

# IOWA CONSERVATIONIST

Volume 13

JUNE, 1954

Number 6

## BEWARE OF THE PAPER CITIES!

### MID-SUMMER FISHING AT NORTH TWIN

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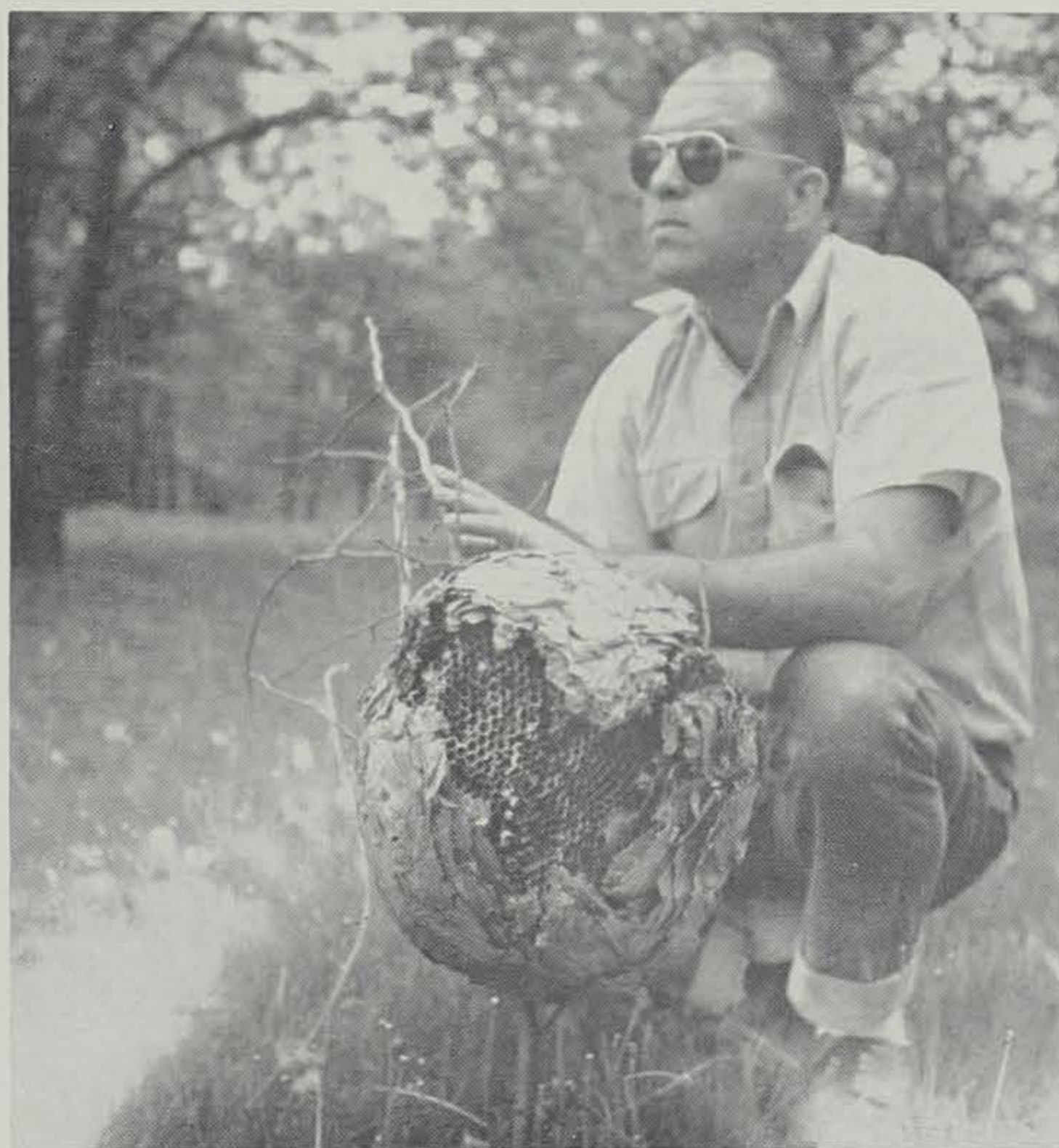
We all have heard of fishermen who, through years of "experimentation," have developed their own "sure-fire," "never-fail" baits and lures as well as techniques reputed to spell the difference between angling failure and success. The success of these fishermen, we are told, was seldom short of phenomenal and quite often provided the basis for their attaining legendary status in their respective communities. Rarely did they divulge their trade secrets to others for fear of loss of prestige.

These trade secrets did not involve magic but were based upon an intimate knowledge of the food preferences and feeding habits of fish. Basic knowledge such as this is as essential to angling success today as it has been down through the centuries. The "lucky" fishermen are almost invariably those who study the fish and try many techniques to find the most successful for catching fish under various conditions. Much must be learned through firsthand experience but one may also learn and profit from the recorded experience and experimentation of others.

Some of the things that were learned during the fishery investigations at North Twin Lake last summer may help you catch more fish this summer. Our studies involved the food and feeding habits of the principal game species during July and August. Fishing success is often at a low point during these months, but our findings suggest that better results could be obtained with a few changes in fishing methods.

It was found that the larger yellow perch, walleyes, yellow bass or "stripers", and bullheads all relied quite heavily upon small yellow bass for the bulk of their food. Insects and crustaceans were eaten

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John Madson Photo.  
The paper nests of the bald-faced hornet may house several thousand in all stages of development.

### CANOEING THE DES MOINES—KALO TO LEHIGH

By Ralph Church and Harold Allen

From Kalo to Lehigh on the Des Moines River is a short, easy trip of approximately 11 river miles. The current is slow. There are no rapids of consequence, and no dams or portages. The region traversed is one of the most scenic along the entire 500 mile Iowa course of the Des Moines River.

The trip is ideal for one day. It involves only about three and one-half hours of comfortable paddling at normal water levels, leaving plenty of time for fishing and exploring the many inviting places of interest along the way. In time of extreme low water a little more traveling time should be al-

lowed. Under those conditions it may be necessary to wade a few sand bars, but no particular difficulty should be encountered.

Kalo, six and one-half river miles below Fort Dodge, is recommended as the place to put in. It can be reached by car by proceeding four miles south, from Highway 20 on Highway 169, and three miles east through Otho. There is a school on the southeast corner at the turn off Highway 169. The river is easily accessible at Kalo on the left bank, facing downstream, just below the highway bridge.

From this point the river flows almost straight east for a distance

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By John Madson  
Education Assistant

Of all the critters in the world that bite or sting, the wasps and hornets rate top billing. Two varieties, the yellow jacket and the bald-faced hornet, are well-known to some Iowa sportsmen. Before this summer is over they will be known to many more.

Yellow jackets are the little black and yellow-striped wasps that are found around river banks and boys' legs. Our first meeting with these little fireballs was on the Skunk River years ago when we draped a bare leg over a small hole in the river bank. It had been home-steaded by several hundred yellow jackets and they seemed to resent claim jumpers. They sent me whooping down the river bank to find a cool mud poultice, but the mud didn't help much. However, the stings swelled up very grandly, and I was a local hero for several days.

These yellow jackets, like other wasps, can hurt with both ends. Their powerful jaws can deliver a potent bite, and if the wasps get in under heavy loose clothing they can cause a lot of trouble before they are killed. They alternately bite-sting-bite-sting, leaving a trail of long red welts.

Unlike honey bees, wasps are armed with repeaters. Honey bees have barbed stingers, and once these are inserted they cannot be withdrawn. When the bee is brushed off it leaves its stinger in the wound, tearing loose from the bee and killing the insect. Wasps do not have such barbed weapons, and can sting as often as they please.

Only the females have stingers; small, polished lancets that were used for egg-laying ages ago. In other insects these "ovipositors" are inserted into the ground or plant stems and act as guides for the emerging eggs. In the wasps and bees this structure has evolved to a highly specialized weapon connected with two large poison sacs and is not used for egg-laying at all.

