IOWA CONSERVATIONIST

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WHY WINTER FISH KILLS

Jim Mayhew
Fisheries Biologist

With the advent of the "Freezin' Season," fish life in many lakes, ponds, and streams will be subjected to death by suffocation. Fortunately the chronic "freeze-out" lakes are relatively shallow and do not support large game-fish populations so the loss is not too important. Since winter fish kills are relatively common in many waters in Iowa, we should consider the conditions leading to this situation.

First, let us consider what happens prior to the formation of ice cover, when a lake or stream takes its last deep breath of life-giving oxygen. Because oxygen is most soluble in cold water, the exchange between atmospheric oxygen and water is at the maximum. Immediately after ice-cover is formed, this chemical exchange ceases and oxygen must come from some other source, primarily from plant life. In the basic processes of plant life, oxygen is released during photosynthetic food manufacturing. The plants combine carbon dioxide, water, and sunlight to make a simple sugar. As a result, free oxygen is created as a by-product. This is characteristic of all plants, from the highest evolved root plants to simple microscopic algae. Hence, sunlight is the critical mechanism of oxygen manufacturing. Under clear ice, light penetration is sufficient to permit plant growth and subsequent oxygen release. However, under "slush ice," or snow cover conditions, light penetration is minimal and the stage has been set for winter's disaster of fish life.

Second, let us consider what happens to the oxygen which was

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CHANGE OF ADDRESS

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SEEING THE OUTDOORS —INDOORS

Duane DeKock
Information and Education Officer

The sun's first half looks over a silent marsh. Two wedges of ducks are hanging motionless over the water while a drake, not five feet away, poses by some smartweed —unaware of our presence. All of this and more can be seen the year around in Iowa.

For the sportsman, naturalist or student, there is nothing quite so convenient as studying the great out-of-doors, inside. Though lacking the exciting chill of life, there is much to be gained by studying preserved forms during the normally inactive winter months.

A common duck hunter's dilemma takes place every year when a hunter leaves the field with his limit only to run into a Conservation Officer who informs him he has killed one of the several protected species of birds. Many a bird watcher, who couldn't take the cold, has spent long winter months doing nothing but polishing glasses and paging through bird books, futiley wishing for a change of seasons. Both of these groups can improve on their favorite form of recreation by taking advantage of their closest museum or the State Historical Building in Des Moines.

In a museum the sportsman finds an opportunity to study game skins and mounted specimens. Many of these specimens may be seen in replicas of their natural habitat. This offers the sportsman not only the opportunity to learn recognition of game, but through exhibits of rare and extinct animals he can, to a certain extent, experience the thrills known only to hunters of the past. This same historical experience is available to the naturalist who has no other opportunity to see the passenger pigeon and other extinct species. Many birds and animals that have been displaced by the plow are making their last silent stand in polished glass cases.

Fred Kent Photo.

Examining the Sand Hill Cranes and two white Whooping Cranes in the University Museum at Iowa City, these youngsters are seeing birds not often viewed in the wild. The Whooping Crane is nearly extinct and the Sand Hill is a rare visitor to this state.

Other exhibits of interest include wildflowers, rocks and minerals, fossils, and weapons used by sportsmen of the past. The respositories hold many hours of enjoyment for amateur naturalists, archeologists, geologists, minerologists and others who have an immense curiosity to satisfy about creatures, things, and civilizations of the near and distant past.

The museum personnel are experts in many fields. Many questions concerning the natural

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Beaver under glass. In the foreground, the tree stump indicates the size of the trees used by the "engineers" to anchor their dam in creeks or rivers. The saplings being gnawed to size will provide bark for food—and instant toothpicks for beavervilles.

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STAN WIDNEY, Associate Editor

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TREATMENT FOR SICK FISHING

Malcolm K. Johnson

Looking across snow covered Storm Lake and watching hooded figures working in the dazzling white might make a person wonder if chiseling holes in the ice at 400-foot intervals isn't an endless job. Stretch out the measuring tape, line it up with the previous holes, neatly cut another foot square block of ice and set it alongside the hole. Again and again and again, over a body of water some three miles long by two miles wide. Following the chunk-chippers comes a wooden sled carrying a gasoline powered water pump and several five gallon drums of toxaphene.

At Every Hole

We see them stop by a hole, unreel two hoses and start the engine. Close after dropping one hose into the hole, water begins to spurt from the end of the other. Then the treatment begins. The spraying hose, with a "T" shaped end, is also submerged through the hole and rotated to spread the water-toxaphene mixture being produced at the end of the first hose. This is accomplished by pouring two quarts of the liquid chemical into the water next to mixing nozzle and as it's drawn up through the pump, mixing is completed. These two quarts are enough to treat approximately 300 railroad tank cars full of water in the ratio of two-tenths of a part per million. This stuff is really potent, though in such proportions it is harmless to animals and man.

Does It Work?

As the treatment proceeds, a workman just opening a hole finds a bullhead and then another rising to the surface trying to escape the effects of the chemical. This means it's working and that the holes aren't too far apart for adequate coverage. Before long the ice bound fish population in Storm Lake will be eradicated leaving a voided body of water.

The Reasons for Treatment

Perhaps there is some question in your mind as to why grown men would spend their time, the year around, just killing and removing bullheads, carp, quillback and the like. In the proper perspective, removing these "rough fish" from Iowa's lakes and streams is like weeding your garden. In order that soil may produce great quantities of quality vegetables, the nutrient robbing, undesirable plants must be cleaned out. You know what happens when the weeds get ahead of you and fish management operates much the same. Plenty of space to grow in and lots of available food are prime requisites for a top-notch fish crop.

The walleye fishing that Storm Lake has been famous for would assuredly be a thing of the past were it not for the Rough Fish Removal Crew and subsequent stocking operations. During the first 10 months of 1959 the crew took more than a million pounds of fish from waters all over the state. Constantly trying new methods and improving on the old ones has enabled the Conservation Department's fisheries section to keep ahead of their problem. With the extreme reproductive capacity of rough fish, standing still for a minute puts you back 10 years, a condition that keeps them working through the bad as well as the good weather.

Late in the spring when the ice has broken and the water has a chance to detoxify itself, a new crop of fish will be sown, including walleye fry if the lake level is favorable and appears to be recovering some of its former volume. Also assisting in the water depth problem next spring will be a dredge scheduled to remove much of the accumulated silt, a joint action sponsored by both the local residents and the state. The recent "Save the Lake" campaign certainly puts the people of Storm Lake on record as being interested enough in their situation to go out and get something done to solve it.

Now the first stage of Storm Lake's new lease on good fishing has been completed. With favorable weather, the rest shouldn't be long in coming.

Pouring toxaphene into the water next to the mixing nozzle. As the water and chemical is drawn up through the pump in the foreground it mixes and is then sprayed out through the "T" handled hose. With such force behind it, the chemical effectively treats an area nearly 400 feet around the hole.

Editorially Speaking

LET US RESOLVE

L. F. Faber
Assistant Director

At the beginning of a new year it is customary to look back at one's performance and resolve to do better the coming year.

