IOWA CONSERVATIONIST

Volume 17 | July, 1958 | Number 7

Some Tips On:

FISHING THE "HOT WEATHER" MONTHS

LAKE MACBRIDE PARK GEOLOGY

C. S. Gwynne
Professor of Geology
Iowa State College

Writing about Lake Macbride State Park is of special interest to a geologist. This is because of the name. Thomas Huston Macbride was a renowned Iowa geologist as well as a botanist before becoming president of the State University of Iowa.

Between 1899 and 1906 he wrote descriptions of the geology of fifteen northern Iowa counties for the Iowa Geological Survey. These are included in the volumes of the survey. Anyone inquiring into the geology of northern Iowa has turned first to these reports by Dr. Macbride. He was also one of the early workers in conservation and the establishment of parks, and it is for this reason that his name was given to the lake and the park.

The park occupies an area of two square miles or more. It is about seven miles north of Iowa City in the hilly country on the east side of the Iowa River, in northern Johnson County.

The completion of the Coralville dam and the flooding of the reservoir has brought many changes to

(Continued on page 53)

IN THIS ISSUE

Not By Bread Alone

According to a statement by Director Bruce F. Stiles, the Iowa Conservation Commission does not believe that sufficient data is on hand to show adequately that the economic benefits of irrigation balance the losses of other riparian uses of water.

Stiles says that benefits to Iowa from increased farm yields by irrigation do not balance the benefits derived from the expenditures by hunters, fishermen, campers, boaters and other outdoor recreationists.

The latter, moreover, are non-consumptive users of state waters. Incidentally, these users have established themselves as prior users for generations.

Money spent each year, attributable directly to hunting and fishing, by residents of Iowa, is about $42,000,000. During 1955, 525,000 Iowans fished and 359,000 hunted.

Striking hard for multiple-use, the Conservation Commission has pledged to protect and defend the rights and interests which the citizens of Iowa inherently possess in Iowa waters. The commission holds that the use of water by fish and other wildlife, and by fishermen, hunters, boaters and other recreational users, is a prior and original use. Therefore, it is viewed as a vested right to be preserved, unharmed, for future generations.

The Iowa strong stand is commendable. We hope it is not too late. It will be unless all Iowa recreationists "get with it" under its leadership. We hope that this will be a timely warning to sportsmen and conservation leaders in other states.

As is threatened in Iowa, irrigation will pull the plug on recreation if you fail to fight for your water rights. It's preposterous to accept irrigation as *necessary* for food production. Food *surpluses* are one of our biggest social problems!

—June, 1958 Bulletin Sport Fishing Institute

FISH AND INSECTICIDES

Jim Mayhew
Fisheries Biologist

With the development today of an increasing number of insecticides and the use of more potent insecticides, there exists real and potential dangers to many forms of wildlife for which these chemicals are not intended.

DDT was the first of these insecticides to be used, and it is still the most popular and widely used. Widespread application of DDT on agricultural lands, forests, marshes and waters has quickly aroused the interest of persons and agencies who are concerned with the ways in which it might directly or indirectly affect animals other than insects.

It should be realized that insecticides have great potentialities in the control of invertebrates which are harmful to man if they are used in a proper manner. However, they can be dangerous to both our terrestrial and aquatic life in the hands of a careless operator.

Many different insecticides have been developed within recent years

(Continued on page 54)

Keith C. Sutherland
Editor

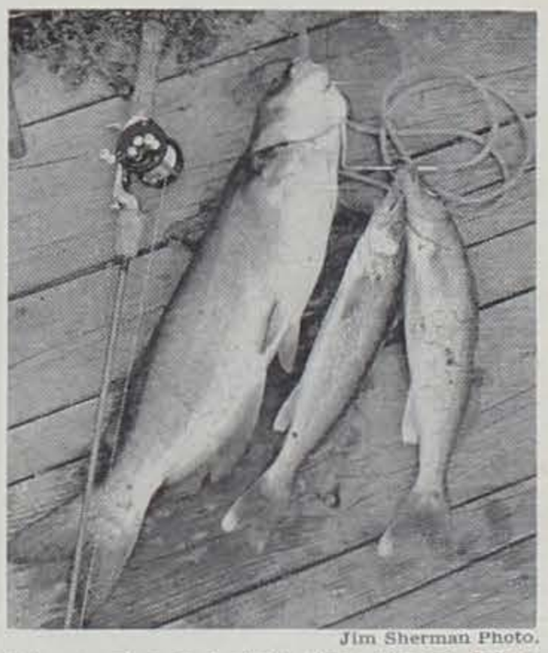
When the calendar swings into July and Sol burns down unabated and with authority into the old fishin' hole, the angler is apt to throw up his hands and put an immediate damper on any thought or suggestion of fishing.

"What's the use? It's too hot!" he and a good many of his angling counterparts will say during the summer season. But we submit that this needn't be. The hottest July or August day need not call a halt or curtail anyone's fishing.

Of course, it would be a little ridiculous not to recognize that summer fishing may be at some sacrifice to personal comfort. And we would be painting something less than an honest picture of things if we didn't also recognize that summer fishing calls for some alteration and adjustment in fishing methods that may be successful at other times of the year.

But—*and this is important*—there are fish to be caught in summer just like any other time of the year, and the angler with a little work and savvy is going to catch them. In fact to be downright realistic about it, there are times during the summer when fishing for many species actually

(Continued on page 55)



Jim Sherman Photo.

Late evening and night-time stream fishermen are likely to put both catfish and walleyes on their stringers in summer. Shrimp is sometimes favorite fare of both species.

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GNATS AND MIDGES

David Thompson
and
Roberts Mann

Any small fly is commonly called a gnat or a midge, but flies of whatever kind are seldom popular, either large or small. True flies are insects with one pair of wings. Dragonflies, mayflies, stoneflies, fireflies, caddis flies and the like have two pairs of wings and are not flies. Some flies are useful as scavengers, and some help control destructive insects, but among the lot are most of the carriers of human diseases. The unpleasant habits of mosquitoes, house flies, deer flies, as well as certain gnats and midges, have given these Deptera, or "two-wingers," a bad name.

Black Flies, also called Buffalo Gnats, make life unbearable from May to midsummer for loggers, fishermen, campers and vacationers near streams in the resort regions of our northern states, Canada and the mountains. From dawn until dusk, except in bright sunlight, swarms of them fly about your head and get into your eyes, ears, nose and mouth. The females suck blood and inject a poison which raises big welts that itch and ooze for days, usually on the back of your hands and neck. If numerous, these bites can cause headache, fever and nausea.

The adults are stout, humpbacked, short-legged flies scarcely half as long as houseflies. The female dives into a stream and glues several hundred eggs to an underwater stone in rapid water. There the developing larvae use a fringe of finger-like tentacles around the mouth to strain food out of the water. Sometimes a rock is so crowded with these maggots that they look like patches of greenish black moss. After a few days as a pupa, it bobs to the surface, bursts, and a new adult takes wing.

Sand Flies, Punkies, or No-see-ums are other names for the Biting Midges. They breed in ponds, streams and tree holes. Their tiny slender larvae swim like miniature snakes. In many places they are a greater nuisance than mosqui-

(Continued on page 56)

Editorially Speaking

Bruce F. Stiles
Director

THOUGHTS ON WATER

When you open the faucet at the kitchen sink to get a glass of water you seldom turn it on at full force. When you do turn it wide open it comes out in a torrent and discharges approximately 8 gallons per minute. On the average, the same is true of your bathroom faucet.

When a faucet is open in one of our homes in Des Moines it is discharging water taken from the Raccoon River. This water is very valuable to us.

Probably there never has been on this earth or never will be any physical property of such great intrinsic and universal value to mankind as water. Since creation man has had an affinity for and has been especially attracted to streams and lakes. Man has sought out our rivers and lakes in preference to all other sites as a place to build his home.

Cities have been built and flourished along water courses, only to be deserted and crumble away in ruins when the water supply was exhausted.

Water has many uses—some consumptive and some non-consumptive. Our demand on the available supply is enormous, and that supply is definitely limited.

As our population increases the supply will become even more limited. Sooner or later we must inevitably be faced with the decision of how our limited supply of water can best be used.

With over a million acres of Iowa land in the soil bank to curtail crop production, the use of water for irrigation in Iowa is a waste of a public resource.

Now let's go back to the kitchen sink. Let's suppose you turned the faucet on full force. If, after they had been running night and day for 10 years, you turned off the bathroom faucet, you would still have to leave the tap at the kitchen sink running full force for another 974 years to discharge the amount of water that has been requested from Iowa rivers and creeks for one year's use in irrigation!