As nearly as we can find out, the poison contains formic acid and

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**Iowa Conservationist**

Published Monthly by the  
IOWA CONSERVATION COMMISSION  
East 7th and Court—Des Moines, Iowa  
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CIRCULATION THIS ISSUE.....52,000

Subscription rate .....40c a year

Three years \$1.00

Entered as second class matter at the post office in Des Moines, Iowa, September 22, 1947, under the Act of March 24, 1912.

Subscription received at Conservation Commission, East Seventh Street and Court Avenue, Des Moines 9, Iowa. Send cash, check or money order.

**HIGH WATER CATFISHING**

If you planned to go catfishing this weekend but find the high, muddy water causing you to give up your plans, the State Conservation biologists say, "Don't let these conditions stop you." Studies over the past six years have revealed that catfish feed during high water and many times take food in larger quantities than at other times of the season.

Your approach to these fish in high muddy water will, of course, be different and the most important thing to think about, the biologists tell us, is the bait to use. The foods of the catfish at this time of year are primarily those that are washed into the stream or get there from bank cave-ins, and the like. Outstanding characteristics of these foods is that they possess odors that catfish are able to detect, and

since the water is dirty enough to make bait hidden from the view of the catfish, the fish must rely upon his sense of smell to find his food. It may not have to stink so bad that you have to fish up wind from your bait can but it should smell a wee bit on the other side of agreeable. Baits such as night-crawlers, soured fish, dead minnows or intestines from other fish, are suggested as good baits.

Rig your line so that your bait will float naturally with the current and won't present a dead weight when the catfish starts off with his newly found meal. A sliding sinker with the hook and (at) the end of the line will give you this effect.

You're pretty sure you aren't going to find any fish out in the fast current and dodging all of the debris that the flood is carrying so the catfish congregate in still water areas or in places where the current is much reduced. Fish the inside of river bends or spots where high water has invaded willow clumps or any place which has caused the current to slow down which results in causing any floating food items to sink to the bottom or become logged in entanglements.

Give it a try—you will surprise yourself and the catfish.—*Outdoors*, by Hod Lee, *Journal, Muscatine, Iowa*.

**SHORTEST SHORT SHORT STORY**

Will swap: Shotgun, fishing tackle and camping equipment for one twin-sized baby buggy.—*Out-door Notes*.

**STURGEON HALTS PUMPING OPERATIONS**

While pumping water from the Missouri River into Lake Manawa, to raise the lake level on May 27, Conservation Commission engineers were forced to stop work when their 24-inch river pipe was clogged. Such clogging is a common event, and the steel tube was cut to clear the pipe of the obstructing wood and roots.

The section of cut pipe also re-

vealed a huge rock sturgeon that had been sucked into the pipe, tail first. Although the tail and part of the body had been cut off by the pump, the remainder of the fish was 46 inches in length.

Measurements of the fish showed that it was about four inches shorter than 100-pound Old Oscar, the giant sturgeon that was shown at the State Fair for many years. However, the sturgeon caught in the pipe had been dead for several days, and was greatly shrunk.

It is probable that the huge fish was either sick or dead when it was picked up by the pump.



Bill Randolph Photo.

Remains of black sturgeon removed from the 24-inch tube of the Lake Manawa pump.



Jim Sherman Photo.

When the streams are high it is very dangerous to walk close to cut banks. Often great sections give away and tumble into the turbulent water.

**OUR DANGEROUS RIVERS**

For every sportsman who fishes Iowa lakes there are probably a dozen fishing in streams. Some of the dangers of lakes are not found in streams, for boats are not so commonly used there.

However, rivers have plenty of dangers all their own; strong currents and treacherous holes in particular. If you're a stream fisherman, old-timer or not, here are some suggestions that may save your life:

1. Always study a stretch of river before wading in it. Determine the location of the channel and look for any deep holes and obstacles on the bottom. You will naturally make a mental note of these for fishing purposes; think of them in terms of water safety, too.
2. Avoid walking on the lip of a high river bank. Such high cut banks crumble easily, and the channel below is generally deep and swift.
3. While wading in a river, al-

ways wade upstream, if possible. If you step into a hole the current will sweep you back to safety. Of course, wading upstream is impossible while drifting bait for catfish, and one can only take every precaution and hope for the best. Never wade-fish a river after dark, no matter how well you know it.

4. Do not fish or walk on the retaining walls of large dams. A man falling into the turbulent, wild waters below a large channel dam doesn't have a chance, expert swimmer or not.

5. If you have children with you while stream fishing, keep a sharp eye on them. They should never be allowed to wade or swim from a sandbar without strict, expert supervision. By all means buy some life preservers for the kids if you are going to take them near a large river, or any sizeable stream.

6. Don't feel confident in a river just because you fished it last year. Rivers are constantly changing, working and shifting their channels. Last year's sandbar may be this year's hole. Enjoy the rivers but treat them with respect, for they can be killers.—*J. M.*

**POND FISHED OUT?**

Pond fished out? No bass left? Don't believe it! Two Michigan researchers have found that anglers' prejudice sometimes stops fishing before rod pressure does.

Here's what they found: It takes about 50 bass per acre before an angler can hope to average a keep-size fish per hour. With only 17 big bass per acre, fishermen average working four hours for that keeper, but they'll keep on trying. With only six large bass to the acre it takes 25 hours of effort to get one, so anglers announce the water's fished out and quit trying.

This was the experience of Karl Lagler and G. C. De Roth of the University of Michigan in the operation of five Michigan ponds totalling about 23 acres. How closely these figures check with conditions elsewhere remains to be proved but they are among the interesting observations made by

the two biologists.—*Missouri News Release*.

Summer picknickers are often startled by "rattlesnakes" in the woods that "buzz" at them. Many snakes, particularly the fox snakes and bull snakes, rapidly vibrate their tails when nervous and frightened, and if their tail happens to be in dry leaves, a very convincing rattle is heard.—*J. M.*

A rose does not have thorns. Thorns are modified branches such as those found on the locust trees. A rose has only spines, which are easily broken off and are really modified leaves.—*J. M.*

The bobolink was once a prized game bird in the southern United States, where it fed on rice and became extremely fat and succulent. It was shot and sold as the "rice bird."—*J. M.*

# CLEAR LAKE ANGLING 1953

By Charles Di Costanzo

Iowa Cooperative Fisheries Research Unit  
Iowa State College

How was fishing in Clear Lake last summer? You might get all kinds of answers to this question. Many people were well satisfied; many thought that they should have been able to catch more or bigger fish. Last year the Iowa Cooperative Fisheries Research Unit conducted a survey of the summer fishing at Clear Lake. Since many anglers will be beating a path to Clear Lake during the coming months, it might be well to review last summer's catch records to gain some insight into the kind of fishing that might be expected there this year.

The summer creel census in 1953 extended from June 20 to August 30, and all estimates of the total number of fish caught, angling pressure, etc., presented below, apply only to this period. The State Conservation Commission has made a creel census in May and June for several years, but this is the first study of the mid-summer fishing.

Clear Lake, a highly popular resort lake and famed for its yellow bass fishing, yearly attracts thousands of visitors not only from all parts of Iowa but from neighboring states as well. From the survey data it was estimated that 43,000 fishing trips were made to Clear Lake last summer. This does not mean that there were 43,000 individual anglers, since the same fisherman may make any number of trips during the course of a season.

Approximately 170,000 man

hours were expended in fishing and resulted in a total harvest of 179,000 fish weighing in the aggregate of about 64,000 pounds (Table 1).

Clear Lake anglers were able to take fish at the rate of one fish per hour—a rate of catch which is considered about average for warm water lakes throughout the country. However, because of the large number of anglers, the total harvest (17.5 pounds per acre during a seventy-two-day period) is above the average for lakes of comparable size or for larger lakes.

By far the most important of the species taken was the yellow bass. Introduced into Clear Lake from the Mississippi River in the early 1930's, the "streakers," as they are more commonly called, have increased in numbers to the point where they bear the brunt of the summer angling. An estimated 88,000 yellow bass, weighing approximately 38,000 pounds were caught between June 20 and August 30. They ran from eight to ten inches in length. In spite of the huge number harvested the return of fish tags from anglers indicate that but a small portion of the total population was actually removed from the lake.

