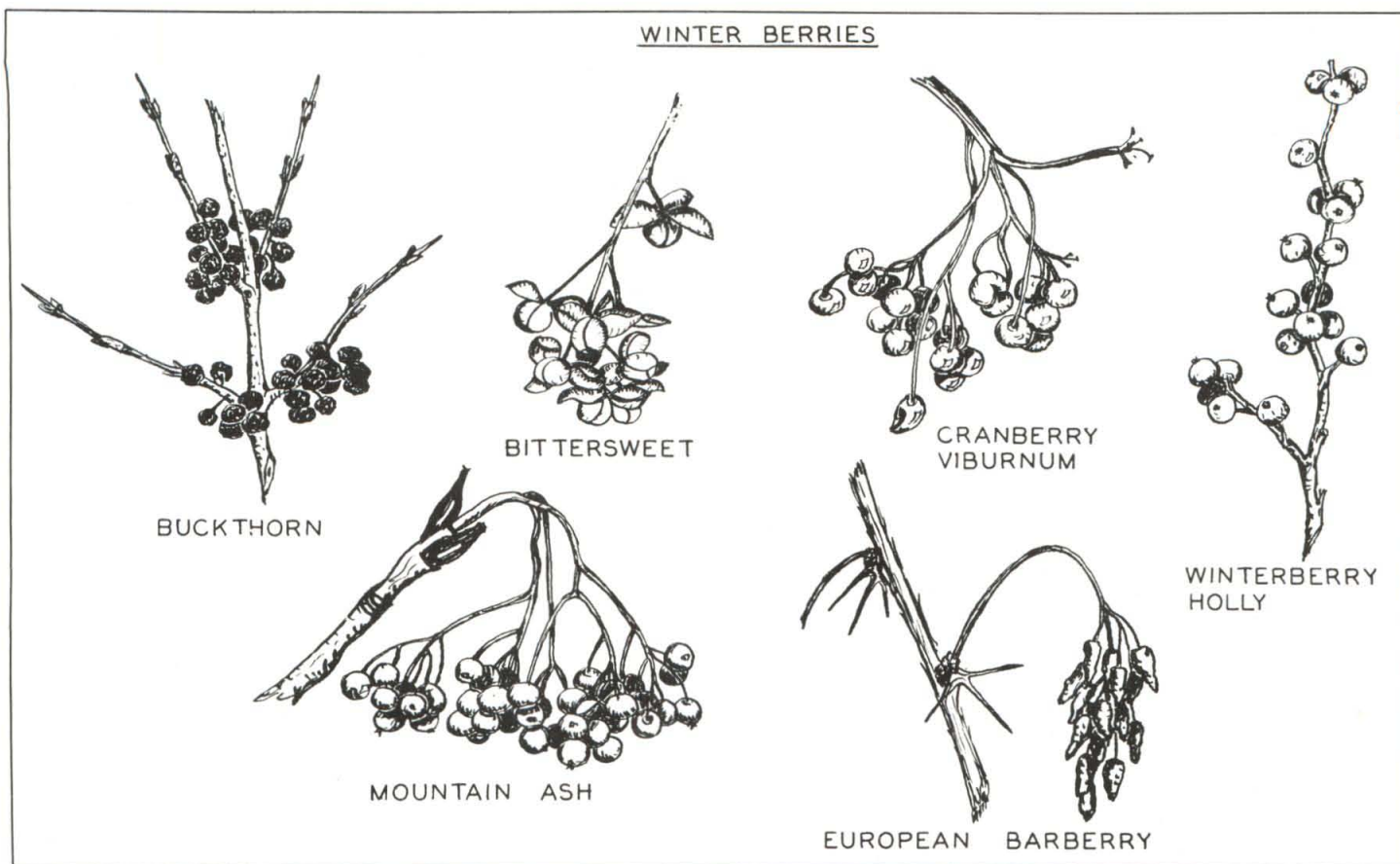
C. H. D. CLARKE



National Collection of Nature Photographs — S. D. MacDonald

The Varying Lemming is smoky-grey in summer and white in winter. In some ways, such as turning white, it is more "arctic" than the Brown Lemming.

WINTER BERRIES



Berries to Look for in Winter

In the January issue of *The Young Naturalist* we talked about seed cases that may be studied on winter outings. This month I am going to tell you about a few berries that you can look for and add to your winter botany observations.