Present requests for irrigation water from our rivers and creeks alone is over 4,940,000,000 gallons per year.

Our natural resources belong as much to our children and to our children's children as they do to us and we have no right by anything we do or fail to do to place their prerogative to an adequate supply of pure water in jeopardy.

Nature's Notebook

EVENTS IN AUGUST

. . . Southern migration begins. Flocks of swallows and martins gather for trip south.

. . . Shore birds begin migrating south.

. . . Molting period for waterfowl takes place in August.

. . . First flights of early waterfowl begin moving south. Blue Winged teal are prominent among these early migrators.

. . . Early fall wildflowers appear in August.

. . . Northward movement of herons and egrets takes place in August.

. . . Young of frogs and toads are in great abundance this month.

. . . Heavy display of woodland fungi during August.

. . . Wild fruit and berries are in evidence.

. . . Wildlife begins preparations for winter.

. . . Nesting of goldfinch—state bird of Iowa—and other late nesting species takes place in August.

. . . Singing of locusts, caddydids and crickets are included in the evening chorus of insects heard in August.

. . . Large flocks of blackbirds and starlings will be observed in August.

. . . Water plants on display during August, particularly lotus.

TREE FOR IOWA? HERE ARE OTHERS

There has been much interest in Iowa during recent months favoring adoption of a state tree.

In view of growing sentiment and agitation for adoption of a state tree for Iowa, the IOWA CONSERVATIONIST felt it would be interesting to print a list of states and the trees they have adopted.

For such a list, we sought the help of Elbert L. Little, Jr., dendrologist for the U. S. Forest Service in Washington, D. C., who provided us with the U. S. Forest Services' official list of state trees. Little states that the Forest Service list cites common names approved by U. S. Forest Service and is, to his knowledge, the most accurate list of state trees.

STATE	TREE	ADOPTED
Alabama	southern pine	1949
Arizona	blue paloverde	1953
Arkansas	pine	1939
California	redwood	1937, 1953
Colorado	blue spruce	*1939
Connecticut	white oak	1947
Delaware	American holly	1939
Florida	cabbage palmetto	1953
Georgia	live oak	1937
Idaho	west. white pine	1935
Illinois	native oak	1908
Indiana	yellow-poplar	1931
Iowa	None	
Kansas	cottonwood	1937
Kentucky	yellow-poplar	*
Louisiana	None	
Maine	east. white pine	1945
Maryland	white oak	1941
Massachusetts	American elm	1941
Michigan	east. white pine	1955
Minnesota	red pine	1953
Mississippi	south. magnolia	1938
Missouri	flower. dogwood	1955
Montana	ponderosa pine	1949
Nebraska	American elm	*
Nevada	singleleaf pinyon	1953
New Hampshire	paper birch	1947
New Jersey	northern red oak	*1950
New Mexico	pinyon	1949
New York	sugar maple	1956
No. Carolina	None	
No. Dakota	American elm	1947
Ohio	Ohio buckeye	1953
Oklahoma	eastern redbud	1937
Oregon	Douglas-fir	1939
Pennsylvania	eastern hemlock	1931
Rhode Island	maple	*1894
So. Carolina	cabbage palmetto	1939
So. Dakota	white spruce	1947
Tennessee	yellow-poplar	1947
Texas	pecan	1919
Utah	blue spruce	1933
Vermont	sugar maple	1949
Virginia	flowering maple	1918
Washington	western hemlock	1947
W. Virginia	sugar maple	1949
Wisconsin	sugar maple	1949
Wyoming	balsam poplar	1947

* indicates unofficial adoption.

MANUAL TEACHES JOHNNY TO SWIM

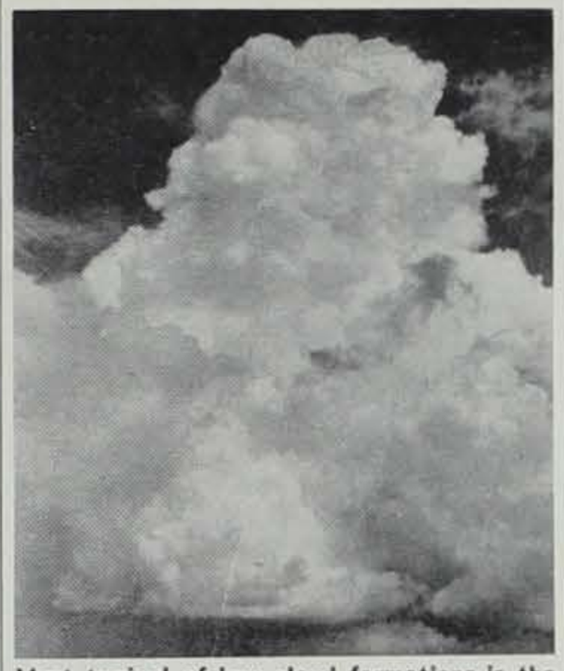
Want to teach that small son or daughter how to swim, but don't quite know where to begin or how to go about it?

A new publication recently printed by the American Red Cross will help you make the right start.

The publication is *Teaching Johnny To Swim—A Manual for Parents,* available from the American Red Cross, National Headquarters, Washington, D. C., or from local chapter offices.

Written especially for parents with small-fry eager to try the water, information in the book is just as applicable to adults. The manual is well illustrated to present swimming in the simplest of terms and with full consideration of all safety factors of the sport.

Cirrus are a type of high cloud formation. They indicate fair weather as long as they remain high. They can, however, be the forerunners of storms when they come in contact with low or mid-altitude cloud build-ups.



Most typical of low cloud formations is the cumulus. It is from this type that rain and thunderstorms develop. When dead calms precede this type of storm system it is a warning to take cover.

This isolated cumulonimbus cloud or thunderstorm cloud shows a rain shower from the base. Watch for vertical movement of cumulus clouds into this type. This activity indicates rainy weather.

Sky "Signs" Answer:

How's The Weather?

What kind of weather are we likely to have today? Later on today? What about tomorrow? How about the weather this weekend?

Whenever an outdoorsman plans a trip into the open, it is fairly certain weather will be one of his first considerations. He wants to make sure he is packed and dressed for any kind of weather. He also wants to have some indication of weather so he can be alert to any abrupt changes that might affect his personal comfort or safety while in the open.

Most of us are not trained meteorologists and make only occasional and rather casual observations of weather conditions. But, says Loy Johnson, meteorologist of the Des Moines Weather Bureau, there are certain "signs in the sky" which even the most casual observer can learn to recognize as factors in a fair or inclement weather picture. Observations of cloud types and movement, wind force and direction and certain conditions of the atmosphere are some of the indicators of weather and weather developments.

Generally speaking, clouds at high or middle altitudes—the cirrus and altocumulus or altostratus formations—are fair weather indicators. Some sprinkles of rain may fall from these mid-altitude types, but little more. If they increase or thicken, they may develop into thunder storms later.

Cool Weather

Dry, stable weather conditions are indicated by wind from the north with clouds moving from the north. This weather pattern is usually preceded by high, puffy fair weather cumulus clouds against a brilliant sky. While this weather pattern dominates, cooler weather may be in the picture, but there is little possibility of rain.

Cumulus, the low altitude clouds, are the usual forerunners of wet or nasty weather. Watch for vertical movement of these clouds, and their development into cumulonimbus, says Johnson. As they get higher and thicker they take on the gray, ominous look that we recognize as thunder heads or thunder clouds.

Much about the shape and movement of clouds indicates conditions in the sky and the weather system that is likely to follow. Clouds that are moving rapidly or that seem to "boil up" indicate high winds aloft. These conditions quite often set the stage for severe rain and wind storms with occasional hail activity. Johnson suggests one way to tell about wind activity is to look for pouches below clouds. Any cloud formation that has a smooth or uniform base indicates stable weather conditions.

Any cloud formation that is high and remains high, indicates fair weather. Low cloud formations usually mean foul weather. This is a good rule-of-thumb for the outdoorsman to follow.

Wind direction is an important factor in weather because of the type of air it brings into a given area or region. Most thunder storms in Iowa are the result of south or southwesterly winds laden with moisture that has been scooped up from the Gulf of Mexico and mixing with cooler air from the north. The "collision" of these two systems "triggers" the common summertime showers and thunder storms known to all of us.

Calms Are Warning

The dead calms that sometimes precede a brewing storm are not to be taken lightly, says Johnson. They are a final warning that a severe storm, often with strong, gusty winds and soaking rains, is on the way. Don't take chances in this situation—use the calm as a time to head for cover and don't wait—do it immediately! Johnson advises.