Few, if any, yellow bass less than eight inches in length were taken for the simple reason that there were none around. The 1950 hatch of fry that would normally have filled the gap between six and eight inches did not survive in appreciable numbers.

Last summer's seining revealed that large numbers of yellow bass ranging in size from four to five inches were present. These were fish hatched in 1952, and they will undoubtedly reach catchable size during the months ahead. Consequently, it is expected that the average size of catchable yellow bass will be somewhat less this year than last. Many of the 10-inch fish may also be caught, but it is expected that they are nearing the end of their life span and that those that are not caught in this or next year will die of old age.

Practically all of the yellow bass were caught by boat fishermen. The favorite method used in streeker fishing was to allow the boat to drift with the wind once a school of fish was located, making repeated runs whenever necessary. Cut-bait (pieces of minnow, perch, or yellow bass) fished just off the bottom proved most productive. At times small whole minnows were highly successful, and, on rare occasions small fly and spinner combinations proved to be killers.

Next in relative order of abundance in the catch were the bullheads, followed closely by the yellow perch. Bullheads were represented by two size groups—six to eight inches and eleven to thirteen inches. As was the case with the yellow bass, the large gap between the two size groups resulted from a failure of the intermediate age classes to survive. The larger group made up 16 per cent of all the bullheads caught.

Since most anglers were interviewed only during daylight hours, the creel census did not give an adequate picture of the angling for channel catfish. According to old-timers, however, fishing for this species has improved during the past few years and was considered good last summer. Most of the catfish taken ranged in size from sixteen to twenty-one inches and were caught on dead minnows fished from docks at the east end of the lake.

Though none were recorded in the creel census, a few anglers reported catching flathead catfish running from eight to twelve pounds.

In general the walleye and northern pike fishing during the warmer months was disappointing to many anglers. The few specialists who took walleye consistently throughout the summer reported using small black flies and plugs. This is not surprising in view of the fact young bullheads were all that were found in several walleye stomachs examined for food content.

Northern pike fishing after starting off with a bang earlier in the spring fell away to practically nothing during July and August. Still, a few fishermen managed to leave the lake with northern pike that went better than six pounds.

Fishermen contacted in the census often expressed the thought that there were few if any large

game fish in the lake. Nothing could be further from the truth. The gill netting at various locations throughout the summer revealed that lunkers were present in all parts of the lake: from the Grade to the Big Reef and all along both the north and south shores. Many of the walleye and northern pike thus taken ran four to nine pounds. The "lunkers" are there all right, but as is always the case in fishing the thing to do is to find a lure and a method of fishing that will put them in a striking mood.

TABLE 1

Species, size range, number, and weights of fish taken at Clear Lake, Iowa, June 20 to August 30, 1953

Species	Size Range	Estimated Number	Estimated Weight
Yellow Bass	8-10 in.	88,447	37,982
Yellow Perch	6- 8 in.	25,423	5,287
Crappie	6- 9 in.	6,232	1,709
Bluegill	5- 7 in.	5,980	922
Bullhead	6- 8 in.	42,595	7,111
Bullhead	11-13 in.	8,112	8,458
Walleye*		1,051	1,576
Northern Pike*		134	268
Pumpkinseed	6- 7 in.	718	117
Smallmouth Bass	10-12 in.	9	7
Largemouth Bass	10-12 in.	117	91
Channel Catfish	16-21 in.	112	169
Total		178,930	63,697

\*Walleye up to 9 pounds and northern pike up to 6½ pounds were taken.

## FLYING PHEASANTS AND WINDSHIELDS DON'T MIX

The pheasants seem to have it in for car windshields as the past week the Thompson Chevrolet Garage has installed six windshields which were broken when hit by flying pheasants.

The best advice seems to be when you see a pheasant along the road, slow down, as he may fly your way. —New Hampton Tribune.

Some authorities say that the kingfisher uses his head to pull out of his underwater dives. As the bird zooms into the water in an attempt to spear a small fish or frog, small air bubbles are trapped in the feathers of his head crest.

These air bubbles are buoyant and tilt up the front of the bird's body when the momentum of his dive is lost. Once tilted up the kingfisher proceeds to the surface and pops out of the water in full flight.

According to many lake anglers, wind is an important factor in catching fish. On windy days these fishermen fish on the lee shores for such surface feeders as bass and bluegills and on the windward side of the lake for fish such as walleyes and northern pike.

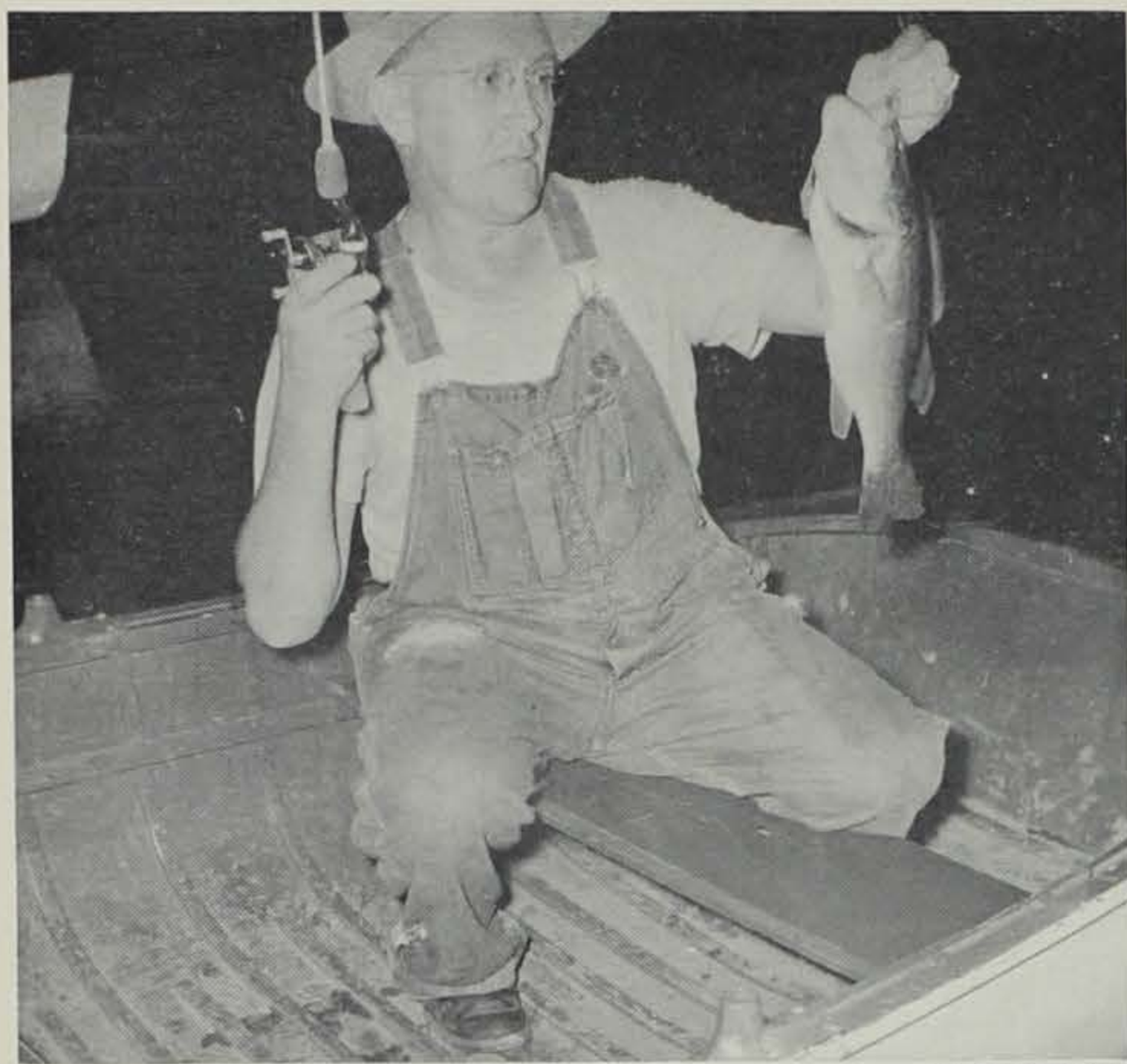
Their reasoning (and there's plenty to back them up) is that the surface feeders work the lee shores for insects and food that blow off trees and bushes, while bottom feeders feed near windward shores where wave action concentrates small fish and other food organisms.

