IOWA CONSERVATIONIST

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THE FUNDAMENTALS OF FISHING

IOWA'S GLOOMIEST BIRD

The creature called the turkey buzzard hovers over Iowa like a fallen angel. A great carrion bird with a naked, wrinkled head and plumage like an old shroud, he soars over woods and fields watching for death with his amazing eyes.

Other birds and animals do not fear him, for unlike his hawk cousins he does not bring death, but only follows it. Ages ago the turkey buzzard lost his strong raptor talons and the killing power of his feet. When the buzzard became specialized he lost most of his ability to kill, and with his horrid specialty he became the most despised of birds.

He's certainly the ugliest. Not just homely, but with an epic, classic ugliness. In fact, he's the Ugly Champion of America. His feathers are a rusty black edged with brown and his only color is in the raddled, naked atrocity of a head. His broad, gloomy wings may span 6 feet. For all this wingspan he is not heavy; his 32-inch body weighs only about 5 pounds. Beneath the strong, stiff feathers is a thick mat of soft down that's even thicker and denser than most waterfowl's.

Master Flier

But yet, for all this graveyard appearance, he is among the most beautiful of birds when on the wing. There are few other American birds that possess such magnificence of flight—an effortless soaring that has been called "repose in motion". Hawks soar and glide with an occasional flap of wings. Once the turkey buzzard gains altitude he takes advantage of every air current and thermal updraft and floats almost out of sight for hours without a wing movement—a master glider. While in flight the primary feathers of his wingtips are spread like fingers and his head and neck are tucked in close to the body. From a distance he may appear to be almost headless, and unlike the

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Jim Sherman Photo.

The casting rod and reel used with natural baits for bluegills, crappies, catfish and others, is Iowa's Number 1 fish-getter.

Canoeing the Raccoon River—Jefferson to Adel

By Ralph Church and Harold Allen

The Coon in Central Iowa is another natural for a close-to-home canoe trip. The stretch from Jefferson to Adel is about right for a weekend trip. This is approximately 46¼ river miles, and will take about 14 hours actual traveling time.

In this section the river flows through heavily timbered bottom lands. Most of the bridges are far apart and the river seems far from civilization. There is usually a good volume of water for canoeing all the way from Jefferson. The many exposed gravel and sand bars make good camp sites. There are no dangerous rapids and no dams or other obstructions to be portaged. But the Coon should be respected. It has a tendency to cut deep holes with sharp drop offs. Therefore care should be exercised in wading to avoid unexpected stepoffs.

For convenience in timing the trip all distances mentioned have been converted into approximate traveling times. The times shown are for normal water levels prevailing in September. In low

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Part 2: The Casting Rod

By James Sherman
Photographer
Conservation Commission

Casting rods are still the most popular and versatile equipment used by Iowa anglers in spite of the recent increase in favor of the spinning technique and the long-standing popularity of the fly rod.

Each method has its particular advantages and in general the weight of the lure to be used will determine whether the angler will choose casting rod, fly rod or spinning rod. The fly rod is at its best when used for casting very light flies. The spinning rod is particularly good for casting flies or lures weighing about ⅛ or ¼ of an ounce. For lures weighing ⅜ to ¾ ounce the casting rod provides the greatest ease, distance and accuracy, although the technique of casting with casting rod and reel is more difficult to learn than etiher the fly or spinning rod.

For proper casting the various parts of the casting outfit must be matched or balanced. For casting plugs or artificial baits the reel should have a light-weight arbor and light gears in order that inertia and momentum are held to a minimum to decrease backlash troubles. The rod action must equal the weight of plugs you intend to cast. A rod which will cast ⅜-ounce baits will not do a good job with ⅝-ounce baits. These two weights are the ones most commonly used in this state.

Rods are sometimes classed as extra-light, light, medium and stiff. The light-action rod generally is designed to handle baits weighing about ⅝-ounce, and the extra-light rods are usually designed to cast ⅜-ounce lures. These two actions will suffice for most fishing found in this state in which artificial lures are used. For easy casting with the fewest backlash troubles, use the lightest line possible. Eight or nine-pound test is about average. The soft-

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THE PURPLE MARTIN

By L. M. Hardy
South Bay, Florida

The purple martin, a colorful and valuable insectivorous bird, may be easily encouraged to set up summer housekeeping near your home. Martins enjoy living near people, and like to live with other martins. They are happiest in a spacious birdhouse with 20 "rooms" or so; a whole colony of them, placed high above marauders on a pole about 15 feet from the ground, and not too close to trees or other tall, dense-growing vegetation. They come back year after year to the same apartment, on almost the same day, and relish having a human audience to watch their coming and going.