Abnormally warm weather for a particular season of the year also may result in nasty weather conditions. A check of weather records just prior to November 11, 1940 shows that mild readings were recorded prior to November 11. Many of us will remember for a long time what resulted when a sudden, severe cold front moved into this weather picture—one of the most vicious blizzards in Iowa history!

A little watching of the atmosphere often discloses what kind of weather can be expected. High humidity is a pretty good sign that things are going to "pop," says Johnson. And, if frequent dabbings at your forehead don't tell you anything about the "mugginess" in the air, your eyes can. Presence of moisture in the air cuts visibility, while clear air and the ability to see great distances usually indicates dry, stable weather.

"How about the old saw that a red sun and sky at sun-down indicates clear weather tomorrow?" we asked Johnson.

"Quite true, it does. And, by the same token, halos or rings around the moon are one of the best signs that a disturbance is on the way. The brighter the ring, the greater the risk of bad weather ahead," Johnson said.

All photos courtesy U. S. Weather Bureau.

Probably every boy who ever dreamed once imagined these clouds were ships with important missions to dangerous, remote islands. Meteorologists term them fair-weather cumulus clouds and associate fair weather with them.

Wardens Tales

When the shoe is tight or on the other foot, it can really pinch, a party of Iowa hunters discovered during the winter rabbit season.

Christie Hein, Conservation Officer in Mills and Montgomery Counties, checked the party of four in southwest Iowa. One of the four maintained he didn't have a hunting license and that he wasn't hunting. Hein examined the party's bag, discovering they had a total of 36 rabbits, or six over the number three license-holders should have.

"You're over your bag limits, and that's too bad," Hein told the hunters. "That means the whole batch is illegal and must be confiscated. I will have to issue you a summons on 36 counts of violating the legal bag limit. About the cheapest you can get off is $10 a count," Hein said.

One of the hunters did some quick mental arithmetic.

"Let's see," he figured. "Thirty-six counts at $10 a count. Holy Mackerel! That's $360," he gasped.

"Listen," the fellow said pointing an accusing finger at the hunter who had said he wasn't hunting, "that fellow was *too* hunting!"

Conservation Officer Ward Garrett of Council Bluffs maintains he knows of one Pottawattamie County angler who fishes on the installment plan.

Garrett approached an angler recently along a portion of Lake Manawa. The particular spot the fisherman was plying his wares is on private property and a charge of 50 cents is levied by the property owner for the privilege of fishing the spot.

As Garrett approached, the angler hurriedly reeled in his line, and his quick and nervous actions were such that Garrett had reason to doubt the angler had a license.

Sure enough, he didn't, Garrett discovered.

"Didn't know I needed one," the angler told Garrett. "I thought as soon as I made four trips here fishin,' that would be equal to the $2 license fee, and *they would just issue me a license.*"

A "BEAR" FACT

Hibernating bears are sometimes semi-conscious and aware, but not disturbed by movements and sounds around them. Sometimes they are wide awake and resent intrusion.

HOMEBODIES

The red squirrel's home range is only 500 to 700 feet across. It rarely ventures beyond this except possibly in the mating season or if its food supply runs out.

Only when traveling long distances do Canada geese fly in the well known V-shaped pattern.

Trout practically stop digesting their food when the water temperature drops below 40 degrees Fahrenheit. At that temperature they are sluggish and a small fish may satisfy a trout's hunger for several days.

SHARP HOOVES

Pronghorn antelope don't depend entirely upon flight in dealing with enemies. They are quite capable of dealing severe blows with their sharp hooves.

The meadowlark is not a lark. It belongs to the same family as the blackbird and the oriole.

Fort Atkinson Work Underway

The dream of many to see Fort Atkinson in Winneshiek County developed and improved has taken a step closer to reality!

Work is now underway to partially reconstruct the fort before time and decay damage it further. The work might be more accurately termed a stabilization venture, since the project is aimed at retaining the original atmosphere of the fort and the era it served. A total of $45,000 has been appropriated for the present work. The fort cost $95,000 to build in 1840.

With what is now available, the State Conservation Commission will be able to take a stride toward additional improvement work. The present project includes replacement of the east and north portions of the stockade; replacement of enough of the stockade around the gun houses to outline the old original stockade; replacement of the main gate; stabilization of the old barracks and hospital building; establishment of a museum in the barracks building; and purchase and placement of appropriate signs and markers to explain each fort building.

With a reasonable break from the weather, all the work, except the museum, is scheduled for completion by the end of the summer. Understandably, work on the fort is a slow, deliberate effort. Lathing and shoring inside the barracks and hospital building and the ditching for the stockade poles has been delicate and closely supervised in order to recover and save any valuable artifact for later display in the fort's museum.

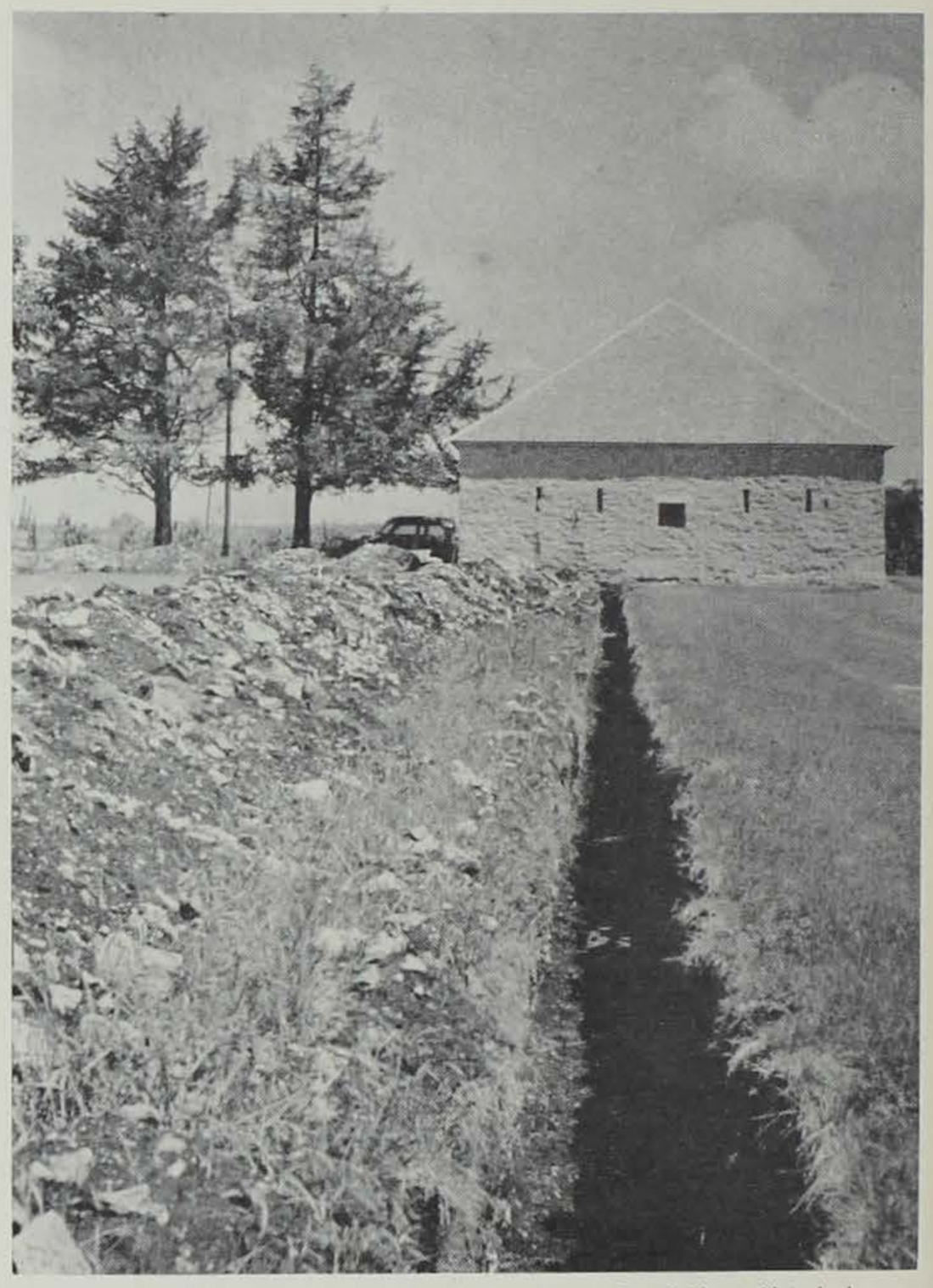
Museum

Bob Killen, area parks supervisor, said the museum will display artifacts and information pertaining to the fort or of the military personnel who served there. The museum will be located on the ground floor of the barracks and hospital building.