In a pamphlet published in 1703, an anonymous writer advanced the idea that migratory birds wintered on the moon. He figured that the birds could reach the moon in 60 days by flying 4,000 miles every 24 hours, sleeping on the wing!—Remington News Letter.



Jim Sherman Photo.

One hundred seventy nine thousand yellow bass weighing 64,000 pounds were caught in Clear Lake in 1953.



Jim Sherman Photo.

The "lucky" fishermen are almost invariably those who study the fish and try many different techniques for fishing under various conditions.

### Mid-Summer Fishing . . .

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by some of these fish but there was little doubt that the small yellow bass were the principal food items. Apparently, a good hatch of "stripers" occurred last spring and the larger game fish found these small bass quite to their liking during the ensuing summer months. Whether or not similar circumstances will prevail this year, is, of course, open to speculation. But in any event, it appears that the wider use of minnows for bait might be the key to angling success for the above-mentioned species during the hot summer months. Artificial lures that simulate small yellow bass or other fish also have proven to be very effective for catching perch, "stripers," and walleyes.

Fish for food habit studies at

North Twin Lake were captured using gill nets. The nets were lifted every two hours and the fish removed for examination. By following this procedure it was possible to obtain information regarding the feeding habits and activity of fish throughout the day.

Since the number of fish captured in a gill net depends to some extent upon the degree of activity of the fish, it was found that the various fish species were more active at certain hours of the day. Furthermore, this increased activity appeared to be associated with the feeding of the fish.

Yellow perch, for example, seemed to be most active between the hours of 6 p.m. to 8 p.m. since most of them were caught during this period. The feeding activities of this species reached their peak during the period of 2 a.m. to 6

a.m., the average volume of food in their stomachs being the highest at this time. We can infer from this information, therefore, that the best time for fishing for perch would probably have been from about midnight to 6 a.m.

It is interesting to note that the activity patterns of North Twin Lake perch seemed to be in direct contrast with those previously determined for perch in Clear Lake, Cerro Gordo County. Here the perch were found to be more active during the day than at night. The reason for the difference in the two lakes is not known at this time.

Walleyes in North Twin Lake seemed to follow a feeding pattern similar to that of the perch except that they began intensive feeding slightly earlier. The peak in walleye feeding last summer occurred at about 8 to 10 p.m. More walleyes were caught during these hours than at any other time of the day.

Almost any time between the hours of 10 p.m. and 8 a.m. was the most productive insofar as catching yellow bass was concerned. Stomachs of bass captured during the night hours contained a greater average volume of food than those caught at other hours of the day. These findings coincided very nicely with those of anglers who reported that their best catches were made during the early morning hours.

Bullheads were found to feed quite regularly throughout the day as is generally the case with this species. The larger specimens were most often captured at night, however, and usually were found to have been feeding on small fish. No bullhead stomachs obtained during the daylight hours contained fish.

As mentioned previously, a noticeable decline in fishing pressure on many of our lakes occurs during the summer months. Many anglers fish only during the late morning and afternoon hours—the hours when fish are most likely to be inactive.

In summary, it appears that during the hot summer months, night fishing may be the answer to an empty stringer. The success of many fishermen who do their summer fishing under the cover of darkness lends support to this suggestion. And, even though our report refers only to North Twin Lake, it is more than likely that similar conditions prevail in other Iowa lakes as well. So, if you're inclined to be a "night owl" or an "early riser," why not give night fishing a trial? The fish are there. The place? Your favorite lake, and don't forget the mosquito dope!

A favorite delicacy among rivermen is the "catfish chops" of male-breeding catfish. These are small balls of white meat that develop in the heads of the spawning male catfish early in the summer, and seldom find their way to market because they are held in such high regard by commercial fishermen.—  
J. M.

### WORM FISHING

There is probably nothing in fishing that has been more scorned, downtrodden and ridiculed than fishing with a worm. But it's not called an *angleworm* by accident. Most of the purists that hold it in contempt do so because they don't know how to worm-fish. Fishing with worms is an art, and it is becoming a lost art.

The secret of taking game fish with worms lies in light tackle, small hooks and light sinkers, and fishing the worm correctly. Hooking the worm is most important. Here are two popular methods:

Either of these methods can be used for trout or catfish. However, the long, trailing worm is often better for trout. Use a number 12 hook when fishing for trout and a short-shanked hook of the popular sizes for catfish. If a long-shanked hook is used for catfish it is a good idea to use the type with a barbed shank, slipping a loop of worm up on the hook to hide the long, bare, telltale shank.

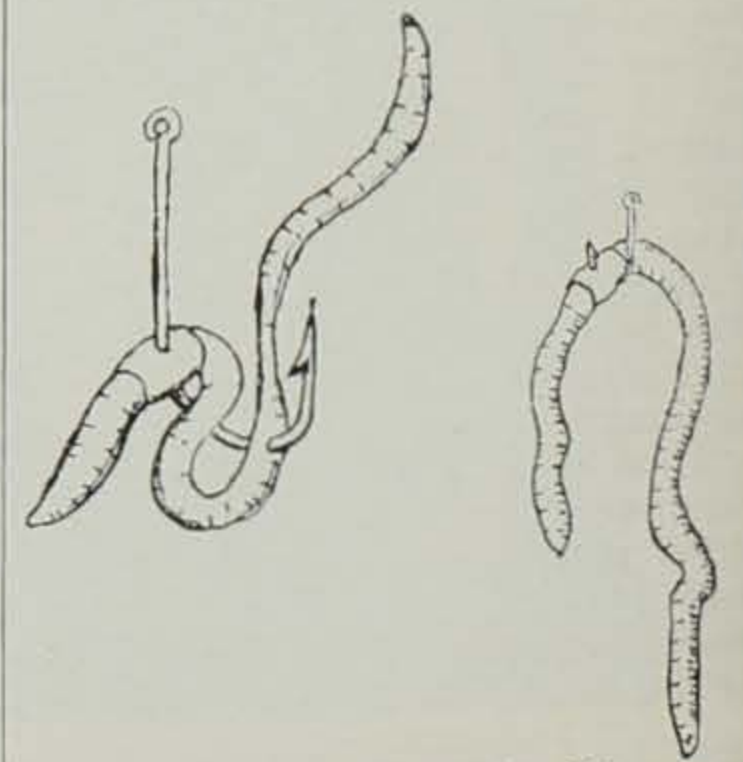
In fishing either trout or catfish with worms, use a light line or leader and split shot sinkers so as to give the worm a natural drifting action. Both trout and catfish can be caught by drifting worms through riffles and "runs," allowing the bait to move into the pool below. Catfish can also be taken by drifting worms in under drifts and brush piles.

A deadly method for fishing trout is to drop a small, worm-baited hook on the stream bank and allow it to tumble into the water in a natural manner. There are often big trout lurking under cut banks just waiting for food to fall into the stream. (In this type of fishing, walk the banks with a minimum of noise or commotion.)

Generally speaking, most game fish are not interested in great knots of nightcrawlers, because they resemble no natural foods. Flat-head catfish are an exception, and are often susceptible to big gobs of worms.

A worm used in conjunction with a spinner can be a fine walleye bait, depending on water and feeding conditions. If the pike are not too hungry or strike short, as they often do, a trailing worm is not effective and is torn loose. If the pike are ravenous they will strike

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Two popular methods of baiting fishworms.



Jim Sherman Photo.

The peak of walleye feeding in Twin Lakes last summer occurred between 8 and 10 p.m.



Jim Sherman Photo.