If an individual can make New Year's resolutions, certainly a group of people bound together by a common belief can make them too. People having an honest concern for conservation of natural resources are such a group.

In surveying the past and wording a resolution to do better, I wonder about other groups and their situations. It has been said that our only hope of retaining what was good in yesterday, or promoting what will be good tomorrow, is to bend with all but the impossible demands of those interested ONLY in today.

Certainly conservationists are deeply involved in the process of retaining what was good in yesterday and in promoting what will be good tomorrow. This is the very essence of conservation of natural resources. It is also quite obvious that conservationists often find themselves in conflict with those who are interested only in "what's in it for me" today.

Looking at past performances, it seems to me that conservationists have become very intense in their beliefs and often may be too critical of other groups regarding the various uses of natural resources. This has brought about conflicting interests with the resultant arguments creating problems that slow down the orderly development of sound management programs.

Orderly agreement cannot be reached by one group labeling another as "exploiters," selfish interests," or on a smaller scale, "gun happy vultures," "dickey bird lovers," or other names identifying opposing viewpoints.

All controversy should not be avoided, but conservation has come of age and we must assume the responsibility of resolving problems on the basis of understanding the problems of others.

Then—for the new year, let us resolve that we shall proceed on the belief that people—all kinds of people—will determine how to best use our natural resources and that conflict can be settled by mutual respect and understanding. If we stick to this resolution we will soon learn that the time spent in such activities as name calling contests can better be used to carry out sound and productive conservation programs.

FINAL CALL FOR FISH TAGS

All fishermen in eastern Iowa in possession of tags from pike or trout are requested to send them along with information as to when and where they were obtained to Robert Cleary, State Conservation Biologist, Independence, Iowa, or to the State Conservation Department, E. 7th and Court, Des Moines, Iowa. This information is a big help in the evaluation of the fisheries programs.

OTTO L. FULTON PASSES ON

Otto Fulton, 75, died November 14, 1959. He retired as Park Caretaker at Gull Point on West Okoboji in June of 1955, but continued to reside there. Everyone who knew him, and almost everyone around the Spirit Lake-Okoboji area did, considered his friendship to be a pleasure and privilege.

Born in 1884, Otto went to work for the Department as a Conservation Officer in 1934. His duty areas included Peterson Preserve (now Wanata State Park) in Clay County; Park Officer at Gull Point, and Area Park Manager for Okoboji and Spirit Lake areas. He retired in 1951 but was immediately rehired as Park Caretaker at Gull Point.

RICE LAKE GAME MANAGEMENT UNIT

Editor's note—This is another in the series of articles on the Game Management Units, so important to Iowa's conservation of fish and game. It is authored by Guy Krall, a former Conservation officer before taking over the Rice Lake Unit in 1957. He resides in the headquarters unit 2½ miles southeast of Lake Mills and knows every rod of his responsibility, its requirements, possibilities and long range probabilities. His devotion to conservation is evident in the following):

The Rice Lake Game Management Unit consists of, at present, approximately 6,000 acres of refuge and public hunting lands and more than 60 Farm-Game Habitat areas in the nine north-central counties of Cerro Gordo, Franklin, Hamilton, Hancock, Hardin, Mitchell, Winnebago, Worth and Wright.

This section of the state was once a part of the great marsh region lying east and south of the natural lakes. Considerable drainage in the form of tile and open ditches has been accomplished, leaving only isolated areas of the type which attract waterfowl.

Name of Area	Acres	County	Type
Bright's Lake	122.43	Worth	Upland
Eagle Lake	914.52	Hancock	Marsh
East Twin Lake	493.32	Hancock	Upland-Marsh
Elk Creek Marsh (Under development)	985.20	Worth	Marsh
Harmon Lake	483.30	Winnebago	Upland-Marsh
Myre Slough	429.85	Winnebago	Upland-Marsh
Rice Lake	1831.02	Winnebago and Worth	Upland-Marsh
Ventura Marsh	629.00	Cerro Gordo	Upland-Marsh

Jim Sherman Photo.
Rice Lake—and a bullhead fisherman. Although this lake is an excellent waterfowl landing strip, it must be re-stocked annually for fishermen due to lack of depth and the resultant winter "freeze-out."

Restoration of these areas, highly desirable to the duck and goose hunter, was undertaken by the State of Iowa with the assistance of the Pittman-Robertson Program. Watersheds of the areas are not entirely adequate and in some instances pumping is necessary to maintain water levels. The chief purpose in managing these areas is to provide the sportsman with a place to hunt in the habitat most desirable to the species he seeks.

Pheasants are generally found on all the areas of this unit, either in the dry boggy bayous or along the margins of the marshes and lakes. Several of the areas have agricultural crops on lands leased in accordance with wise conservation practice. These, too, produce excellent harvest potential for the upland hunter. Principally, the upland grassy areas are important as nesting cover. Production of any species is the most relevant factor in governing its harvest.

On the East Twin Lake region, which has been relatively dry for the past few years, a program to place water from the nearby Iowa River has been initiated. The marsh, acting as a holding basin, would be filled slowly during the summer as vegetation progressed through the use of an impellor powered by a tractor. Just prior to waterfowl hunting season, the area would be filled to crest level to form a proper ratio of water and vegetation acreage. Side benefits derived from this venture would be increased furbearer activity and harvest as well as weed control.

Although the much-publicized Elk Creek Marsh project is, at present, somewhat behind schedule, advances are being made to bring this 1,800 acre area into being. Additional land purchases are being made regularly, fencing operations continue, and other problems are being resolved. Plans for construction of the first of the three dams should be put into operation early in 1960, followed at regular intervals by the construction and development of the middle and lower segments. It is hoped that all of the 1,800 acres will be used for public hunting although some restrictions may be necessary. When completed, this area will be the largest of its kind in Iowa and one of the largest in the midwest, adding to the ever-expanding chain of areas to adequately offer recreation to Iowans.

Only one unit area offers fishing of any kind and this form of recreation is met with great enthusiasm locally. Rice Lake does provide, through the use of stocking, some bullhead fishing. As with the other lakes and marshes in this district, Rice Lake is subject to "freeze-out" each winter due to its lack of depth. Heavy fish kills result, but these losses are replaced by the Fisheries Section from the natural lakes region where bullheads are too abundant and must be removed for proper management.

The Farm-Game Habitat program mentioned in the first paragraph is a program which places, at little or no cost to the farmer, a small cover area in an odd corner of his back forty. Through the use of proper tree, shrub, and seed plantings, desirable pheasant and rabbit habitat is created for a recreation area on his own farm.

Mankind has in the past mishandled much of the land. Conservation practices—soil, water, and wildlife—can partially restore some of it. As stewards of the land it is our duty to do as much as we can, as well as we can, for future generations as well as for our own, to provide adequate outdoor recreation.

Outdoors-Indoors—

(Continued from page 1)

sciences as well as history can be answered by the museum curator or his assistants. Those who have no museum near them may write to Jack Musgrove, curator, State Historical Building, Des Moines, Iowa. The following is a list of just a few of the museums found in the state:

University of Iowa, Iowa City.