Several of the fort buildings stand today much as they appeared during the period the fort was garrisoned from 1840-49. The floors of the main barracks building, southwest gun house and the powder room are original. It is these features plus the romance and nostalgia of the early frontier and the lives of those who lived within the fort's stockade that brings thousands of visitors to the site each year.

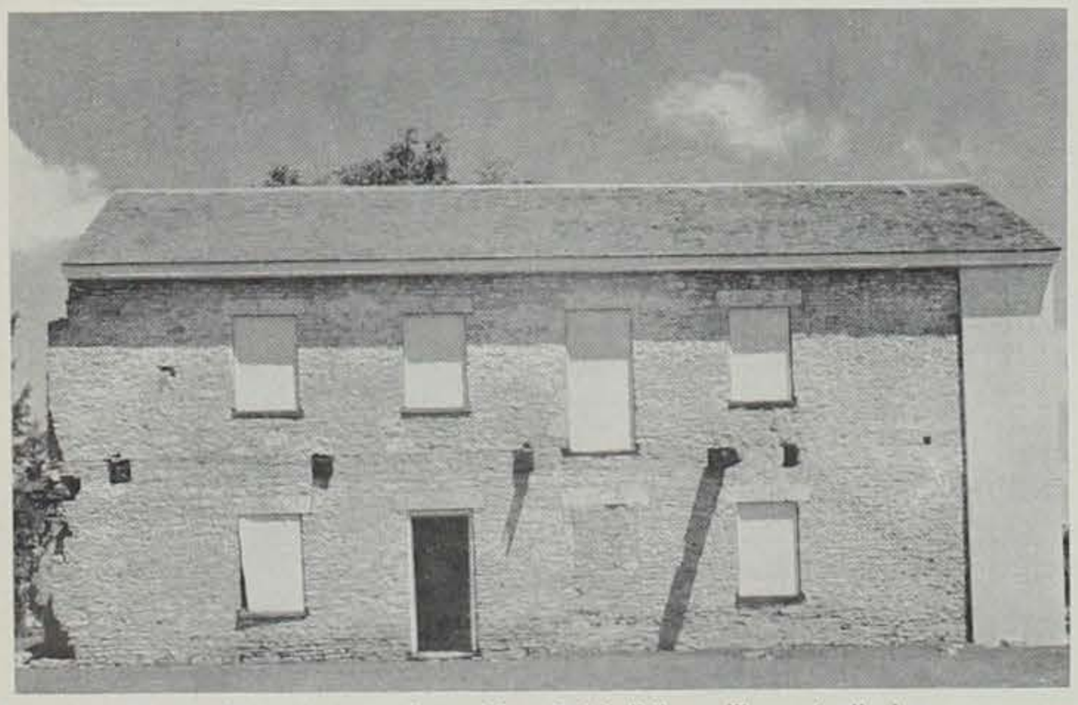
Bigger forts and older forts served the westward-moving pioneers, but in all of American history Fort Atkinson stands alone as the only fort ever built to protect the American Indian. For nine years, its garrison protected the Winnebagos from the warring Sioux, Fox and Sac tribes, while adding to the military stature of Brig. Gen. Henry Atkinson for whom the fort was named.

Completion of the present work at Fort Atkinson will define more vividly the original appearance of the fort. The project also will give more significance to an important era in Iowa's early history.



Ditching is complete and ready for the stockade poles at Fort Atkinson historical monument in Winneshiek County. Ditching was completed with great care in order that any valuable artifacts could be removed and saved.

Except for the roof, the old powder room at Fort Atkinson is the same as it appeared when the fort was garrisoned from 1840-49. The building is an early-day type of air conditioning. Walls are actually two walls with offset vents between. As a result, no moisture collects on the inner wall or floor.



The ground floor of the old barracks and hospital building will eventually house a museum recalling events in the life of the fort and of the men who garrisoned her. While appropriations are not adequate for a complete restoration, present work is a step toward further improvement.

Workmen here are completing some lathing on the inside of the old barracks building at Fort Atkinson. Work at the fort is slow and tedious because of one important objective —to restore as nearly as possible the fort as it appeared in 1840.

Geology—

(Continued from page 49)

he park. The dam has been completed and the lake is filling. When full, it will be about 29 feet above its old level and the lake area will be greatly increased—from 138 to more than 900 acres.

The topography of the park area is one made by running water. Before the installation of the dam, there were two converging valleys leading to the Iowa River. These valleys had many tributary ravines and gulleys, all made by running water since the last glaciation. With the placing of the dam across the larger of the two valleys, a basin was completed. Its two branching arms extend up the two valleys. The minor indentations of the shore mark the smaller tributaries. The water is the runoff from an area of about twenty-five square miles. All the hilly country extending along the Iowa River in this part of the state owes its ruggedness to erosion by drainage tributary to the river.

That is only part of the geological story. It is the recent, the postglacial part. The evidence for the rest lies beneath the surface. First is the wind-deposited silt, the loess. One is perhaps not aware of this in the park unless one digs into the ground on the upland areas. However, many road-cuts in the vicinity show this stone-free material, several feet in thickness.

Beneath the loess lies the stoney clay called drift, the deposit left by the glaciers. Again this may not be seen in the park, but it is there, beneath the loess, and shows up in road-cuts along county roads. This part of Iowa was covered twice by ice-sheets which had spread from centers in Canada. It has been a few hundred thousand years since the retreat of the last ice sheets from this area, so there has been plenty of time for running water to carve out the valley of the Iowa River and its tributaries. Thus much of the drift has been washed away.

The deposition of the loess is associated with the activity of a later ice-sheet which reached only a short distance into Johnson County. The upper part of the drift has been weathered, so that it is reddish-brown in color. The unweathered drift, usually out of sight in all but the deepest gulleys or road-cuts, is gray in color. Where un-eroded, the drift is some tens of feet in thickness.

Beneath the loess and drift lies a limestone and shale formation called the Wapsipinicon, named from outcrops along the Wapsipinicon River. It is at the surface in places where the loess and drift have been eroded away, and is exposed in crumbly outcrops along some of the ravines in the park. Also there is a fine exposure of this formation at the dam. It is in layers, characteristic of sedimentary rocks. Some of the layers have many fossils, the imprints of shells of invertebrate animals which lived in the seas in which the rock was deposited as a sediment.

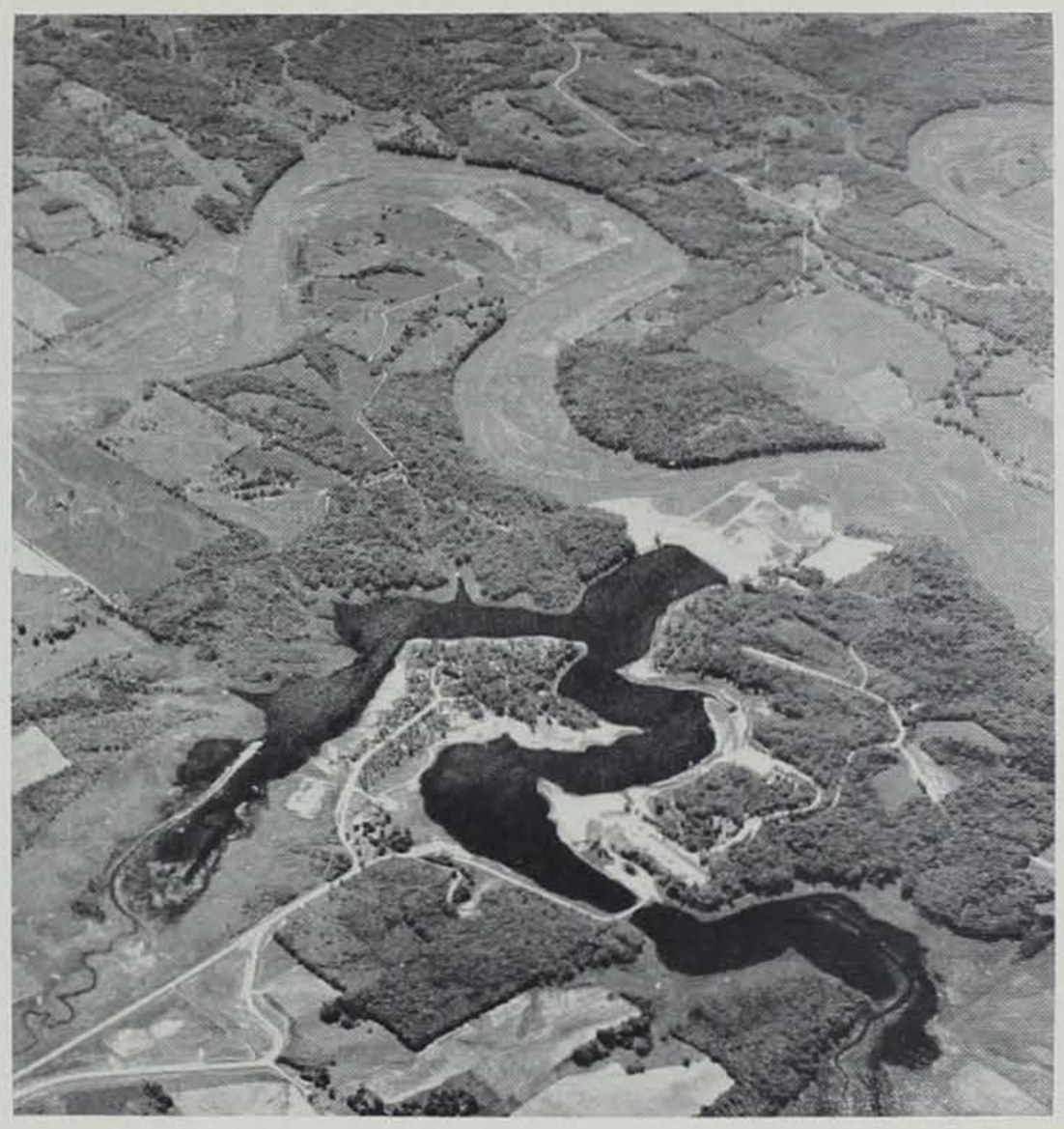
Most of the fossils are of two-shelled animals called brachiopods, known also as butterfly shells and lamp shells. The two shells are similar but differ in size. Each shell is bilaterally symmetrical. That is, when cut in half, the two halves are alike. Brachiopods are still living in some parts of the ocean today, but they are greatly exceeded in numbers by other forms of marine shell life. Pelecypods, of which clams and oysters are representatives, also have two shells, but the shells differ in shape from those of the brachiopods.