Buckthorn is a large shrub or small tree. The berries stay on the twigs all winter. They are black and become wrinkled like raisins during the cold weather. The berries are found in dense clusters where the small twigs meet larger branches, and each twig usually terminates in a spine or thorn with a small bud on each side. Each berry contains four triangular dark-coloured seeds. Over-wintering Robins and Cedar Waxwings show a fondness for this fruit.

Bittersweet is a heavy woody vine that sometimes climbs in trees to a considerable height. The fruit consists of scattered bunches of berries at the ends of twigs, and these berries are quite distinctive in appearance. Each berry is enclosed in a tough husk or

capsule, bright orange in colour, that splits into three parts and peels back during the winter to expose the inner fruit. The berry is bright red and rather soft. Thus each red berry is set in a frame of three bright orange cups. Bittersweet is collected and used by florists, and it is also browsed by deer. Perhaps this may explain why the berry bunches are often too high to reach.

Cranberry Viburnum or Highbush Cranberry is a pithy shrub that grows up to eight feet in height and favours wet locations. The berries are in rather large but loose hanging clusters. The bright glossy red fruit is very soft and juicy; though edible, it is very tart. It is often eaten by birds such as Robins that have difficulty with tougher fruit. The berries seldom stay on the shrubs through the entire winter.

Winterberry Holly is closely related to the Holly we think of in connection with Christmas, but it does not have spiny leaves. It is a small shrub growing in bogs' edges and in other very

wet locations. The firm berries are bright red with a black "eye". They are scattered singly and in small bunches along the stems. At their best in late autumn, they drop from the twigs early in the winter, or are eaten by birds.

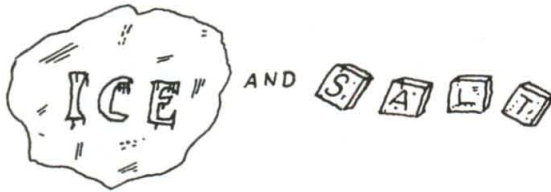
European Barberry is often found near old and abandoned farms. It is a dense shrub with a bark that shreds readily. The berries hang like clusters of tiny red peppers. At the base of each cluster stem is an interesting three-pronged thorn. The shrub has a bad reputation as the alternate host of wheat rust.

Mountain Ash is found most often growing as an ornamental tree. The scarlet berries hang in large clusters, often staying on the tree all winter. A Mountain Ash tree laden with berries is a truly beautiful sight, both to people and to many species of birds as well.

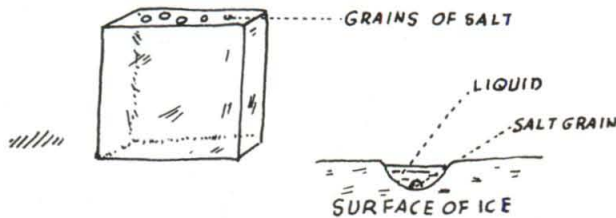
On your hikes look for the berries of plants such as the various kinds of dogwood, Bittersweet Nightshade, hawthorn, and hips of roses.

J. M. MILLMAN

THE YOUNG EXPERIMENTER

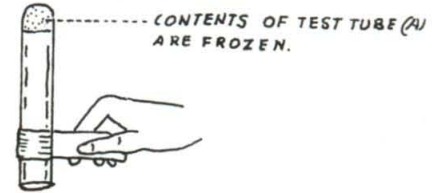
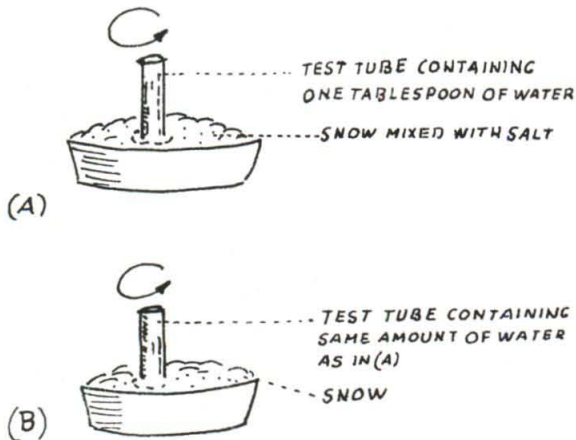


WATER FREEZES WHEN THE TEMPERATURE FALLS TO 32°F OR BELOW. IT SEEMS, HOWEVER, THAT THE TEMPERATURE DOES NOT ALWAYS HAVE TO RISE FOR ICE TO MELT. ICE IS OFTEN REMOVED IN WINTER FROM ROADS AND SIDEWALKS BY SALT. SPRINKLE SOME GRAINS OF TABLE SALT ON AN ICE CUBE AND WATCH WHAT HAPPENS.