The main attraction at Walnut Woods State Park is the fine grove of walnut trees shading the many picnic areas.

## WALNUT WOODS STATE PARK

By Charles S. Gwynne  
Professor  
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Although Walnut Woods State Park has as its main attraction the fine grove of walnut and other trees, there are several matters of geological interest about which one may think while strolling through its 260 acres. Most of them have to do with the geological work of running water and the part it has played in developing the park area.

The park is in the valley of the Raccoon River. The town of Commerce is just across the river to the west and Des Moines a few miles downstream to the northeast. The river forms the west and north boundaries of the park. The course of the river is a twisting and winding one, called meandering by geologists. Coming from the west there is first a bend or meander to the south, and then one to the north around the park.

The park is not many feet above the normal river surface, and is almost level. Almost level, yes, but not quite. Here and there are shallow depressions, and back of the shelter there is a crescent-shaped depression many yards wide, and a hundred or more long. The bends in the river and the topography of the park area require explanation.

First let us note that this attractive wooded area is part of the flood plain or bottomland in the valley of the Raccoon River. The valley is the work of the river. So is the flood plain.

There might be question as to how far back into earth history the

present valley of the Raccoon River goes. However, the valley as we see it today, is essentially the result of erosion by the river since the retreat of the Kansan glacier, and that is a matter of some hundreds of thousands of years. Plenty of time for the floods to carry away the drift material left by the ice, and thus to carve out the valley.

The Kansan glacier, the second one to invade the Hawkeye State, covered all of southern Iowa. When it receded, it left the rubble known as glacial drift, or simply drift, over everything. This mixture of clay, silt, sand, pebbles, and boulders is our subsoil. In Polk and adjacent counties it was 50 or 100 feet thick. The surface, it is thought, was a gently rolling plain, much like north-central Iowa today. From Des Moines, north, the state was covered by a much later glacier, the Wisconsin, which melted away only 10 or 12 thousand years ago. Since its melting the rivers of northern Iowa have not had time to develop valleys as large as those of southern Iowa.

As the post-glacial streams started running over the Kansan drift plain, they did what running water everywhere is doing today. They eroded the land. Along the course of the Raccoon River, as time went on, the running water cut deeper and deeper. But wherever the stream flowed against the side of the valley, it did a little widening. So, now the valley is many times wider than the river channel. The widening has gotten away ahead of the down-cutting and the river is flowing on the almost level flood plain.

Along with this widening another development was taking place. By the time a flood plain

of good width had developed the gradient of the stream had become so low that the water flowed sluggishly. Then meanders or loops developed. The necks of the loops became narrow, so narrow that in time of flood the river broke through, thus straightening the channel. The ends of the deserted portion of the channel were gradually sealed off by sediment, leaving a curved depression on the flood plain.

At first these depressions were deep, as deep as the depth of the channel below the level of the flood plain. But floods came down the valley every now and then. And every time there came a flood, like that of July 1953, these depressions were partially silted in. There was more deposition in the depressions than on the level part of the bottomland. In this way the flood plain at the park has developed to its present condition. Almost all of the unevenness is related to this shifting of the river channel over the years, and the partial or complete filling in of the deserted meanders. The large depression near the shelter house is part of a channel that has only recently been cut off. Recently, geologically, that is.

See what the river has been doing of late at the park. Of course, even with low water, it can be seen to be moving material downstream. In a high-water stage, it is loaded with sediment, all on its way to the Mississippi and thence to the Gulf. In the western part of the park, where the park side is on the outside of a curve, the river is cutting away the bank. On the opposite side sediment is being dropped, and a gravel bar has formed. This erosion of one bank and building out of the other is due to the difference in current on the two sides of the meander. On the outside, the park side, the current is swift, hence the erosion. On the other side, the inside of the meander, the current is sluggish and deposition takes place.

This erosion of one bank and

building out of the other obviously could lead to slow southward shifting of the channel if the flow and erosion were not in some way controlled. At the time of this writing fallen trees are strewn along the bank on the park side with the intent of stopping this bank erosion and thus preserving the park and slowing the southward migration of the meander.

Farther downstream the park side is on the inside of a meander. See what is happening here. The park land adjacent to the river is below the level of the flood plain and nearer the level of the stream. It is quite uneven and clearly the result of rather recent deposition by the river on the inside of the curve.

What about the opposite side, which is receiving the full force of the current? Is it being cut away like the park side upstream? It would be, but the Rock Island Railroad tracks are close to the river, and the company has taken steps to halt the erosion. Rock has been dumped on the bank to protect the slopes and keep the river from cutting any farther. The shelter house is of stone, recognized as Anamosa dolomitic limestone, brought from some quarry in eastern Iowa. It is noted for its delicately banded texture. Some of the blocks have nodules of crystalline calcite and others have geodes of quartz. This rock is a story in itself, but for that, one should go to eastern Iowa, where it forms the bedrock beneath many counties.

That is most of the story of the park as we see it today. If there are any glacial erratics, boulders to most people, one can be sure they were carried in by man. The shelter house is of stone, recognized as Anamosa dolomitic limestone, brought from some quarry in eastern Iowa. It is noted for its delicately banded texture. Some of the blocks have nodules of crystalline calcite and others have geodes of quartz. This rock is a story in itself, but for that, one should go to eastern Iowa, where it forms the bedrock beneath many counties.



Jim Sherman Photo.

Walnut Woods State Park has one of the finest shelter houses in the entire state park system.



Jim Sherman Photo.

Handgun enthusiasts often get into trouble by carrying their weapon concealed or in their automobile without first securing the necessary permit.

## IOWA GUN LAWS

The transportation, use and definition of guns raises questions that are often asked the Conservation Commission. Here, in a brief form, are some of the gun laws that affect Iowa shooters:

**Carrying Concealed Weapons—Code of Iowa, Chapter 636.51.** "No person shall carry a pistol or revolver concealed on or about this person or whether concealed or otherwise in any vehicle operated by him, except in his dwelling house or place of business or on other land possessed by him, without a license therefor as herein provided."

**Permit to Carry Concealed Weapons—Code of Iowa, Chapter 695.4.** "The sheriff of any county may issue a permit to a resident of his county only, limited to the time which shall be designated therein, to carry concealed or otherwise, a revolver, pistol or pocket billy."

**Manner of Conveyance—Code of Iowa, Chapter 110.23.** "No person, except as permitted by law, shall have or carry any gun in or on any vehicle on any public highway, unless such gun be taken down or contained in a case, and the barrels and magazines thereof be unloaded." (In an opinion of the Iowa Attorney General on December 6, 1948, it is lawful to carry a gun in the trunk of an automobile assembled and uncased, as long as the barrel and magazine is unloaded.)

**Prohibited Guns—Code of Iowa, Chapter 110.24.** "No person shall use a swivel gun, nor any other firearm, except such as is commonly shot from the shoulder or hand in the hunting, killing or pursuit of game, and no such gun shall be larger than number 10 gauge."

**Shooting Rifle over water or highway—Code of Iowa, Chapter 109.54.** "No person shall at any

time shoot any rifle on or over any of the public waters or public highways of the state." (A subsequent law has deemed it unlawful to shoot a rifle over any railroad right-of-way in the state as well.)

**Selling Firearms to Minors—Code of Iowa, Chapter 695.26.** "No person shall knowingly sell, present, or give any pistol, revolver, or toy pistol to any minor. . . ."

It may be noted from these brief regulations that there is no limitation on the size or calibre of rifle that may be fired, and that it is lawful to hunt with handguns, pistols and revolvers.

In addition to Iowa laws, several federal regulations are of interest to hunters and shooters.

Federal law prohibits the possession, without proper authorization, of a shotgun or rifle with a barrel less than 18 inches in length. However, a rifle of .22 calibre or smaller may have a barrel as short as 16 inches.

This federal law also prohibits, without proper authorization, any other weapon, except a pistol or revolver, from which a shot is discharged by an explosive if such weapon is capable of being concealed on the person. Also unlawful is a muffler or silencer for any firearm. Also prohibited, without authorization, is the use and possession of any machine gun, which is a weapon which shoots, or is designed to shoot, automatically or semiautomatically, more than one shot, without manual reloading, by a single function of the trigger.