Iowa State Teachers College, Cedar Falls.

Iowa State University, Ames.

Coe College, Cedar Rapids.

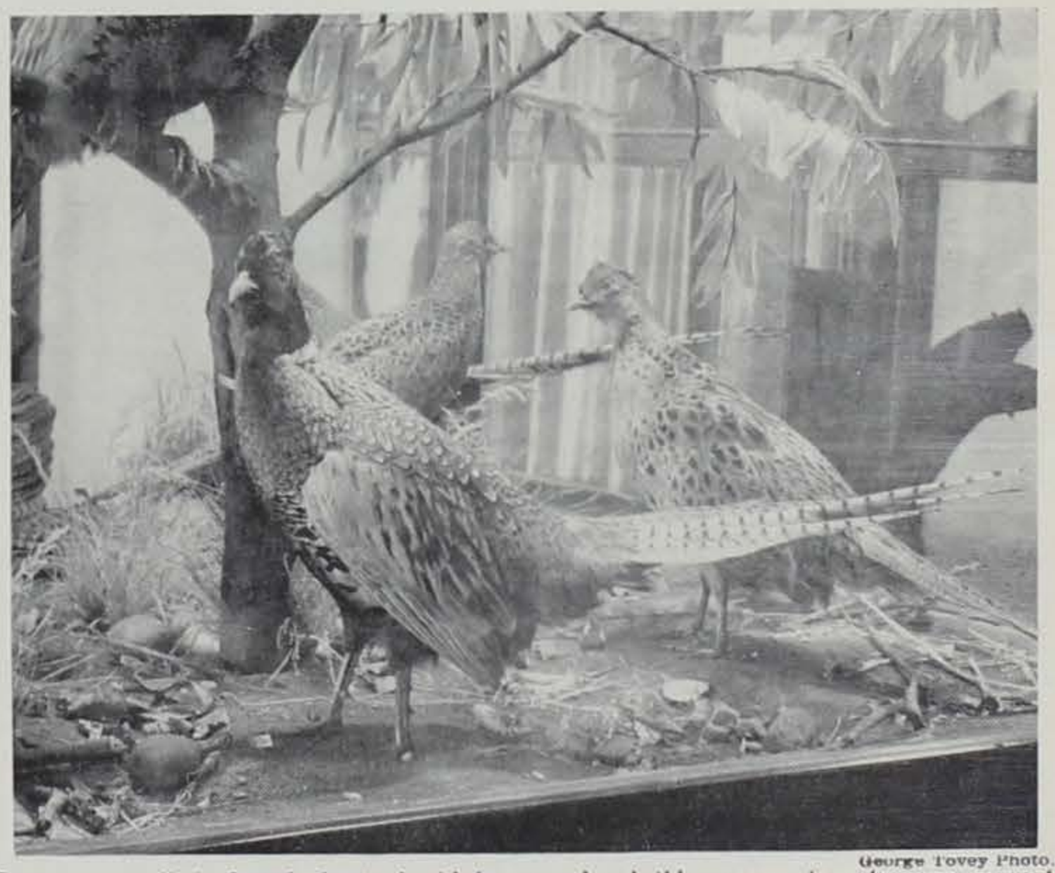
Davenport Public Museum, Davenport.

Stanford Museum, Cherokee.

The kiwi bird of New Zealand dances for his dinner. Vibrations through the ground cause earthworms to come to the surface. So the kiwi stamps his feet—then feeds. The American woodcock, another earthworm specialist, is said to perform in similar fashion.

This strikingly beautiful Hooded Merganser is uncommonly found in Iowa and then only during the annual migration of waterfowl. This and many specimens like it are yours to enjoy in museums.

While birds have regular ears, their acute awareness of sound is aided through sensory feathers, especially their tail feathers.



George Tovey Photo.
For an unexcelled close look at the birds you missed this season, tour to your nearest museum. Fine points of identification may be ascertained here much more rapidly than in the field. These pheasants are part of the wildlife display in the State Historical Building in Des Moines.

A WOOD IS MORE THAN TREES

John Wylie
Forester

Banked with fallen leaves and interlaced with the green leaves of vigorous new growth, the old tree top had lain on the ground through two winters. The small area it occupied had been quiet and apparently lifeless since the timber cutters killed the motor in their chain saw and skidded out the last log in the tree. It is true that an occasional song bird stopped to rest in its lifeless branches, but the impenetrable mass that it created caused man to skirt the area when he passed by. In the mind's eye the top was a tombstone, a monument, to a tree that had once lived here; the area it occupied as barren and lifeless as the grave yard.

No change had been visible in the old top through spring days as new leaves unfolded on the trees around it. Now sound alone indicated life in the old top. Soft calls, a rustle of leaves, barely discernable movement heralded the almost indescribably stealthy parade of an old hen turkey and her newly-hatched brood of fifteen young from their nest in the top. Dead leaf litter in the top and under sapling trees nearby were the first scratch areas to provide the high protein feed so essential to the young birds. Short rushes and calls announced the unearthing of each insect and edible seed. Working into an adjacent larger opening created by the cutting of several trees and the deadening of some cull trees, the turkeys shared their food shopping with a doe and fawn dining on some wild grape leaves. This scene did not just happen. One of Rube Goldberg's fantastic machines would look simple compared to the chain of events which made this sylvan picture possible.

Silhouetted on the second ridge to the north of the clearing, the fire tower was symbolic of efforts that started two score years before the time of the turkeys. In those days the ridge was an open, bare ground woods, supporting little wildlife or anything else. The scattered poor trees remaining were those left by cutters as too small or worthless. All of them bore cruel scars from their yearly battle for survival with woods fires. After fire protection, the fires became less frequent and eventually stopped. A fantastic reforestation project was underway in the following years. With fires controlled, nature planted literally millions of acres of good seedling trees.

Nature's recuperative powers surprised even foresters. In the beginning days they estimated that they would have to replant over a million acres of land; however, it took several years to establish a nursery to grow the seedlings and to organize the planting projects. When the foresters were finally ready they could find only thousands of acres, not millions, to plant. Over the years a thousand trees have been planted with broom rakes and other fire fighting tools for every tree planted with a shovel. Fire protection is an absolute essential to forest management. The forest and its inhabitants began the long road back to abundance.

Jim Sherman Photo.

The clean appearance of these trees is deceptive as not 50 feet from this spot a flock of mallards arose from a shallow pond. The great majority of our wild game is found at timber's edge.

Old scars on both trees and land began to heal; litter on the soil accumulated and new herbaceous and woody growth sprang up on the formerly bare areas. All of this provided low browse for once-scarce deer, which now flourished in the woods. Rigorous protection and restocking of deer speeded the comeback, yet neither would have succeeded without the food and cover so necessary to sustain life.

As the cycles of the seasons followed, new, more valuable tree growth grew taller and denser. This was the growth which was to pay the taxes and provide the economic incentive to own the land. Low browse was all but eliminated in much of the woods. However, forest soils were back almost to normal and rain ran through, not over the soil. Springs nearby took a new lease on life. Streams ran steadier, cleaner and cooler. Channels stabilized. Fishermen in the stream at the base of the hill were agreeably surprised at the events which made their trips more pleasant and profitable.