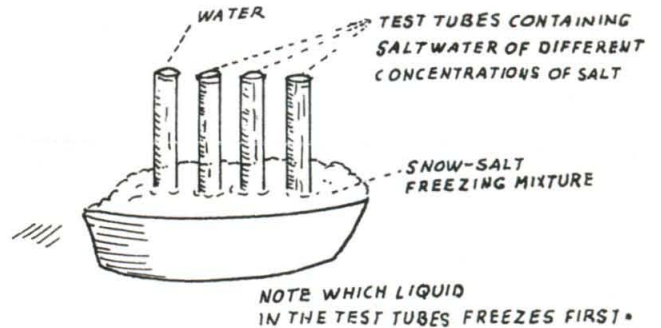
WHAT IS THE LIQUID FORMED AROUND THE SALT GRAIN? IF LEFT LONG ENOUGH DO THE SALT GRAINS DISAPPEAR? (YOU WILL HAVE TO PUT THE ICE CUBE BACK IN THE REFRIGERATOR).

SOMETHING ELSE INTERESTING HAPPENS WHEN ICE (OR SNOW) ARE MIXED TOGETHER. FILL A PAIL WITH SNOW AND BRING IT INDOORS. AFTER SEVERAL MINUTES FILL TWO BOWLS WITH THE SNOW AND TO ONE ADD SOME TABLESPOONS OF SALT. STIR EACH WITH TEST TUBES CONTAINING A TABLESPOON OF WATER.

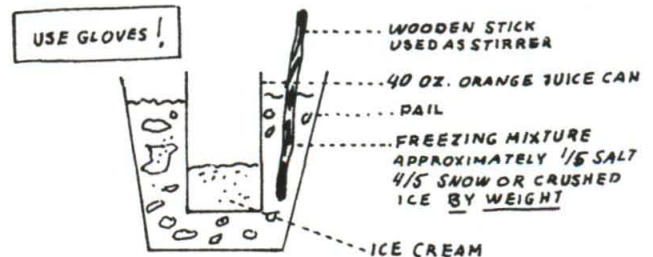


AFTER SEVERAL MINUTES THE WATER IN THE TEST TUBE WITH WHICH THE SNOW-SALT MIXTURE WAS STIRRED WILL BE FROZEN. THE WATER IN TEST TUBE (B) REMAINS A LIQUID. WHAT HAPPENS WHEN SALT AND SNOW ARE MIXED? WHAT PURPOSE DOES (B) SERVE IN THE EXPERIMENT?

THE LIQUID FORMED WHEN SALT IS MIXED WITH ICE IS A SOLUTION OF SALT IN WATER. SALT SOLUTIONS FREEZE AT TEMPERATURES FAR BELOW 32°F. THIS CAN BE DEMONSTRATED BY YOUR SALT-SNOW FREEZING BOWL. TEMPERATURES AS LOW AS 7° BELOW ZERO CAN BE PRODUCED BY THE PROPER MIXTURE.



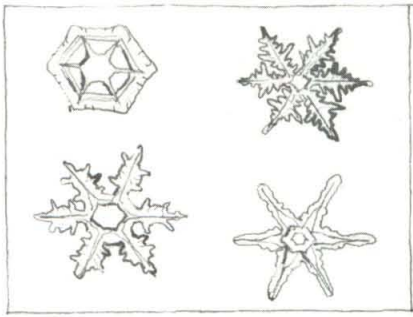
CAN THE WEATHER BE TOO COLD TO REMOVE ICE WITH COMMON SALT? (CHEMICAL NAME: SODIUM CHLORIDE) HOW COLD? PUT STRONG SALT SOLUTIONS OUTSIDE OVERNIGHT. WHAT ARE THE ADVANTAGES OF USING CALCIUM CHLORIDE TO REMOVE ICE?



MAKE AN OLD-FASHIONED ICE CREAM FREEZER AND SOME HOMEMADE ICE CREAM.

* * * R.M.

THE PATTERNS OF WINTER

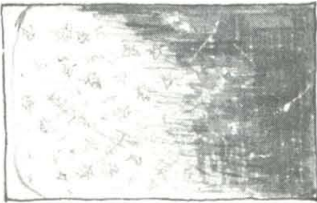
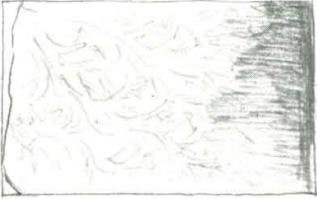


SNOW CRYSTALS

Although most snow crystals have six sides or points, the number of different patterns and designs is unlimited. Try looking at a snow flake on the sleeve of your coat through the wrong end of a pair of binoculars to magnify it.