These federal regulations are under the authority of the Bureau of Internal Revenue, U. S. Treasury Department.

The names "Des Moines" River is a French corruption of the original Indian "Mongona" or "Moin-gona," which means "great middle river."—J. M.

## Paper Cities . . .

(Continued from page 41)

the pain of the sting depends on the quantity and concentration of this poison. Although the stingers are used for defense they are primarily intended to obtain food. Wasps and hornets are predacious, and feed much on other insects that they kill or paralyze with their stingers.

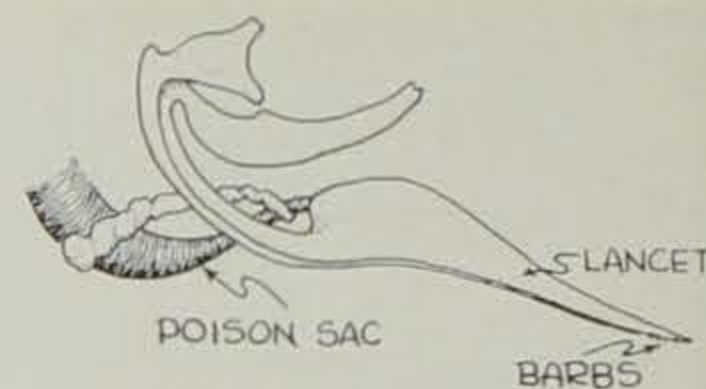
Long before the Chinese and Egyptians existed, certain wasps had already invented the paper that they still use in building their nests. With their hard, strong jaws they slowly scrape fine wood shavings from weathered posts and dead trees, moistening the shavings with saliva. The tiny wad of wet pulp is carried back to the nest site and laid down in a thin ribbon on the outside of the growing nest. These thin sheets harden to gray paper, and eventually build up a nest as large as a bushel basket.

Yellow jackets often build their paper nests underground and near water. Other wasps and hornets suspend their nests from trees and bushes and in the old days these paper nests were often used by settlers and hunters as wadding for muzzle-loading shotguns.

Iowa's most interesting wasp is that black and white thunderbolt, the bald-faced hornet. This is the wasp that builds the large paper nests seen hanging from trees and bushes in the wilder portions of the state. The hornet is about an inch long and is black except for white markings on the abdomen and a white patch on the face and head.

The nest is begun by the queen hornet, the only one to survive the winter. After hibernating in an old stump or dry-punky wood, she emerges at the first sign of warm weather. At the end of a strong paper stalk built beneath a branch or twig, the queen hornet constructs several small cells and lays a single egg in each. These eggs hatch to become sterile female workers, who obediently begin construction of their queen's palace. When these young workers mature the queen retires and devotes her time to egg-laying. The workers diligently scrape wood for their monarch, obtain paper, enlarge the paper nest and build more cells into which the queen lays more eggs to hatch into more workers, and so on.

It is these worker wasps that feed chewed-up insects to the grub-like wasp larvae, who greet their providers in much the same way



Stinger of Honey Bee.

that nestling birds greet their mothers.

It has been noted that while this feeding is going on the grubs exude a sweet saliva that is eaten by the adult wasps. As the grubs are fed, their nurses drink the sweet substance in a reciprocal feeding process. This expenditure of saliva, combined with the hit-or-miss feeding of such a large number of grubs, results in poorly nourished baby wasps. Some authorities believe that this malnutrition is responsible for undeveloped sex organs that result in sterile female wasps. Since these wasps are never occupied with reproduction, their lives are dedicated to two purposes: working and fighting. They become amazons . . . the warriors of the swarm. Later in the season when food is more abundant the larvae are better fed, and grow to be fully developed and fertile males and females.

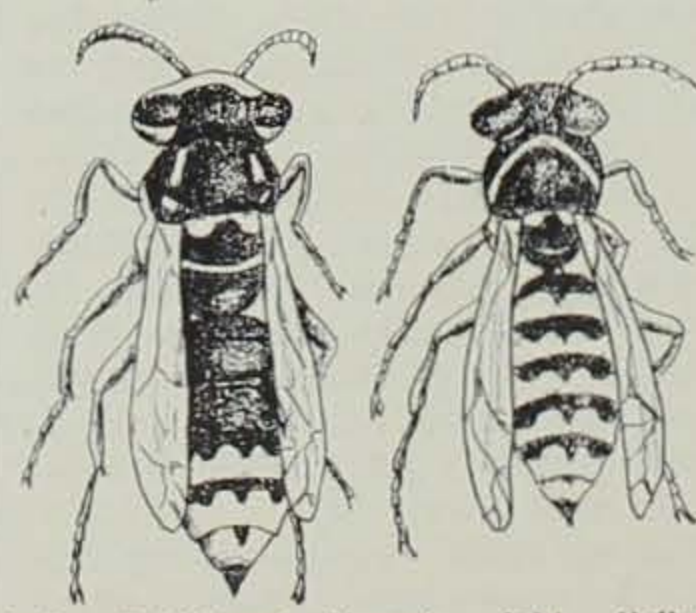
By the end of the summer the queen hornet has mothered several thousand workers, a few males, and a few young queens. There may be seven tiers of nest cells in the paper nest and as many as 10,000 hornets. With the coming of cold weather the workers and males die and the nest is deserted. The immense labor, sound and fury of the paper city is to achieve but one end—the production of a few fertile queens to carry on the race.

While bald-faced hornets are engaged in this nest-building and family rearing they are very touchy. Always pugnacious, they become quite vicious at this time and may dive-bomb a passing fisherman for no good reason.

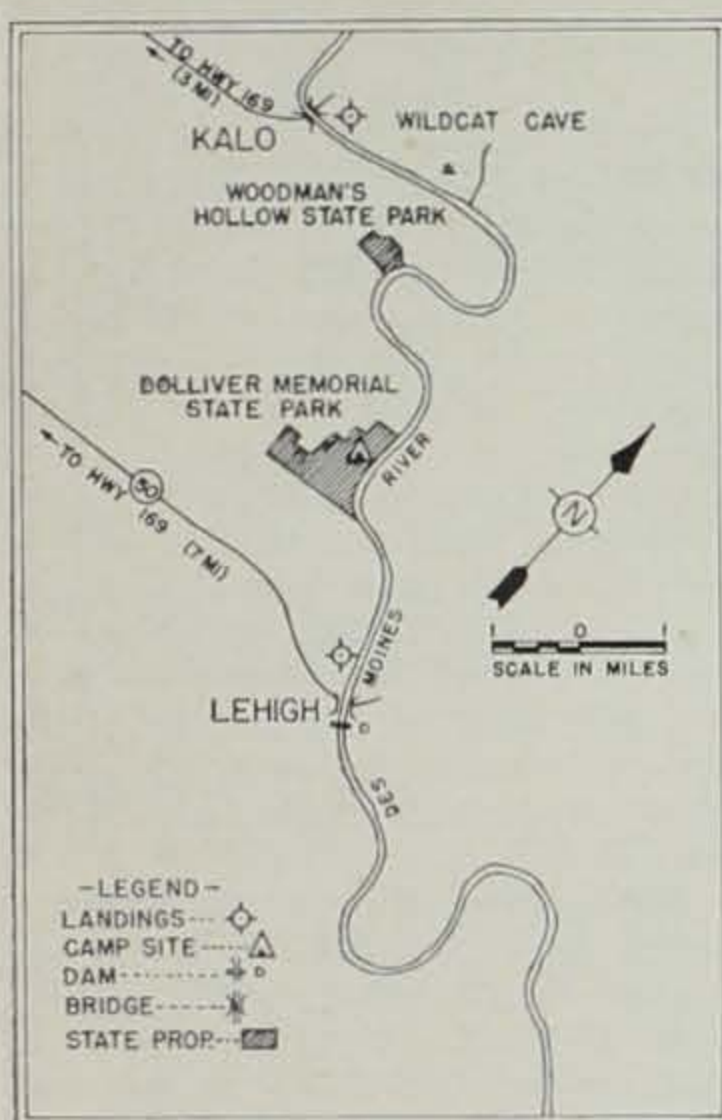
They seem to choose the face of a man for their attacks, particularly the region of the forehead and eyes. They may attack a person within 20 yards of their nest, slamming into the unhappy target at top speed, business end first. The impact of this assault often kills the hornet, and it is a shock that will always dwell in your memory. It seems incredible that a small insect can knock down a man or boy, but we have heard so many first-hand accounts of this that there must be some truth in it. It certainly isn't the physical impact that puts you down for the count, but the fact that the attack is concentrated on the sensitive face area.