The layers of rock seen at the dam were once continuous across the valley, and across the valley of the Iowa River. Weathering and erosion, both preglacial and postglacial, have combined to cut a trench in this record of ancient seas. The Wapsipinicon formation, the one through which the river has cut, is in the lower part of the Devonian system of rocks. This period came to a close about 300,000,000 years ago, so there has been plenty of time for nature to carve valleys in these ancient deposits.

Beneath the Wapsipinicon formation, which has a thickness of 130 feet or so, are the rocks of the Silurian system, deposited as sediments in the period which immediately preceded the Devonian. The system forms the top of the bedrock beneath an extensive area east and northeast of Johnson County, including all or parts of Cedar, Scott, Clinton, Jones, Jackson, Delaware, and Dubuque. The rocks of this part of Iowa dip gently southwestward, and this accounts for the Silurian being below the Wapsipinicon at the park.

One of the Silurian formations the Anamosa dolomitic limestone, is an excellent building stone and has found wide use in the state. It is quarried not far from Anamosa and has been used in state parks in the construction of buildings, walks, walls, and terraces. The stone in the buildings and walks at Macbride State Park is Anamosa limestone. Very delicate stratification is a notable feature of this rock. The walk between the parking area and the bath house at the park, made of this stone, shows some interesting features.

The surface of a few of the slabs are covered with the impressions of an ancient form of sea life called tentaculites. These are in the form of marks, less than an inch in length, some straight, some slightly curved. They give the surfaces the impression of having been dented with a chisel. Tentaculites belong to the group of animals called pterpods, which in turn are members of the gastropod or snail family. Some of the slabs have veins. These are straight cracks which have been filled by mineral substance deposited from solution.



George Tovey Photo.

Lake Macbride appears as the dark area in this photograph. The lighter river channel above the lake is the Iowa River which forms a part of the massive Coralville flood control project.

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Below the Silurian beds are still more ancient sedimentary rocks, laid down as sediments in shallow seas. These are penetrated by deep wells. Water from some of the beds are important as supplies for communities and farms.

Limestone from the Wapsipinicon formation has been used as riprap to protect the lake shore at the dam. Elsewhere along the shore, where wave action is severe, low bluffs are beginning to develop. This reminds us that Lake Macbride, like all lakes, is subject to silting. These low bluffs may expose the loess and drift of the subsoil.

After Lake Macbride has reached its new level erosion of the new shore will proceed. Sediments will also be carried in by runoff. The spillway will be attacked by weathering and the wear of running water. Left uncontrolled, Lake Macbride would one day cease to exist, and Mill Creek would continue its uninterrupted way to the river.

Well, Doggone! A Domino-Playing Poodle!

We heard recently about a poodle that actually played dominoes with his master, but we hasten to add that we cannot vouch for the story. We can, however, testify that many dogs can perform a card trick that amazes all witnesses the first time they see it.

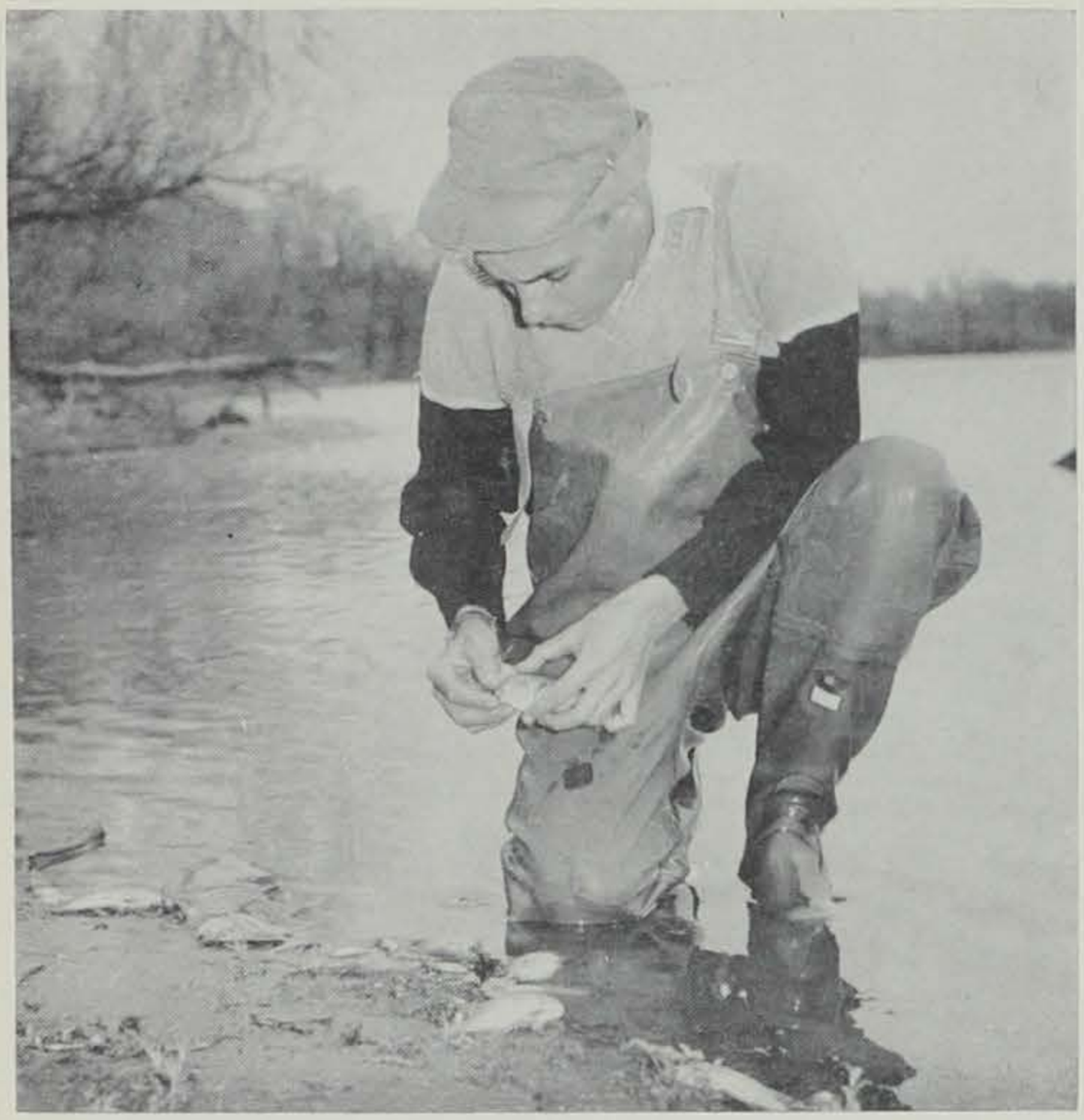
Let's assume that your dog can do this trick. Sometime when you have visitors you casually announce that Rex knows a new card trick. Everyone, of course, will want to see your wonder dog perform. Just to make it look harder, you lock the dog out of the room and hand a deck of cards to one of your guests. Then you go through the business of picking a card. You show the card to everyone, put it back in the deck and ask your guest to strew all 52 cards on the floor.