FROST DESIGNS ON WINDOWS

Frost is frozen dew and it is formed by the condensation of water vapour on objects having temperatures below

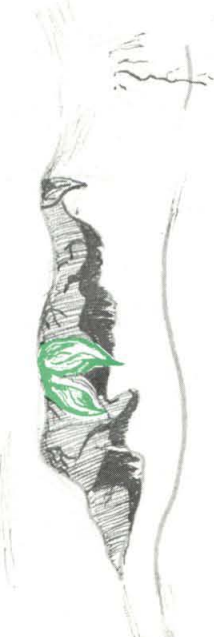


the freezing point. The warm air in a house condenses readily on cold windows

AND SOME VERY EARLY SIGNS OF SPRING



Before the robin returns the sap begins to rise in trees and shrubs. The stems of the red ozier dogwood turn a bright red.



and the skunk cabbage appears while snow is still on the ground.



The crow and horned lark are two of the first birds to return.

JACK BENTMAN

Our Family of Wild Canada Geese



When I was a small child, one of our many pets was a pair of wild Canada Geese. Of these we were especially fond. They were such beautiful creatures when the sun shone on the iridescent blue, green, and black of their long graceful necks.

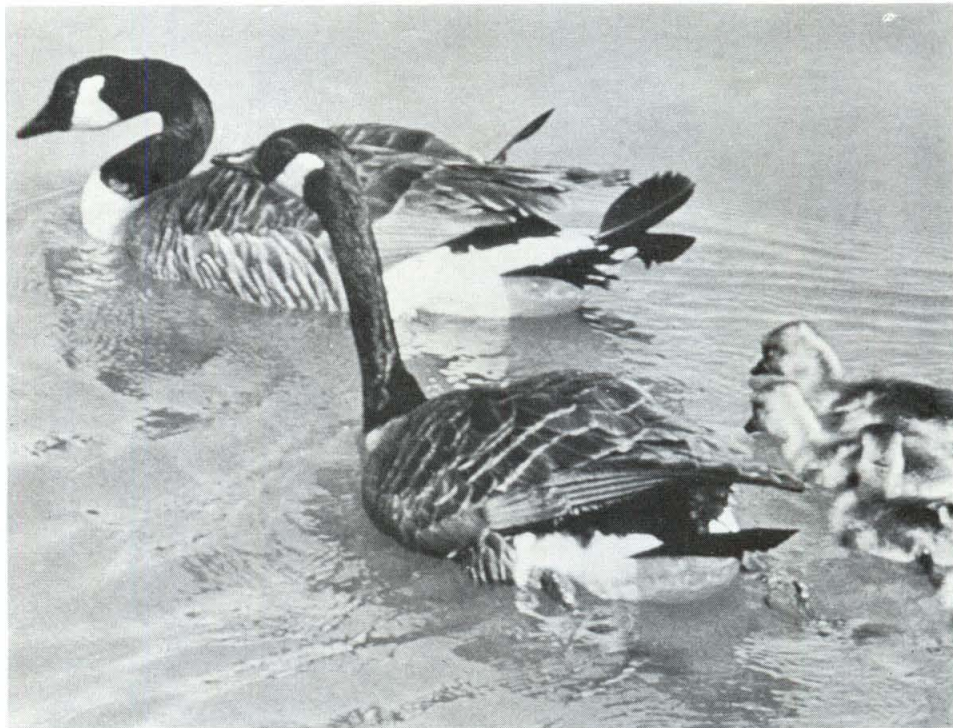
Though our home was in town, our property extended into open countryside. Only a short distance away there was a little pond surrounded by willows and poplars. Here the geese used to swim daily. They appeared to be perfectly content in these surroundings.

One day we children, in great excitement, ran to the house. We had found a nest with three large eggs in it. My father warned us not to go near the nest again and said that if we remained strictly away, some day we would likely find three pretty goslings swimming on the pond, or toddling on the ground behind mother goose.

And it came true. Every child in town came to see the fluffy balls of soft down. The parent geese had become such pets that they did not seem to be at all alarmed when we took the little balls up into our hands. It was only our own parents who were anxious, constantly advising us to be careful. We fed them daily out of our hands, and the many visiting children brought treats to feed them. Always the parent geese seemed to stretch their long necks in approval.