Older trees had grown and, while still affected by past scars, they had value now. Markets had changed; some of the smaller trees were also valuable.

The landowner contacted a Conservation Commission farm forester, whose timber management activities logically augmented the work of the protection foresters. The farmer asked him to help arrange a timber sale which would be profitable and still leave his timber in good shape. Agreeing that it was time for a cut, the forester pointed out that by removing the old trees, young healthier trees would be released from the competition of their poorer parents. The forester also told how the owner might kill those trees which had so little value that no logger would cut them.

Cull trees are worthless for a variety of reasons; some are too crooked, some of poor species, others are hollow or diseased. Contrary to the belief of some, not one tree in ten is a desirable den tree. However, because a tree is valueless for one purpose does not mean it is without any value. Dogwood, for instance, is generally too small for commercial use but it is a wonder to behold in the spring. Wildlife, particularly squirrels and turkeys, feed heavily on its bright red fruits. A good den tree also has obvious value but a hollow shell is more often a death trap than a good den. All these things and many other were considered by the forester as he marked the stand.

The cutting and TSI did many things. The owner received money for his investment and timber. His woods were in better condition. Small openings were created by the logger when he cut the marked trees and in these openings wild life and young trees got a new lease on life. Thinned stands gave individual trees more room to develop full crowns at earlier ages and the food manufactured in these crowns insured earlier, heavier mast crops, the bread and butter of wild creatures through the long winter months. Thus the carrying capacity of the land for both timber and game increased. As more mature, protected timber with small interspersed openings developed by management, it became attractive for turkey as well as deer.

Thus it was that the old tree was cut, the top left and protected from fire, and the opening made; when the forester and logger moved out the turkeys moved in.—*Missouri Conservationist.*

A game protector in Pennsylvania spotted a rabbit coming toward him while fighting a field fire last spring. On close examination he noted that the bunny's tail and rear quarters were ablaze. He threw the wet bag in his hand over the cottontail, putting out the stern fire and bunny bounded off, much happier for the assi

"Wait till you see the other kinds we got under the back seat."

GEOLOGY IN PIKES POINT STATE PARK

C. S. Gwynne
Professor of Geology
Iowa State University

If a geologist unacquainted with is part of the world were to be opped down in Pikes Point State ark, his attention would immedi-ely be attracted to some of the ological features of the park. rst, of course, he would see the ke, West Okoboji, upon the shore which the park is situated. He ould want to consider what geo-gical agent was responsible for e making of the lake basin. hen, there is the point itself, for hich the park is named. It is a culiar feature, extending as it es out into the lake. And all ose strange looking rocks, in e shelter, in the stone bench be-nd it, and on the steps leading wn to the shelter.

Let us enlighten him first about e lake basin. Every Iowan ows that this part of the coun-y was not so long ago covered th ice sheets, or glaciers, similar those of Greenland and Antarc-a of today. They left the coun-y covered with a thick deposit debris which they had dragged wn from the north country. In e places where the ice-front od for a long while, during the urse of its retreat and disap-arance, it left a belt of hilly untry. This is called the termi-l moraine. The basin of West koboji is simply an extensive pression in the drift surface of e terminal moraine of the last acier. Our visiting geologist ght inquire how long the lake s been there, and we would tell m that, according to modern ckoning, it has been about ten ousand years since the ice dis-peared and the basin was filled th water.

Pikes Point

So far, so good. Now, what out that point stretching out o the lake, getting narrower d lower with the distance out? king a look at the lake shore rth and south of the point, he uld see that there is a low bluff nting the lake. This, quite arly, has been eroded from the ore by waves. The wave-cut ff even runs right across the rk behind the shelter, though re it is now covered with grass. rplane photographs show the ore to be deeply concave north the point. This would suggest at the sand and gravel from the ding shore has been swept uthward by a shore current and opped to form the point. The int then has been extended out o the lake.

Today the waves are still bring-g about changes in the point. e visitor will note that the uth side is made of coarse ma-rial, mostly gravel and cobbles, ile the north side is covered th sand. Evidently the waves e the sand up on the north side.

Jim Sherman Photo

There is much of interest at Pikes Point State Park even during this season when the usual summer beach attractions are not available. Is it chilling to think that this refreshing spot was built for us by a glacier?

Other Features

Next, our geologist friend would like to take a good look at the stones used in the construction of the shelter, the bench behind it, and the steps leading down the steep slope of the ancient wave-cut bluff. He would find them of several kinds. Most of them have freshly broken surfaces, so their composition and texture are quite clear.

He would quickly recognize the rock called quartzite, of which there are many specimens here. This is pinkish-red, or purplish-red, in color and very hard. Close inspection gives one an idea that it is composed of sand grains closely welded together . . . and such is the case. The reddish color is due to the presence of a small amount of an iron mineral called hematite.

Another familiar rock is a granite. This has a pepper and salt appearance. Then, there is a rock similar to granite except that it has a streaked appearance. This is gneiss. A dense black rock is a lava rock called basalt. Those of rather greenish hue are basalts which have been somewhat altered by hot solutions within the earth.

These constructional stones all came from somewhere in the vicinity. They have been broken out of boulders such as are still found, a few at least, along the shore in the park, or elsewhere along the lake and in the surrounding country. They have all come out of the glacial drift, the deposit left by the glacial ice. Originally part of the earth's crust far to the north, they were separated from the bedrock by weathering and then formed part of the subsoil in Minnesota or Canada. Picked up by the glaciers, they were carried along with the rest of the material as the ice moved south. Such boulders formed a wall along a goodly part of the lake shore when the country was first settled. They had been washed out of the drift and formed a natural riprap, protecting the shore from further erosion by the waves.

So our geologist friend would feel that he had gained quite an insight into the natural history of Pikes Point State Park and would probably urge all visitors to try to see the park through the eyes of a geologist. And the park is easy to reach, located on the east side of West Okoboji Lake, about a mile from the north end. Put on your geological spectacles and take a fresh look at this Iowa park.

Tipping the scales at one-tenth of an ounce, the ruby-throated hummingbird will do battle with birds of any size. It can fly 60 miles per hour and like the modern helicopter, can fly in any direction; forward, backward, sideways, or hover indefinitely. Though many species of hummingbirds are known, the ruby-throated is the only one commonly seen east of the Rockies.

RABBIT PEPPER
Hasen Pfeffer

John Fish
Federal Aid

After a successful rabbit hunt, my son and I usually enjoy the fruits of our companionship by placing our feet under the table to a tasty meal of fried bunny.

As winter wears on however, and after so many meals of fried, baked, broiled and stewed rabbit, the earlier keen edge of appreciation dulls and we begin to look for something "new." Along this line, one of our new methods of preparation is an old recipe for "Hasen Pfeffer" which we have modified to our liking and would like to suggest to other experimenters as a "different" way of preparing rabbit.