Jack Musgrove of the State Historical Building, told us of such a meeting. As a boy, he was once shooting a large paper nest of bald-faced hornets with a slingshot, when he suddenly found himself sitting down. His first thought was that his slingshot had broken and

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Left, Bald-faced Hornet; right, Yellow Jacket.



**Canoeing . . .**

(Continued from page 41)

of about two and three-fourths miles. In this stretch several small streams enter the river from the left bank. The valleys of these little streams are deeply cut, with towering sandstone walls, and are interesting places to explore. In one of these valleys, opening to the river about two and one-fourth miles below the Kalo bridge, is the Wildcat Cave. The cave consists of several shallow chambers hollowed out of the soft sandstone along the west wall.

The river then turns sharply south for about three-fourths of a mile. A low rock wall of great scenic beauty overhangs the left bank throughout this stretch. This is beautiful canoeing water, deeper than the average section, with a rock bottom and a stronger current.

The river then flows west for another mile and, as it bends south again, skirts high bluffs of sandstone on the west or right downstream side. Through this bluff a little stream has cut a beautiful gorge which is now the site of Woodman's Hollow State Park. This region is rich in Indian lore, and there are said to be

Indian mounds of archeological interest on top of the bluffs in this vicinity.

Proceeding on downstream the river then turns east for another mile, and then south for two miles past picturesque bluffs of sandstone and glacial drift on the right downstream side and numerous ravines which extend back from the river. This is the beginning of the Dolliver Memorial State Park area which extends along the river on the right bank for a considerable distance. A convenient stop-over place for the canoeist is near the shelter house and public camping grounds which can be seen from the river. This is a spot of great natural beauty, and is indeed a true living memorial to the distinguished Iowan whose name it bears. A visit to its many places of interest is highly recommended, and the canoeist visitor may be assured of a friendly welcome from Jim Babcock, the Park Conservation Officer. The setting is rural and rugged, with beautiful Prairie Creek twisting its way through the sandstone rock of the region amidst a unique variety of trees and plants, especially ferns, in its lovely ravines.

Of particular interest is Boneyard Hollow. This is a few hundred yards upstream from the landing spot. This deep ravine is fairly wide at its entrance near the river, but as it runs back it narrows into a canyon-like gorge and fans out into several smaller ravines. Abrupt sandstone ledges rise 50 to 75 feet on either side.

Legend says that in early days the Indians drove buffalo, deer and elk over these cliffs from the adjacent prairies. Great quantities of animal bones, Indian arrowheads, axes and other weapons and implements have been unearthed in the hollow by early settlers.

The Copperas Beds are another must in the canoeist's visit to this interesting park. These are found in a sandstone bluff 150 feet high and several hundred feet long a short distance from the river. This is an unusual deposit of various



The Kalo-Lehigh region is one of the most scenic along the entire 500 miles of the Des Moines River.

mineral substances, such as copperas (sulphate of iron), magnesia and sulphur, with many petrified plants exposed. Legend tells us that the Indians used the multi-colored copperas powder for war paint, and that the early pioneers colored the cloth for their clothing from these minerals.

Resuming the trip, the river flows in a southeasterly direction three or four miles to the Lehigh Bridge. Upstream for a mile and a half from Lehigh, the river has been backed up and the water level of the stream raised about five feet by a low head rock dam built across the river just below the bridge. This dam is of unusual interest. It was constructed over a seven-year period as a com-

munity project by a group of Lehigh residents to assist in maintaining the water level upstream for improved fishing and boating.

The take-out place is on the right downstream side of the river just above the Lehigh bridge where there is a convenient parking area. From here Highway 50 runs west six and one-half miles to U. S. Highway 169.

This trip can easily be extended to add another day, or several days for that matter. It is another 11½ miles from Lehigh to the Cox bridge north of Stratford, where there is an excellent camp site. Another 16½ miles more would take the canoeist to the Ledges State Park south of Boone. All of this is excellent canoeing water.

**EVEN TOP REDS CAN'T HUNT NOW**

Paris, France—Hungarians have been forbidden to hunt for the remainder of 1954 by order of their conservation-minded minister of agriculture.

That includes even party bigshots, who until now, were the only persons allowed to hunt.

It seems the Red dignitaries preferred automatic weapons instead of the ordinary fowling pieces. They slaughtered birds and other wildlife by the thousands.

Hungary's woods and forests where Adolf Hitler's No. 2 man, Hermann Goering, used to stage his famous hunting parties, are now all but gameless as a result. —Des Moines Tribune.

**WE'RE REALLY NICE PEOPLE**

The chances are good that a man who buys a hunting and fishing license intends to spend his time out-of-doors. This is borne out by the findings of J. T. Jones, former jailer in Knox County, Tennessee, who checked the personal effects of more than 20,000 persons committed to the prison, the Wildlife Management Institute reports. Jones, a sportsman himself, found that more than 98 per cent of the persons in trouble with the law had neither a fishing nor a hunting license.

**Worm Fishing . . .**

(Continued from page 44)

lures powerfully, and a worm-spinner combination can take a lot of fish.

Some fishermen believe that game fish do not take angleworms because they are a normal, familiar food supply, but because they resemble blood worms, an aquatic worm that is an important fish food. Considering this, it is often more effective to use a small fishworm than a nightcrawler, for there are few natural fish foods that resemble the bigger worms.

There are many other methods of using worms but the best seems to have two things in common: (1) they aren't overbaited, and (2) they leave some part of the worm trailing in a natural way.—J. M.

Annie Oakley, famous woman crackshot of the early days, once shot a cigarette from the lips of Kaiser Wilhelm II on a pre-world War I tour of Germany. When World War I got under way, Annie wrote the Kaiser asking for another shot.