Because of a peculiar sound the goslings made, we named them all "Billy". So the "Billies" grew up accepting children as their natural companions. When not on the pond, they followed us all around the grounds. Before starting off for school or church, we always had to make sure that they were fenced within their own grounds, or they would follow us.

One day my dignified mother was some distance from the house on her way down town when she discovered, to her horror, that the whole goose family was waddling behind her! She



National Collection of Nature Photographs — Darrell Eagles

The Canada Goose builds a nest of sticks and plant stalks on the ground, and usually lays six to ten eggs. The young are hatched in about a month.

could only turn and retrace her steps. The Billies followed, chatting volubly and perhaps wondering why she had changed her mind so quickly.

L. N. B. ARNETT

Things to Do

A Stove for Nature Outings

Editor's Note: Handling paraffin can be dangerous and young persons should not try to melt it. Ask an adult to do it. You can assist in making the metal part of the stove.

Planning a nature outing? Want a campfire? Want it easily made — no gathering of wood — easily put out? Help your parents make this stove.

The following items are needed:

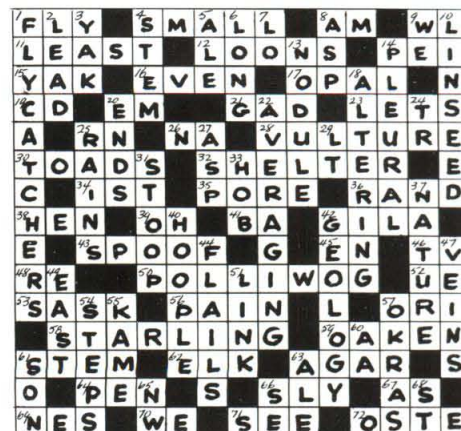
- one 105-ounce can
- one small salmon can, or can of similar size and shape
- some wrapping cardboard (corrugated one side)
- 2 1/2 inches of string
- one block of paraffin wax

Using a soft-drink can piercer, make

triangular holes in the large can below the edge of what is to be the top of the stove. About a dozen evenly-spaced holes will do. At the other end remove the lid completely. With snips, cut one or two rectangular openings at this lower end to act as grate openings.