You will need the following ingredients:

one rabbit
3 cups of water
3 cups of vinegar
½ cup sugar
1 medium sized onion, chopped
2 teaspoons of salt
¼ teaspoon of pepper
1 teaspoon of pickling spices
dash of garlic salt

For more rabbit add proportional parts of the other ingredients.

Cut the rabbit into serving portions, place in crock or other non-metallic container, then cover with mixture of vinegar, water, onion, seasonings and spices. It's good to use a glass weight to keep the meat submerged. Put a cloth over it and let stand in a cool place for two days. Remove the portions of rabbit, place them in a large sack with a handful of pancake flour and shake until all parts are well coated with flour. Using a roaster with hot fat or butter, brown the pieces on both sides. Gradually add one cup of the pickling juice, cover and place in the oven at 375 degrees F for one and one-half hour or until tender. After removing the meat, use enough flour and unused pickling juice for a bucket of gravy—it's plenty good.

"Homer's been having a little trouble with him running ahead too far."

HISTORICALLY SPEAKING

By Stan Widney

SHAW'S FOLLY?

B. F. Shaw, Iowa's first Fish Commissioner, was truly a devoted man. He worked an average of 16 hours a day, seven days a week at the practice of fish culture and undoubtedly knew as much about fish as any man living in that era. His only aim in life was to make fishing better, both as a sport and for food. Yet he has been raked over the coals, called all kinds of a fool and otherwise maligned since his passing, because of one supposed mistake in judgment—the introduction of carp into Iowa waters.

It wasn't his fault at all.

True, Shaw recommended carp. He was completely sold on carp as a food fish, a game fish (anyone who has ever fished for carp with fly rod knows how game they are) and a commercial fish. He said in the biennial report of 1881-83, reporting to Governor Buren R. Sherman, "I am very much impressed that the introduction of carp into Iowa is to be of great benefit, both to those who may desire to raise them in *private ponds*, and to the public as a food fish. I believe they can be raised (as a farm product) with much less labor, time and expense, and with much greater certainty, than chickens . . . and I feel quite confident . . . when raised under the direction of the State Fish Commissioner . . . that their introduction into Iowa waters will also be of benefit to the growth of bass, wall-eyed pike, etc., . . . because their natural food is a combination of vegetable and algae, the growth of which tends to choke out the predator fish."

He goes on to quote J. A. Poppe, who was the first importer of carp: "The carp on our farm are usually fed on curd from the dairy. They also show fondness for barley, wheat, corn, beans, and peas. In fact, they will eat anything a hog would." Mr. Shaw says, "So you see, as a farm product, they are unequalled . . . especially when one considers that in some states and all over Europe and in China (they are natives of Asia), carp sells for as much as 75 cents a pound."

But Mr. Shaw included this note of warning in the report to back up his advice "to stock carp UNDER THE DIRECTION OF THE FISH COMMISSIONER," in the form of a letter from another great fish culturist who had more experience with carp at that time. Mr. Levi Davis of Forrestville, California, cautioned: "The greatest drawback I find is that carp increase too fast, and the American people are too avaricious to thin them out. . . . With new beginners it is all numbers, not size and quality. . . . When we become thoroughly familiar with and properly understand their management . . . they will be a very cheap and excellent food, for the American farmer can raise them much more economically than his European cousins."

B. F. Shaw was right and so were his advisors. If carp had been confined mostly to farm ponds, fed as a farmer should feed them and sold as a farm product, they would still be about the tastiest fish on the market. If they had been carefully distributed, according to the instructions "of the Fish Commissioner" to "certain bodies of water for sports fishing," they might be as sought after as trout are today. Mr. Davis must have been right when he said, "the American people are too avaricious."

Ever taste corn-fed carp caught in fresh water? It's available, farm-pond-raised and at a price you'll be glad to pay once you've tried it.

KNOW YOUR WINTER BIRDS

In last month's issue (December) an article titled "Winter Boarders" received so much comment it was decided to run a feature in each issue during the winter months dealing with the birds that remain in Iowa despite chill and snow. Two of the feathered friends that may visit your bird feeder any time now are the White-Breasted Nuthatch and the Slate Colored Junco.

White-Breasted Nuthatch

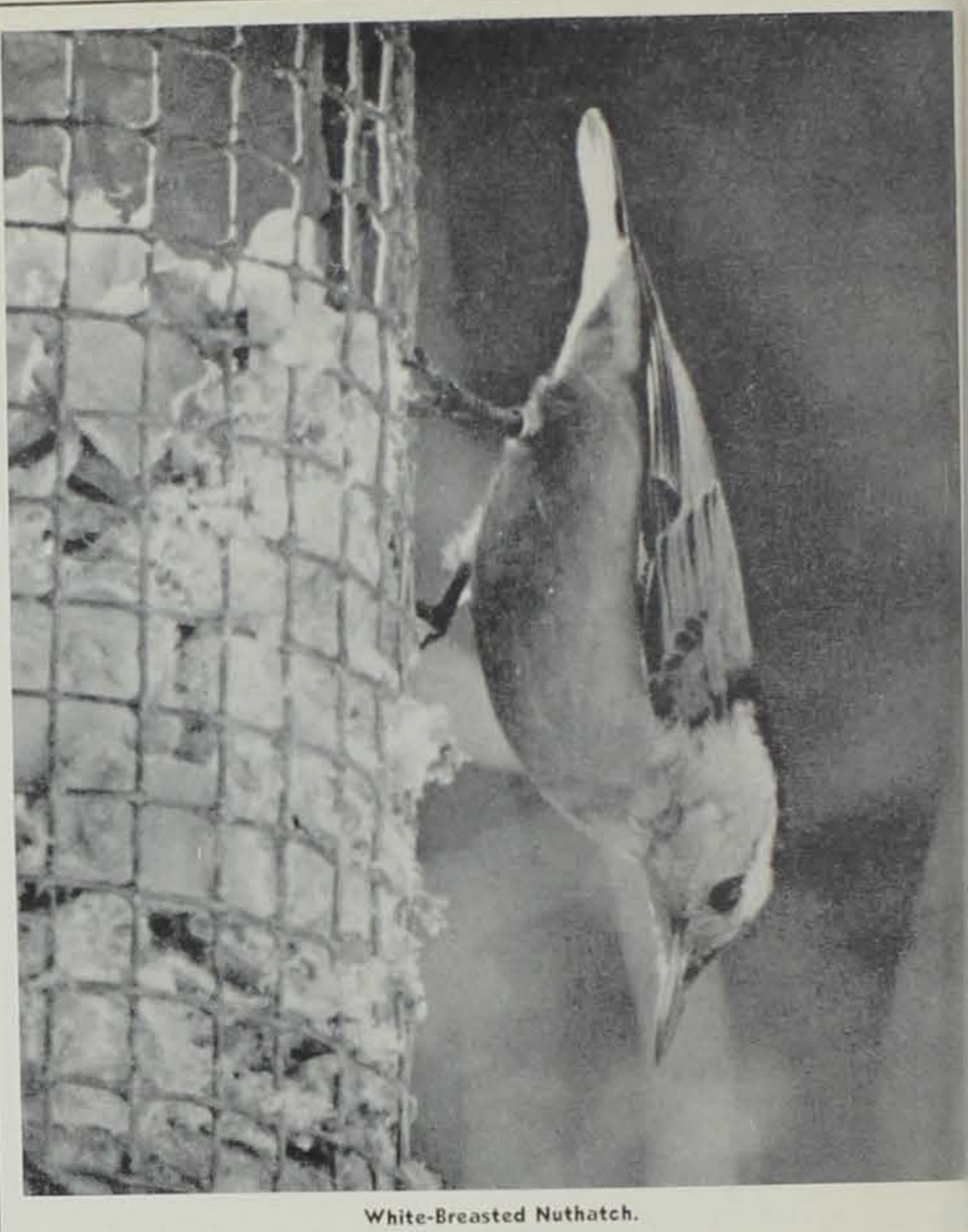
The "upsidedown bird," as he is often called, is a small, chubby tree-climber; shorter than a sparrow, with a long bill and a stubby tail that is never braced against the tree (woodpecker-like) as an aid in climbing. No other tree climbers attempt to go down a tree trunk *headfirst*, as these little fellows habitually do.