Then you call in your dog and say, "Rex, find my card," and Rex proceeds to nose through the scattered cards. If all goes well, he'll pick out your card and bring it to you if he can manage to pick it up.

Amazing? It really isn't, and any dog with enough obedience training to have progressed to the "scent discrimination" test can do it. The only "trick" involved is for you to make sure to rub the card between your hands so as to get your own body scent on it. Ideal conditions call for a brand new deck of cards. Then the card which carries your scent will stand out like a sore thumb to a dog with a good nose.

The dog that played dominoes? His name was Brac, he was owned by a Frenchman and it is reported that he frequently beat his master at the game. Unfortunately this canine marvel performed his feat about 100 years ago, so we can't produce a single witness who saw him do it!—*George Crowley's "Dog Chatter" in Florida Wildlife.*

Approximately 200,000 trout, principally rainbow and brown, are stocked each year from the state fisheries hatcheries at Decorah and Strawberry Point.



Biologist Mayhew examines bluegills killed by insecticides. Mayhew points out that insecticides in the hands of careless operators pose a real danger to many forms of wildlife.

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Insecticides—

(Continued from page 49)

as a result of extensive research by our insecticidal chemists. Some of the most popular insecticides on the market today include DDT, aldrin, dieldrin, TEPP, chlordane, methoxychlor, heptachlor, benzene hexachloride, parathion, lindane, and toxaphene.

The biologists working on the effects of insecticides to fish have been primarily concerned with five major problems. These problems include: (1) the direct effects of insecticides to fish; (2) the effects of insecticides on different sizes of fish; (3) the effects of insecticides to different species of fish; (4) the effects due to the poisoning of fish-food organisms; and (5) the effects of fish consuming insects that have been killed by insecticides.

Experiments conducted by the author have revealed a wide variation in the toxicity of different insecticides. There is also a considerable difference of various formulations of insecticides. Dieldrin and toxaphene proved to be the most toxic to trout and yellow perch, whereas, DDT, heptachlor, and parathion were least toxic. One hundred per cent kills of trout were noted within three hours when dieldrin and toxaphene were applied at a rate of 0.1 parts per million in water. DDT and heptachlor killed only 50 per cent of the fish within 24 hours when applied at the same rate. Other insecticides varied in toxicity in relation to these extremes.

Several experiments have been conducted in Virginia by applying DDT dust to crops in amounts varying from 0.1 to two pounds per acre. Mortality in nearby ponds ranged from 33 per cent within six days when light applications were tested to 100 per cent mortality in six days when two pounds per acre was applied.

There seems to be a direct relationship between the size of fish and the tolerance to insecticides. Studies in Idaho found that fingerling trout two inches in length were able to withstand higher concentrations of DDT than smaller fingerlings. In some cases fingerlings were able to withstand DDT spray applications of as much as one pound per acre when applied as suspensions or oil formulations. Observations on Back Creek, West Virginia indicated that DDT had little effect on larger fish when applied at one pound per acre, while numerous young fishes were found dead.

There is some evidence that DDT and other related insecticides affect each species of fish to a different degree. Pond experiments with brook, brown, and rainbow trout, and bluegills revealed that the trout were totally unaffected by DDT when applied at one pound per acre, while mortality was high in the bluegill. Experiments at the University of Wyoming have been conducted to study the effects of chlordane to several species of fish. When chlordane was applied at a rate of 0.02 parts per million to water, yellow perch and bluegills were killed within 96 hours, while carp were not affected. Further studies in West Virginia revealed smallmouth bass, trout and golden shiners were much more susceptible to insecticides than largemouth bass and yellow perch.

Fish could be affected in two ways by the insecticidal poisoning of fish-food organisms. The first is an indirect effect which results from the killing of organisms, thus causing a scarcity of food. The second is a direct effect resulting from the consumption of organisms which have been in contact with and killed by insecticides.

Investigators state that in checking streams in Idaho that had been sprayed with DDT in control of tussock moths it was apparent the fish population had decreased. The cause of this was thought to be due to either actual mortality from consumption of insecticide-killed insects or migration from the immediate area because of a depletion of food supply.

In aquarium experiments with bluegills no mortality resulted from feeding the fish all the insecticide-killed houseflies they could eat. Smallmouth bass, however, which were fed DDT killed midge larvae in another experiment did suffer some mortality. One fish ate 20 larvae and died 24 hours later, while another specimen consumed 90 larvae and was still alive after 14 days when the experiment was completed.

Inasmuch as the results of many studies reveal that all insecticides are extremely toxic to fish, great precautions should be taken in order to minimize the dangers involved to animal life. The following recommendations are proposed to minimize the possible danger to fish:

. . . . Whenever it is possible to adequately control insects with wettable powders or dust, these formulations should be used instead of emulsifiable concentrates because they are far less toxic to fish.

. . . . If emulsifiable concentrate formulations are used, avoid applying them directly to water surface, such as lakes and streams.

. . . . Because of their high toxicity to fish, all dieldrin and toxaphene formulations should be used with extreme caution and applied only in the minimum quantity which is necessary for control.

. . . . The direct application of such highly toxic insecticides such as dieldrin and toxaphene to water should be avoided.

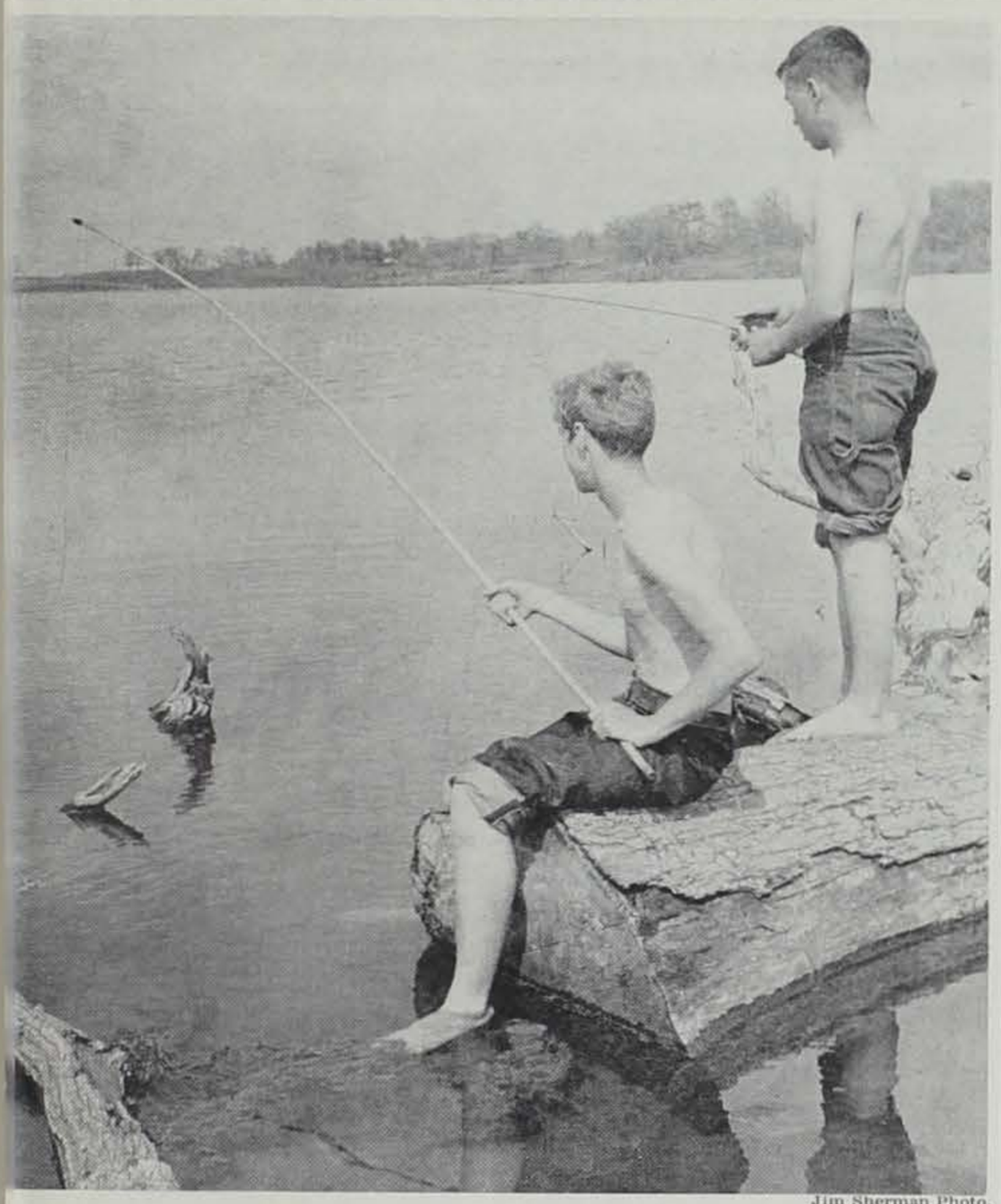
. . . . The possible effects of all insecticides to fish and other forms of wildlife for which they are not intended should always be given careful consideration.