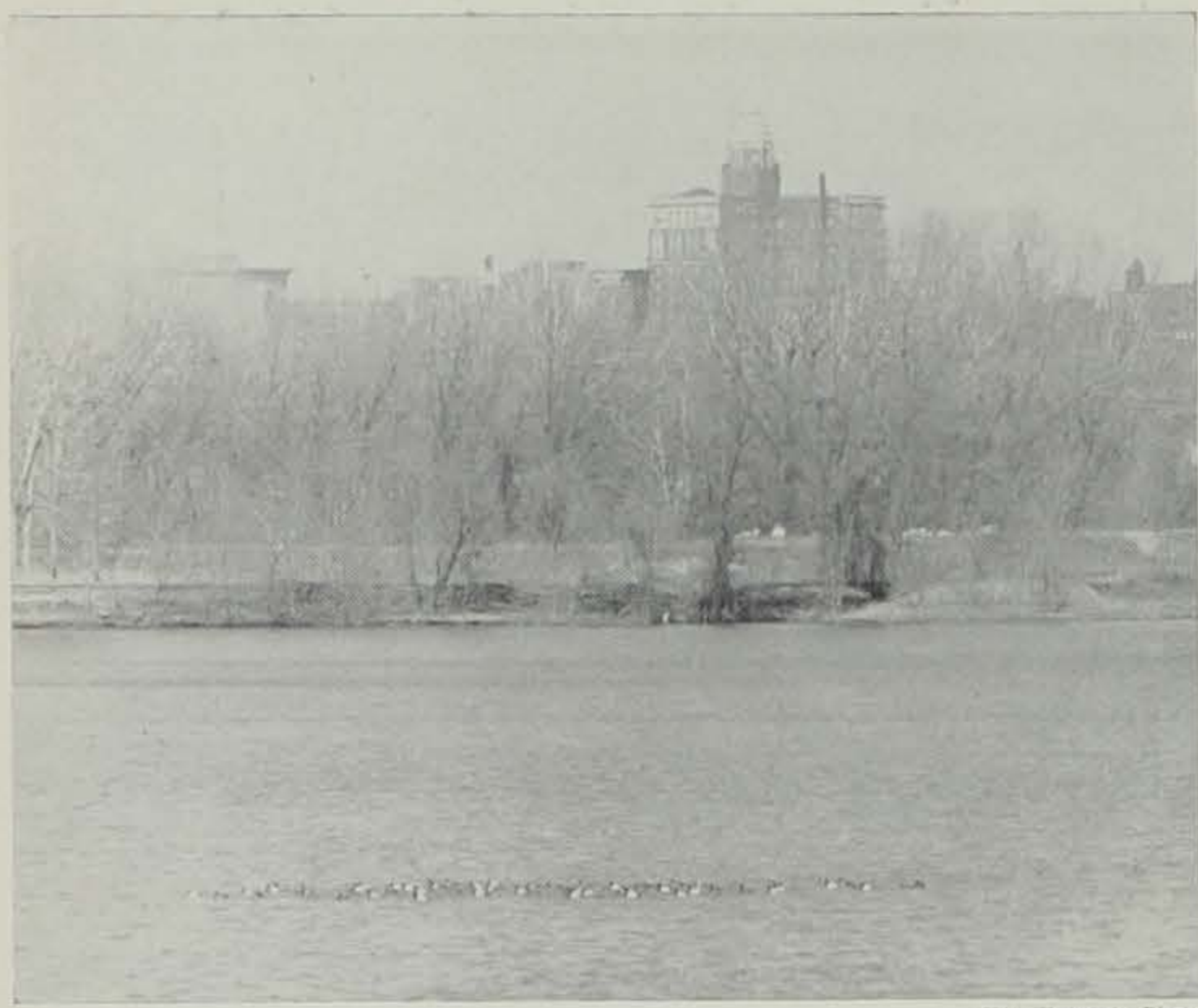
She didn't get the chance.—Outdoor Notes.

There is a record of a northern muskie being caught in the Skunk River south of Ames about 80 years ago.—J. M.



Church and Allen Photo.

On the Kalo-Lehigh one-day trip, take-out is recommended at the Lehigh bridge.



Jim Sherman Photo.

In modern Des Moines nearly every type of Iowa game animal and bird can be found within the city limits.

### BIG TOWN WILDLIFE

When Captain Allen and his dragoons set up a military post at the fork of the Des Moines and Raccoon rivers, they found an area teeming with game. In and around the raw new town of Fort Des Moines there were many forms of native wildlife in 1843, and the situation hasn't changed much.

In modern Des Moines, nearly every type of Iowa game animal and bird can be found within the city limits. Deer, beaver, mink, muskrat, raccoon, skunk, opossum, rabbit, squirrel, pheasant, quail and several kinds of waterfowl make their homes in the heart of Iowa's capital city.

Pheasants and a red fox were

seen on the state house lawn recently, and a couple of years ago a fox was killed in front of the State Historical Building. A sparrow hawk lives among the domes of the capitol building, probably the only hawk in the world that nests on gold leaf. Beavers jay-walk across main streets that run over the rivers, and wood ducks nest in the city, sometimes a mile or more from water.

In Glendale cemetery there have been as many as six coveys of quail at one time, and residents near Greenwood Park are sometimes awakened by "ghosts" rattling their chains at night... said chains being those attached to garbage cans, and the ghosts being young raccoons.



Jim Sherman Photo.

Almost every city backyard has its cottontail.

Deer, became so common in Des Moines that they seldom rate newspaper coverage. Several of the animals have been hit and killed by cars in the heart of the residential district, and it is not rare for a suburbanite to look out of the kitchen window and see a 16-point buck making free with his garden produce. One of the largest crow roosts in central Iowa was formerly in a Des Moines cemetery, and young raccoons have been found wandering into office buildings. During the spring bird migration large numbers of ducks, geese, egrets, herons and pelicans stop at Gray's Lake or at the waterworks park, both within the city limits.

With two large urban populations, one human and one animal, there are many collisions of interests. Lloyd Huff, State Conservation Officer for Polk County, is often a one-man animal rescue league, who may answer over a hundred calls a year from distressed residents seeking relief from squirrels in attics or skunks in garages. In the spring and summer, he may average four such calls a day. Lloyd surrounds the offending animal, cages it, and delivers it to the state fair grounds, from where it is sent to the state game farm at Boone.

Squirrels are the main problem, for Des Moines has a huge squirrel population. Those fox squirrels who have a taste for making nests in garages, attics and between walls, can be highly troublesome.

Added to the problem are the wildlife kidnapers who find baby animals on picnic outings and "rescue" them. The foster parents usually tire of their wild pets and turn them loose. They can never successfully return to the wild, and may become dangerous nuisances. One family in West Des Moines last summer had a pet raccoon that escaped and wiped out a neighbor's chicken coop. Lloyd was called, and was even asked to pay for the chickens!

Wildlife populations often build up to large numbers in towns for three reasons: protection, cover, and food. As major cities go, Des Moines isn't very big, and is filled with lawns, trees, gardens and shrubbery. Two large rivers enter the town, and their timbered valleys funnel wandering wildlife into the city itself, where they may find more food, cover and protection than in the country.

About the only Iowa wildlife not yet found in Des Moines are prairie chickens, bobcats and ruffed grouse. But watch your back yard and be patient... they may turn up yet!—J. M.

The pain of a puncture by a catfish or bullhead spine is caused by a poisonous material secreted by glands at the base of the central spines of pectoral fins. The most painful wound is that made by a "mattom," a small fish often found beneath rocks.—J. M.

### USE COMMON SENSE AFLOAT

Last Sunday on this page we published a list of common sense ideas to prevent drownings. Up until the two unfortunate drownings one evening last week in the Cedar River the state of Iowa had reports of 63 water deaths already this year.

Life preservers should be used by anyone in a small boat unless they can swim. A few life-saving cushions should also be available for those who can swim. Canoes are safe only in the hands of an expert, and even then the user should know how to get back in the boat in case of an upset.

At all state-owned artificial lakes boats must be inspected and licensed for the number of passengers allowed. When the boat is fully loaded, two-thirds of the boat must be above the water line.

If you like figures you can take a yardstick and figure out the safe load for any boat. Here's the formula: Find the cubic foot capacity of the boat by multiplying the width in feet, by the length in feet, by the depth in feet. Subtract one-third for the shape of a pointed boat. You now have the cubic foot capacity. Multiply this by 62 pounds to get the amount of water it will hold, but the boat must be two-thirds above water, so divide by three.

The figure is the safe carrying capacity. From this, subtract the weight of the boat and motor.

The final figure is the load capacity. Divide this by 160, the average weight of an adult, and the answer is the number of passengers the boat can carry. In state-owned lakes a child counts as a full person and passenger ratings apply only for each full 160 pounds of capacity.

Too big an outboard motor can also cause trouble by breaking the boat or swamping it.—*Forest, Field and Stream, by Russ Graham, Gazette, Cedar Rapids, Iowa.*

### Paper Cities . . .

(Continued from page 46)

that the broken crotch had backfired. What had really hit him was one of the big hornets in a full powerdive, catching him fairly between the eyes.

"Jack," we asked, "how did it feel?"

"I don't know," he answered. "I'd never felt anything like it before."

"We've heard that it's something like getting hit with a club. Is that right?"

"No-o-o," Jack replied thoughtfully, "it was different. It was sort of like getting hit with a hot pickaxe, only more so, if you know what I mean."

We didn't know what he meant, and if we can help it we're not going to find out.

A good test for polluted water is the presence or absence of clams. Clams and other shellfish cannot live in water that is even slightly acid because of pollution, for such water would dissolve them.—J. M.