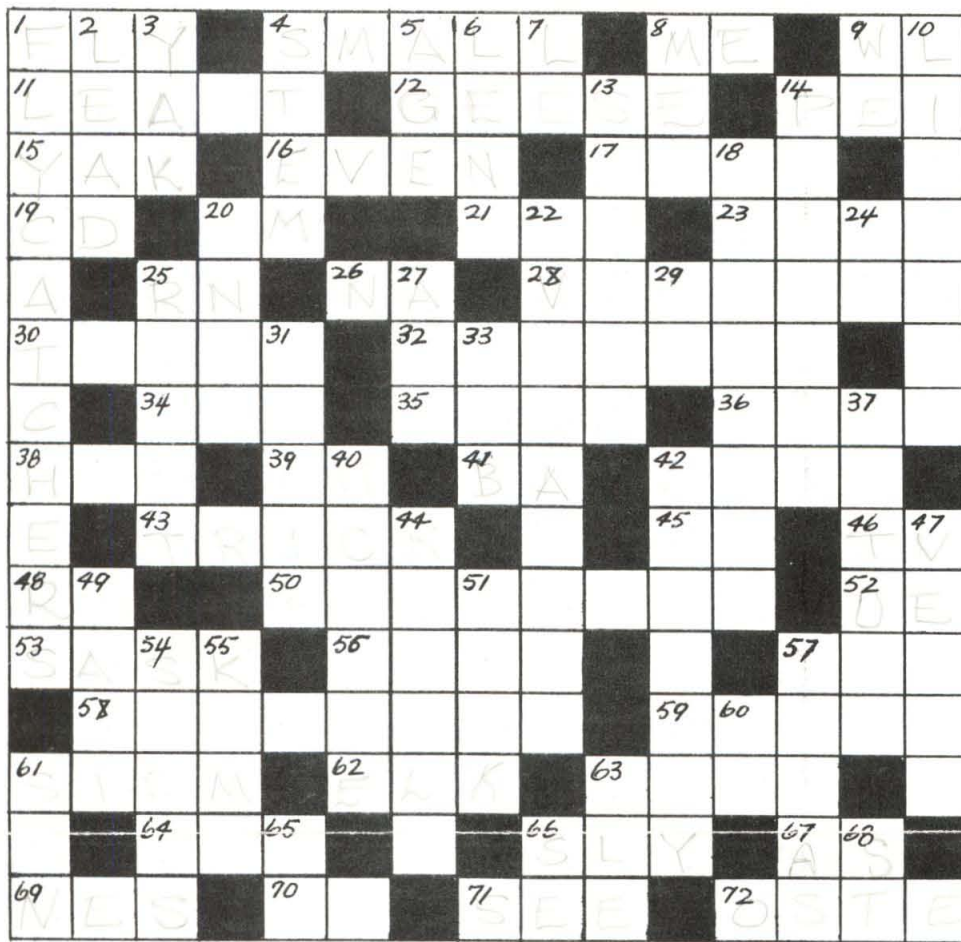
See STOVE — Page 6

Answer To Puzzle



Crossword Puzzle Fun

— W. G. GIRLING —



ACROSS

1. A species of insect.
4. Opposite to large.
8. The first person singular.
9. Abbrev. for West London.
11. Name denoting small.
12. Northern water birds.
14. Abbrev. for Prince Edward Island.
15. An animal of Tibet and central Asia.
16. At the same level.
17. A gem.
19. Abbrev. for Civil Defence.
20. Printing term. Unit of measure.
21. Move about restlessly.
23. Allow us.
25. Abbrev. for Royal Navy.
26. Abbrev. for North America.
28. Carrion eating bird.
30. A species of amphibian.
32. It should be provided for birds and animals.
34. A noun suffix denoting one who does.
35. Leaves breath through them.
36. South African money.
38. Female bird.
39. Expression of surprise.
41. Abbrev. for Bachelor of Art.
42. A large poisonous lizard.
43. To kid a person. (Slang)
45. Printing term. Unit of measure, half of 20 across.
46. Abbrev. for Television.
48. A prefix denoting backward.
50. A stage of development in the life of a frog.
52. Abbrev. for united empire.
53. Abbrev. for Saskatchewan.
56. A feeling of being hurt.
57. A combining form meaning limit.
58. A very common blackbird.
59. Made of oak.
61. Main part of a plant above ground.
62. A large deer of N. Europe and Asia.
63. A non-nitrogenous substance.
64. A small closed yard.
66. An attribute of the fox.
67. An adverb meaning equally.
69. Abbrev. for National Employment Service.
70. Pronoun.
71. What we use our eyes for.
72. First four letters of osteopath.

STOVE — From Page 3

Turn up the cut pieces to the inside.

For the fuel box, which is the salmon can, roll a piece of corrugated cardboard sufficiently long and wide enough to fill the inside of the salmon can snugly. In so doing, remember to place the string at the beginning of the roll to form a wick. Over the cardboard pour a plentiful supply of melted paraffin wax. (CAUTION: MELT PARAFFIN IN A DOUBLE BOILER ONLY; NEVER PLACE IT DIRECTLY OVER A STOVE OR FLAME.)

The stove is now ready. Next time when lunch period has arrived on your nature outing, you may boil water, or

cook hamburger on the stove. Since the stove is inexpensive, it may be replaced by newly-made ones for each occasion.

R. DENNISON

DOWN

1. Birds that catch flies.
2. An easily melted bluish-grey metal.
3. Same as 15 across.
4. Same as 61 across.
5. A heavy, bitter beer.
6. Opposite to short.
7. Here at hand.
8. A small poisonous snake of Africa.
9. Pronoun.
10. The seeds of flax.
13. A little knot or lump.
14. Pertaining to the pleura.
18. To change direction.
20. The last parts.
22. Finding the average of.
24. Abbrev. for Thames River.
25. Water falling in drops from the sky.

27. Same as 8 down.
29. Abbrev. for Little Theatre.
31. To bend low.
33. A male ferret.
37. All Things except those made by man.
40. A comic strip character. Major ———.
42. The study of rocks and minerals.
38. Opposite of his.
44. Beats or thrashes.
47. Leaves have them. We have them too!
49. Point of the compass.
51. Something which binds together.
54. Distance covered by motion of the legs.
55. A short ridge or hillock of stratified drift.
57. Tall, malvaceous annuals cultivated in southern U.S.
60. Abbrev. for Alcoholics Anonymous.
61. A male descendant.
63. Same as 5 down.
65. Compass point.
66. Compass point.
68. Two letters of the alphabet that follow each other.

(Answer—Page 3)

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