Aptly described by its name, the burrowing owl lives in vacated holes left by prairie dogs, foxes and badgers.

The rhinoceros is capable of moving its six thousand pounds at a speed of 28 miles per hour.

A newborn bear cub is smaller than a new porcupine.

The alligator lizard has a particular appetite for black-widow spiders.



Jim Sherman Photo.

t's great to be a boy in summer when dress—or lack of it—can suit the temperature nd fishing situation. Hot weather may call for some changes in fishing methods, but the fact remains there are good fish to be caught at this time of year.

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ishing—

(Continued from page 49)

s better than any other time of ear. Bass fishermen, for example, now that chances of nailing the rize "lunker" of the season is ood, perhaps, best on the hottest uly or August evening!

If there is one good general hint or hot weather fishing, it would e to do a little investigating and ry to find out what changes in abit fish undergo during hot eather. Where do they go and hat do they do during certain imes of the day and night in sumner? When you discover the anwer to this question you get the ipoff of how, where and when to sh, including the best baits and ures to use.

There is also a good summertime ule-of-thumb that seems to apply o most every kind of fish in nearly ny water. All fish, whether warm r cold water species, will move to older water or seek shade or deep ater during the hot part of the ay, feeding in shallow water early n the morning, evening or after ark. This means then, the most rofitable fishing will come to those ho concentrate on these spots—hade from trees, from bank overangs, along the undercuts and ear all types of water vegetation hat affords a little shade. Exmine the stream for feeder prings, too, for these provide a ool retreat from the sun's direct nd blistering rays. Fish the shalow areas in early morning and vening and get your lure down deep during the hottest part of the day. Experiment with lures, the depth the lure is trolled or worked, and fish different kinds of water until you hit upon the combination that gets results.

Since discussion of hot weather fishing eventually gets into different species, we went to Conservation Commission biologists and conservation officers for their observations. On the basis of personal experience and from creel checks they conduct throughout the year, their comments are particularly significant for the angler. Here is what they say:

WALLEYES

Tom Moen, fisheries biologist—One of the most effective ways of taking walleyes in summer is to work lures over the tops of weed beds in the evening. Spinner and fly combinations, the so-called "killer rigs" are effective when fished in this manner. In summer, walleyes are found during the day in deep water and occasionally in the mud flats. This means the angler must experiment with different areas to locate them. Watch the thermocline and fish in six to eight feet of water, not below it.

Bill Basler, conservation officer, Dickinson County—The weighted lures with trailing bucktail or maribou are effective for walleyes. Walleye fishing will slow with the presence of new hatched minnows. However, the angler who fishes the weed beds in evening when walleyes move in to feed, stand a good chance of taking fish.

NORTHERN PIKE

John Spinner, fish culturist—Concentrate on the weed beds and off large sandbars during the morning and evening hours. Mississippi River fishing for northerns is productive in the relatively shallow and stumpy sloughs. Work or troll your lures slowly for best results.

LARGEMOUTH BASS

Jim Mayhew, fisheries biologist—In most hot weather situations, an underwater lure fished at about six to eight feet is productive. Eel type rigs are good as are plastic worms. Fish these lures by casting into the shallows directly to or parallel to the shore and work them slowly into deeper water. There is a general inshore movement early in the morning and evening. During these times topwater lures and bass bugs are effective. On a good moonlight night dark topwater lures are productive. Fish in or above the thermocline during the hot weather months. It is virtually useless to fish below 14 feet in southern Iowa during summer months.

SMALLMOUTH BASS

Bill Basler, conservation officer, Dickinson County—I have the personal belief that smallmouths will bite any time, once they are located. Use a lead line and sound the bottom for rock piles. Once these are located, concentrate on these spots. If you don't pick up a strike in five minutes or so, move and sound for another rock pile.

Bob Cleary, fisheries biologist—During normal years the best hot weather smallmouth bass fishing occurs in the tributary or spawning streams. Smallmouth fishing in major rivers is usually a late August to October sport. July and August smallmouth fishing in the tributary streams is most successful in the early morning and evening, with midday fishing usually a hot and non-remunerative chore.

Since the large brood smallmouth need lots of water, those left after the spawning if not "caught out" are inclined to "drift out" with the ever-decreasing water levels so often found in these streams in late summer and early fall. During July and August, live bait loses some of the effectiveness it had during early summer, and flashing hardware, plugs, poppers and flies take over. Since the water is usually "gin" clear about this time of year, more fish will be taken with long, fine leaders and careful angler movements, than with the ten-pound leader and bull-in-the-china-shop technique that might have been effective early in the season.

A late afternoon hot weather lure favored by many small stream smallmouth fishermen is the popper. This is quite effective in the cutbank type of pool, near the brushpile, and at the base of a long riffle. Normally the smallmouth is not an after dark feeder but occasionally this technique pays off. The coolest water is usually the deepest and it often pays to fish areas below spring outlets or adjacent to bank seeps. The somber-colored lures and flies which are seemingly more effective in the spring and fall, now give way to the red, yellow, white and orange artificials. Flashing tinsel and chrome are fish attracters in clear water.

Actually one of the best things the non-specialist can do in regard to hot weather smallmouth fishing is to refer to the article on smallmouth bass fishing by Bill Tate in "Iowa Fish and Fishing." Bill was one of the best all-around fishermen I have ever known.

CATFISH

Harry Harrison, fisheries biologist—Generally speaking, hot weather catfishing is much better from 10 p.m. to 3 a.m. than at any other time of day. Chicken blood on the float is a particularly good bait. Diddy poles baited with grasshoppers or frogs fished from the river bars is one of the most productive methods. Make sure you know Iowa fishing regulations regarding this kind of fishing so that you attend your poles properly and do not exceed the number of poles, lines and hooks allowed. In night fishing, it is a good idea to fish areas where willows overhank banks and fish close to the bank. Not more than four feet from it. During the day, fish under snags or in other areas that are dark. Don't expect catfish in clear water during daytime hours. Of course, during rises in the stream, catfish may be found in any kind of water. Riffles of streams are good in the evening from approximately 6:30 to 8:30 p.m. Catfishing during the day and at night might be summed up this way: fishing during the day, you have to fish where the fish are; at night, the fish come to you.

Frank Starr, conservation officer, Buena Vista and Cherokee Counties—Certainly the best time for catfishing during the hot summer months is in the early morning and late evening, with many fishermen making their best catches after dark. My favorite bait is a large chub. I steak the meat from the fish after having removed the scales and place it on a 2-0 hook with the flesh side exposed. This bait seems to be attractive to catfish at almost any time of the year. I like to place chicken entrails on the hook much in the same manner you would a nightcrawler but with just the point of the hook exposed. I seem to be able to hook more fish when I use them in this manner. I would advise catfish anglers to take along a number of baits since you can never tell what particular one might be the most effective. Some of the effective baits are chubs, chicken entrails, both fresh and sour, shrimp, turkey and chicken livers and cheese baits. Use just enough sinker to cast the bait and keep it on the bottom. Drift the bait along a cutbank and under snags. In this way, the angler can fish a lot of river with minimum of disturbance which sometimes is the difference between good luck and an empty creel.

BULLHEADS

Harold Johnson, conservation officer, Emmet County—I find in my observations that the most popular bait used in bullhead fishing is the nightcrawler, although there are days when beefsteak and bait shrimp will do the trick a lot better. Not long ago, I visited with two anglers on High Lake. They had 88 nice bullheads, which they had caught on parts of frogs. One of the anglers told me he caught about 20 fish with the head of one frog.