FIELD MARKS—The White-breasted Nuthatch is known by its black cap and its beady black eye on a white cheek.

SIMILAR SPECIES—Red-breasted Nuthatch has an eye stripe. Chickadees have black bibs. Remember, if he goes *down* a tree *headfirst*, he's bound to be our bird.

VOICE—In the spring, its song is a series of low, rather nasal whistled notes all on the same pitch. In the fall he whistles nasal *yank* or *hank*, or an abrupt, also nasal, *tootoo*, always double noted.

RANGE—He is a resident of the woodlands, village and city trees and orchards from Quebec and northern Minnesota to Florida and the Gulf Coast.



White-Breasted Nuthatch.

Slate Colored Junco

While hunting or strolling through a park or woodland, did you ever see a little slate gray bird with white outer tail feathers flitting along ahead of you? You nearly catch up with him—but not quite as he jumps and flies on. He likes your company but doesn't want to get too chummy. This is the way a Slate Colored Junco plays and it's very enjoyable as he *twit twit twits* along.

FIELD MARKS—Smaller than a House Sparrow, he is dark slate-gray with a hood and conspicuous white outer tail feathers, and a white belly.

SIMILAR SPECIES—The Vesper Sparrow also shows a V of white formed by the outer tail feathers, but is buffy brown, not blackish.

VOICE—Its song is a loose, quavering trill suggestive of a Chipping Sparrow's, but slower and more musical, or a lig *smack* or *click*, or twittering not as he accompanies you through t woods.

RANGE—The Slate Color Junco breeds in coniferous cou try from Maine, Michigan a Minnesota to Georgia and t Gulf of Mexico.

Slate Colored Junco.

Unlike the bullet, there is lit shocking power in a big gar hunting arrow. Such arrows k big game primarily by severi blood vessels with their raz sharp heads of various desig called broadheads. Their penet tion is surprising to a novice, ho ever, since such arrows commo pass completely through a de

COMMISSION MINUTES (December 2, 1959)

No definite action was taken er a discussion of promulgat- a policy covering installation docks at Lake Odessa. As the ation now stands, no private ks can be built on public access as and docks may be built on er areas only with the approval the Conservation Department. he policy and publication of olution on removal of boats n natural lakes was set aside further deliberation.

Henceforth, department purses will be made under the foling system: up to $100, with- publicized advertising and ead, negotiation for best price, sion chiefs may authorize purse. $100 to $1,000—to be neiated, at least three competi- bids except in an emergency; request to be signed by divii chiefs. $1,000 and up—pubv advertised bids.

eport by Assistant Director ter Faber on the progress of Mississippi River recreational vey. So far, 47 sites have been ed for consideration for develent as campsites, beaches, and lic boat accesses. Much of the d adjoining the river is under trol of the Corps of Engineers the Fish and Wildlife Service n whom the state can lease for reational use.

he Linn County Conservation rd requested permission to ceed on two projects, one is to elop an abandoned quarry near ne City presently owned by the nty and the other to buy a 24 e tract near Midway as a comation county, municipal, and rside park for tourists. The a is located on state highway Department personnel will raise the area before a deci- is made.

he Commission stated it was y bound to concur with Major J. Soenksen of DeWitt, who, ng as Justice of the Peace, oked the hunting license of a n apprehended with hen pheas-. No action was taken to re- e his fishing privileges.

he resignation of Robert Kil- (parks supervisor) was ac- ed.

he possibility of creating a tion of County Conservation rds Coordinator was discussed.

he Gifford Sanctuary in Pottattamie County, established in as a haven for blue herons, been cruised by foresters and mature and over-mature trees be removed to improve the followed by replanting maple cottonwood.

olk County Conservation rd requested that they be al- ed to purchase 34 acres near S. 35 for a county playground also that no more permits be n for the removal of gravel re Elliots Ford Road adjoins Des Moines River.

Forester Milo Peterson reported to the Commission on the progress made in securing options for land purchase in the Yellow River Forest Area. Motion was made and carried to approve all but one of the options.

Pilot Knob radio relay tower lease was renewed for five years.

A 99 year easement was approved for Diamond Lake in Dickinson County. Costing $300 for the term of the easement, it covers a 16 acre area which would be flooded when the lake is at crest level.

The bid for constructing Lila Marsh in Howard County was approved.

Administrative Order No. 282 concerning the taking of mussels was renewed.

An option for exchange of land adjoining Prairie Rose Lake was approved.

Carroll County Conservation Board was given permission to purchase three acres of land on the Raccoon River to be used as a fishing access.

Humboldt County Conservation Board was given permission to acquire 30 to 40 acres on the east fork of the Des Moines River north of Livermore for stream access and general park development.

Greene County Conservation Board was given permission to obtain five acres next to U. S. highway 30, three miles west of Jefferson for a roadside park.

Clay County Conservation Board was given permission to acquire 160 acres on the Little Sioux River near Cornell for use as a fishing access and picnic ground.

Marion County Conservation Board was given permission to acquire a 120 acre plot at the edge of the Veterans Administration Hospital southwest of Knoxville.

A possible plan to restrict dock construction at Lake Macbride to prevent unsightliness will be discussed again in the January meeting.

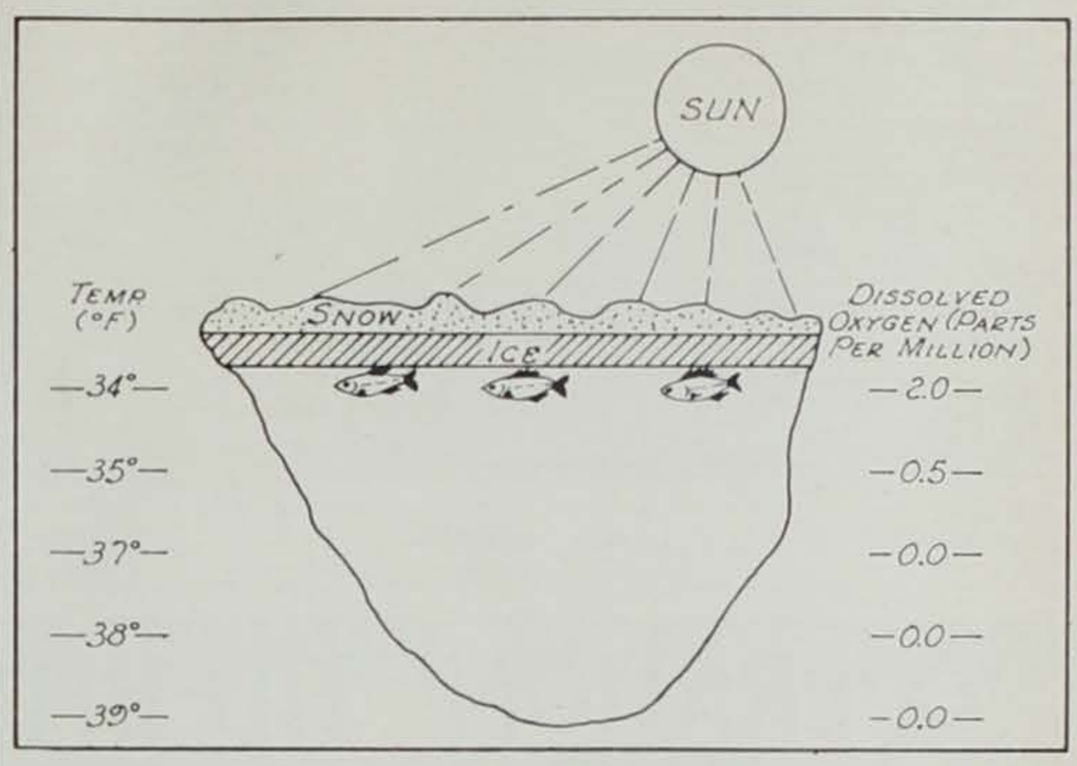
A letter to the Commission from the Iowa Fish and Game Officers Association reported a unanimous vote pledging full support to Director Powers and the present Commission.

The Commission voted that Acting Director Powers should be given full title to his position in light of his efficient service since being appointed Acting Director last July 23.

Why Fish Kill?—

(Continued from page 1)

accumulated before ice formed in the fall. Of course, all plant and animal life beneath the ice consume oxygen to survive. Algae, pond weeds, insects, crayfish, snails, leeches, frogs, and fish all use oxygen, probably in quantities greater than is realized. However, bacteria and aquatic fungi, which cause organic matter to decay in water, are undoubtedly the heaviest consumers of oxygen. These



A typical cross section of a pond in which conditions are optimum for a winter fish kill. Note the complete ice and snow sealing off atmospheric oxygen and preventing penetration of sunlight necessary for production of oxygen by plants.

bacteria are present in countless billions, and in decomposing organic matter place a heavy demand on the water's oxygen supply. This is the reason winter fish kills are so common in streams below large metropolitan or industrial centers. Bacterial action on waste products from factories and sewage disposal plants demands so much oxygen, replenishment by absorption and photosynthesis is not sufficient to support fish life. Decomposition not only depletes oxygen, but also releases undesirable gases into the water. With decomposition such gases as methane, ammonia, hydrogen sulfide, and carbon dioxide are released. Accumulation of these gases under prolonged ice cover may also become toxic to fish life. Winter kills usually result from a combination of low oxygen and concentration of toxic gases in the water.

There are three different types of winter fish kills common in Iowa lakes and streams. These are complete kills, partial kills, and delayed kills. In the complete winter kill, dead fish of all kinds usually can be seen floating on the surface soon after the spring thaw. This is the most severe type of winter kill. However, if the kill occurs early in the winter few if any dead fish may be evident when the ice disappears. Closer inspection of shallow areas may reveal numerous skeletons of dead fish.

Partial fish kills are also quite common. Each species of fish has a different oxygen tolerance limit. One species of fish may be able to survive at 1.0 parts per million of dissolved oxygen where other species will perish at higher levels.

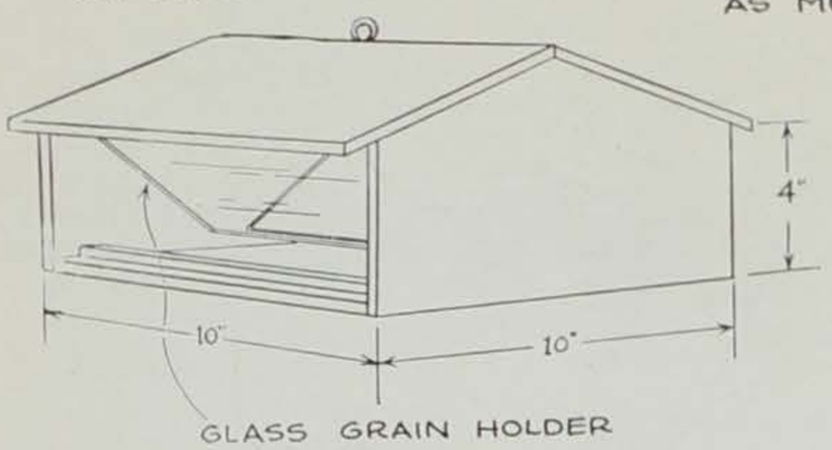
Occasionally a lake or stream may experience a delayed winter kill. These usually occur two to six weeks after the ice disappears. Although the exact cause of this type of kill has never been fully explained, it is considered a result of low oxygen during ice cover.

Unfortunately, there is little that can be done to relieve or prevent winter fish kills. It is utterly impossible for man to artificially aerate waters in sufficient quantity to support fish life. Chopping holes in ice will not help restore oxygen. This is because a thin ice film forms over the holes almost immediately and would prevent oxygen diffusion. Also atmospheric oxygen diffuses very slowly into water and must be accompanied by wind action to be effective. The mechanical pumping of air through perforated plastic pipes has been proved most successful in many states. However, the cost of such operations is usually prohibitive. Contrary to popular belief, taking water from deeper levels and pumping it to upper levels does not materially benefit the lake or stream.