TROUT

Bob Daubendiek, conservation officer, Winneshiek and Howard Counties—Fish early in the morning and evening and stick to small baits. Fish the seeps and springs during the day since trout work upstream to springs in hot weather. This season of the year is a heydey for the fly fishermen since hatching insects are always in abundance. This time of the year is particularly productive for brown trout, with grasshoppers an important part of their fare. Northeast Iowa valleys are always cool and there are no mosquitoes which adds to the enjoyment of summer fishing in this area.

PANFISH

Ken Kakac, conservation officer, Des Moines and Henry Counties—(Crappies)—Best results in midsummer will be gained by fishing in early morning and evening hours, working the inlet streams and bays with flies and around snags with minnows. For best results with minnows, hook them through the back using a long leader and split shot. Spinners and pork rind also is an effective lure.

Gene Hlavka, conservation officer, Jasper and Poweshiek Counties—(Crappies)—Flies are favorites of the crappie fisherman and the maribou streamer flies are excellent. Other good patterns include a gold body fly with yellow streamer and red tag or an all-white polar bear hair streamer with silver body. Not many crappies are caught on the surface with poppers. However, during some years a red and white popper with maribou tag has been very effective.

Jim Sieh, biologist (bluegills)—Choose a night with little or no wind for the best bluegill fishing. Concentrate your fishing at the edges of weed beds, using small poppers or flies. Move the lure slowly and add to its appeal with small twitches and jerks.

Raccoons usually live near water, in timbered areas. Hollow trees are favorite denning places and they eat many small aquatic animals.

Boa constrictors have an elastic-like ligament at the juncture between their jaws which allows them to swallow a victim many times larger in diameter than themselves.

George Tovey Photo.

Gnat and midges, while annoying to the angler, can work for him. These examples of gnat and midge wet and dry flies will take fish when a hatch is on. The match illustrates the small size of the flies.

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Insects—

(Continued from page 50)

toes, because their bite is like a jab with a red-hot needle and they are so small that they can enter dwellings through ordinary screens. Unfortunately, they are most abundant after black flies and mosquitoes have had their season, and in places where the scenery is most beautiful.

Frequently, near lakes or streams, we see great swarms of little insects dancing over the water, or clustered against lighted windows at night. They look like small mosquitoes, the males with large feathery antennae. They sing like mosquitoes, too, but they do not bite. These are True Midges. Dozens or even hundreds of species of them breed in fresh water where both the adults and their larvae are a major source of food for almost all kinds of fish. Mature larvae of the different kinds range from a tenth of an inch to over an inch in length and, in color, may be white, yellowish, greenish, bluish, pinkish, or very deep red. The last, known as the "Blood Worm," is collected and sold in pet shops to feed aquarium fish. It thrives in moderately polluted water.

The young of other gnats and midges are plant pests. The Fungus Gnats cause "wormy" mushrooms. Others produce rose galls, chrysanthemum galls and the cone galls on willow. The most destructive of these gall midges is the Hessian Fly carried to America during the Revolutionary War in straw that the Hessian soldiers brought for bedding. Its annual damage to wheat, rye and barley is estimated at nearly a hundred million dollars.

You can't ignore the naughty gnat or the mighty midge.—*Forest Preserve District Nature Bulletin.*

A lady bug is not a bug but a beetle.

FISH — BUT RELAX

Fishing is fun. At least it's considered as such by thousands of erstwhile anglers who participate in this sport each year, some with better results at the season's end than others, but enjoyed by all.

And then, of course, you have the determined person who carries the mad pace of daily routine to the lakes and riverbanks with him instead of taking it easy and relaxing.

The fisherman who doesn't allow enough time to drive to his favorite fishing area, and as a consequence has to drive his automobile at a high rate of speed, the fisherman who doesn't allow enough time for sleep or for a good breakfast, the fisherman who works hard at the lake or stream trying to catch more fish than anyone else, is going to be in worse shape than he was before his day of relaxation begins.

The best example of successful fishing that we know of is the small boy or the man who sits happily dangling a hook from a country bridge or a shady bank. They may not have boats and fine tackle, they may not catch any fish, but their relaxed attitude is right, and they're having fun. The secret of successful fishing is not catching fish, but taking it easy.

After all, you don't have to bring home your limit to prove to yourself and everyone else you had a good day. The satisfaction of spending a day on the lake or river doing what you like and the resultant feeling within yourself of a day well spent mean a great deal. As a matter of fact, you don't even miss "the big one that got away."
—*Decorah Public-Opinion*

A garter snake can swallow a frog because it can unhinge its jaws to allow the passage of large creatures.

The Best Excuse In The World

Juvenile delinquency in this country has reached a shocking stage. That, in itself, is bad enough; but when the said juvenile delinquency is aided and abetted by high school teachers, things have reached a deplorable state of affairs—or have they?

After a long, cold, snowy, disagreeable winter, there came a definitely warming period, culminating in one of those perfect days of early spring. The day was cloudless, windless, and one that awoke a deep-seated restlessness in every true son of Izaak Walton. From my desk in the schoolroom, I could look out of the window and see the heat waves shimmering as they rose from the ground. My hands itched for a fishing pole. I cursed the day in which I ever chose a profession that would keep me cooped up in a schoolroom on such a perfect day for fishing.

In my home room was a boy—one Washington Price—who never missed a day of school. Other pupils might become ill with colds, sinus infections, mumps, measles, chicken pox, and all the rest; but not Washington Price. I never knew him to be ill; but on the first perfect day of spring, Washington Price was absent from school.

In our city, it is a rule of the Board of Education that when a pupil is absent from school, for any reason, he must, upon his return, bring with him a written statement from his parent or guardian, stating the reason for the absence. It is the home room teacher's duty to examine this "excuse" and, if it is believed to be genuine, and carries a legitimate reason for the absence, it is filed and an admit issued which will admit the pupil to all of his classes. If, on the other hand, the "excuse" seems suspicious, it is the teacher's duty to engage the pupil in conversation and, if possible, arrive at the true state of affairs. If the "excuse" is plainly spurious, it is sent to the office for further investigation for possible truancy.

On the morning following that perfect day, Washington Price returned to school, and laid his "excuse" on my desk. I picked it up. It read as follows: "Dear Teacher: Please excuse Washington Price from school yesterday. He was sick." It was signed, "His Mother." The handwriting looked very much like that of Washington Price, himself.

I looked at Washington, and he looked at me.

I smiled at Washington, and he smiled at me.

Leaning over close to him so that the other pupils might not hear, I whispered, "Washie, did they bite yesterday?"

"Yes, Suh", Washington whispered back.

"Did you get any?"

"Yes, Suh. I got a big carp."

And did I report Washington Price to the office for truancy? I did not! Instead, I okayed his excuse as genuine, issued his permit, and filed his excuse along with all the other "legitimate" excuses.

That was many years ago. Washington Price is married now, and has children of his own in school. But, when I meet him, as I do sometimes, he invariably smiles; and I smile in return.—John J. Mason, *Ohio Conservation Bulletin.*

HACKLE PLIERS GO ASTREAM

Anglers have been beset for a long time by the problem of handling and trying not to lose small flies while on the stream.

Most of us have hands that may be fine for the business end of a garden spade or "muscling" a 10-horse around, but when it comes to handling a size 18, 20 or 22 flyhook, they are simply too big for such a delicate chore. Add to this frustration the fact that nylon leader is springy and hard to handle, or the exasperation of a sudden gust of wind, and—well, we've all had the same trouble—poof goes the fly! And when a small fly gets away, it takes some doing to find it, if it's found at all!

"Hop" Hopkins of 2200 56th Street, Des Moines, recently passed to us a suggestion that might help deal with this problem. Anyway, the idea strikes us as having sufficient merit to share with our readers.

Hopkins attaches a pair of hackle pliers to his fishing vest or jacket with a lanyard. Then, when he is on the stream and the occasion arises, the pliers are handy to clip onto and hold a fly.

If the angler elects, he can even thread and tie off the fly while it is firmly held in the jaws of the hackle pliers. Just be careful not to pinch the pliers while you're tying off or you will be right back where you started.

It would seem that one of the strong points of using hackle pliers this way is that it gives the angler something big enough to get a good, man-sized grip on. This makes it possible to handle the hackle pliers and the flyhook altogether—as a unit. And this is no small advantage, particularly on raw days when hands are numb with cold.

The horned lizard's ability to squirt blood from its eyes sometimes has been disputed, but actually does occur when alarm or excitement causes the sinus at the corner of the eye to rupture.

Salamanders have a very slippery skin due to the secretions of many mucous cells.