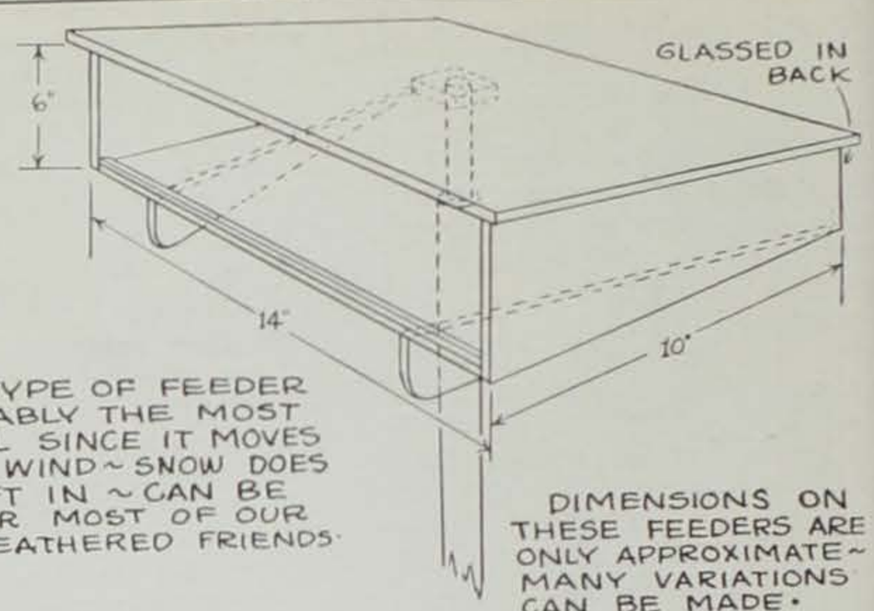
Perhaps the most practical method is by removal of snow cover to permit light penetration. If one-fourth or more of the snow cover can be removed from the surface of the ice, oxygen shortage may be relieved considerably. Snow removal must begin with the first accumulation and continue throughout the winter. Of course if the ice is cloudy and light penetration poor, this method may fail too.

Fortunately, fish populations have a miraculous capacity to recover from winter kills. Total eradication of fish populations very seldom occurs. Rather, weaker segments of the populations are removed. With the resulting reduced competition for the basic necessities of life, the remaining part of the population grows rapidly to fill the ecological void. In streams, migration of fish into a winter killed area is the most important feature of repopulation. Nature does, when possible, take care of its own.

Annual burning of leaf litter and humus reduces the land's waterholding capacity and retards soil formation. It requires about 80 years to replace six inches of burned-off litter.



THIS IS A LARGE CAPACITY FEEDER AND IS VERY HANDY SINCE IT DOESN'T REQUIRE AS MUCH ATTENTION.

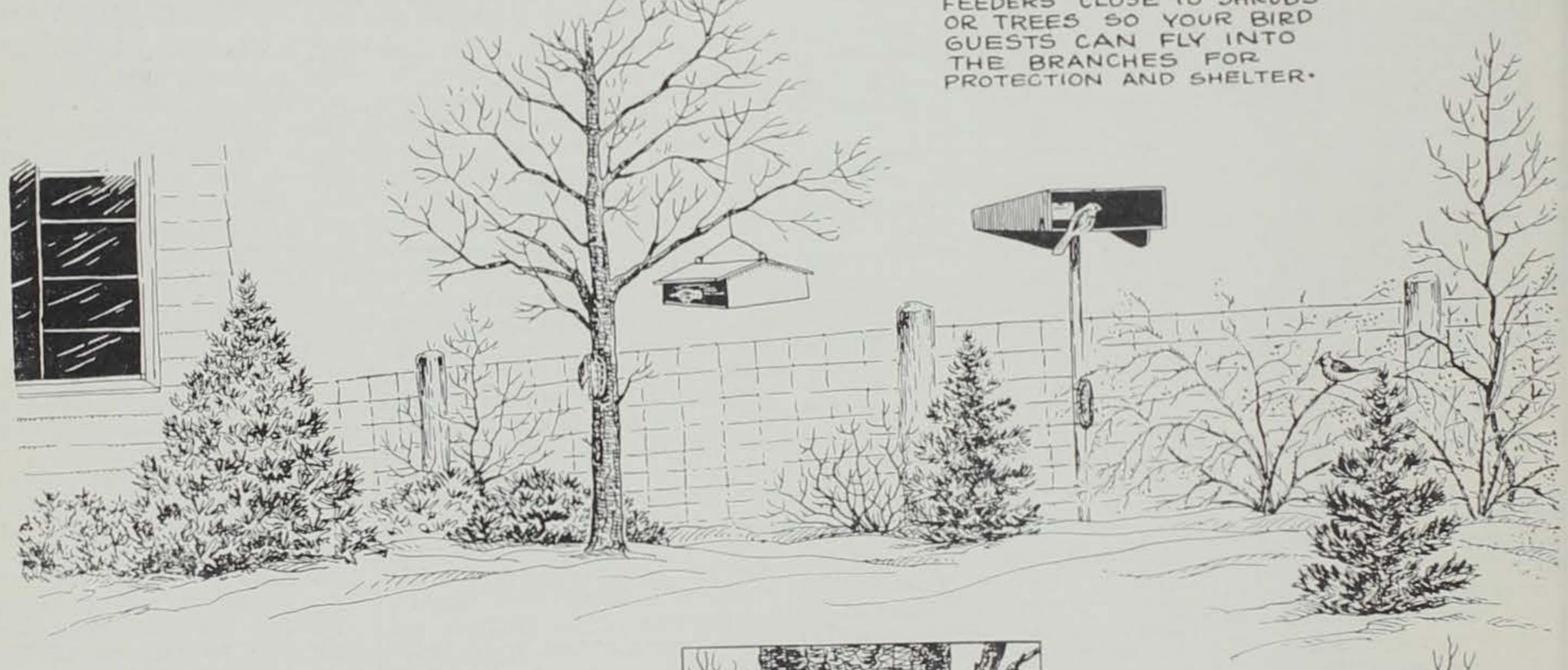


THIS TYPE OF FEEDER IS PROBABLY THE MOST PRACTICAL SINCE IT MOVES WITH THE WIND ~ SNOW DOES NOT DRIFT IN ~ CAN BE USED FOR MOST OF OUR SMALL FEATHERED FRIENDS.

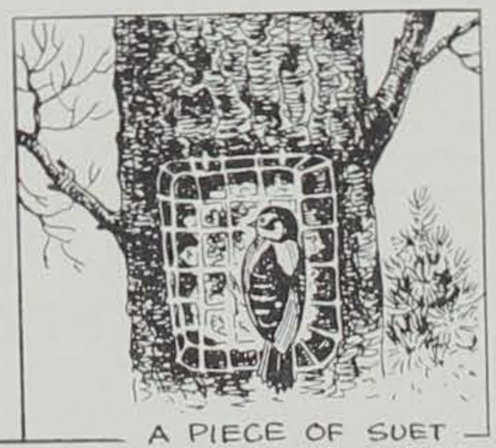
DIMENSIONS ON THESE FEEDERS ARE ONLY APPROXIMATE ~ MANY VARIATIONS CAN BE MADE.

OPERATION TID-BITS

BE SURE TO PLACE FEEDERS CLOSE TO SHRUBS OR TREES SO YOUR BIRD GUESTS CAN FLY INTO THE BRANCHES FOR PROTECTION AND SHELTER.



FILL HOLES IN A SMALL SECTION OF LOG WITH SUET MIXED WITH GRAIN OR SUNFLOWER SEEDS. SMALL SHALLOW CANS FILLED WITH THE SAME AND TACKED ON TREES IS ALSO GOOD.



A PIECE OF SUET ~ AN EAR OF CORN WILL ATTRACT THE BLUE JAY AND WOODPECKERS.

FOR THE SEED EATERS A MIXTURE OF SUNFLOWER SEEDS ~ CRACKED CORN AND PEANUT HEARTS IS VERY GOOD.