Quite a Show

A man saw his little boy watching, and went out beside him. "What are the Martins doing now?" he asked. Junior saw one flying with a big leaf. "I think," he said, "they're bringing in the furniture."

Many people have seats placed where they can follow the lives of their tenant martins and the rearing of their families. A wealth of novelty can be added to a small urban back yard if it is shared by a colony of martins staging their continuous spectacle of aerial gyrations, accompanied by pleasing chirrups and liquid song. Since the martin is semidomestic in its nesting habits, its presence near man is mainly dependent on bird houses or gourds put up for its use.

Dusty Living Rooms

Martin houses should have compartments 6" x 6" x 6", or more, and compartments completely separated from each other by partitions. Each compartment must have its own door which, if round, should measure 2¼ inches in diameter. Bigger doors are unnecessary and have been known to let in larger marauding birds. Provision for ventilation and drainage holes are very important. Martin houses may become unbearably hot under the summer sun, and making them roomy, cool, and more comfortable will be rewarded with vigorous, successful broods. The use of light colored paint in preserving the house aids in making it cooler.

All martins are plagued with poultry mites and these can be controlled by putting a pinch of dusting sulphur on the floor of each compartment in the early spring just before the birds arrive. Too much sulphur would become offensive to the martins; use only a small amount, about the size of a pea in each room. Upon this will be placed the nesting litter and the four to five milk-white eggs. The warmth of the setting mother will help vaporize the sulphur and only mites will be killed. Martins also like gourd houses, but gourds last only two years under normal weathering, while well-built bird houses may last twenty years.

Pioneer Custom

Gourds have long been favorite nesting quarters for martins, first used in prehistoric days when the American Indians erected them for the birds' use about their villages. The practice was handed down to the early white settlers and has continued to the present day. The usual custom was to hang a dozen or more gourds from crossarms on a high pole with each gourd providing a nest for one pair of birds. Gourds offer some advantages being cooler and less infested by mites than are the more conventional bird houses.

If you wish to grow your own gourds, plant them in a rich well-drained soil in the early spring. They will mature in about five months. If the vines become affected with powdery mildew, keep them dusted with dusting sulphur. Gourds are not easily grown in the area where they were formerly grown, and are disappearing. They seem to be affected by diseases similar to those of watermelons.

A free packet of gourd seed for martin houses may be obtained by writing to L. M. Hardy, South Bay, Florida. Please enclose a stamped, self-addressed envelope.

In desperation for nesting sites, martin pairs now commonly succeed each other in the same compartment until there may be three consecutive families reared in each compartment in one breeding season. If this valuable species is to exist in the numbers that its value to man warrants, it is up to man to provide a home in which it may perpetuate its kind. In the rural South where most farms had a tall pole strung with a dozen or more gourds, almost none are found now, and bird houses have not been put up to replace them. The martin population has diminished to a fraction of one percent of what it was in 1938.

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Jim Sherman Photo.
By his grin, you'd think this boy had invented gourds. But long ago Indians and pioneers made gourd martin houses, a practice that is dying out.

Turtles must have air to live, however, many species can stay under water for many hours. These take air from the water by taking water into the mouth and expelling it regularly when submerged. In addition, a number of species have rectal respiration.—*H.H.*

KEEPING EARTHWORMS FOR BAIT

A recent bulletin of the U. S. Fish and Wildlife Service contains some useful information on keeping and raising angleworms for bait.

For raising worms outdoors, the Service advises the use of wooden boxes, 14 by 18 by 6 inches, stacked together but held apart by small blocks. This arrangement in tiers provides ventilation, drainage and easy access for watering. The boxes should be supported above the ground on a base about 6 inches high. When a box is set flat on the ground the wood rots and worms may escape and burrow into the ground.

Material for filling the boxes may be one part stable manure, one part screened topsoil and one part peat moss. A sprinkling of corn meal or mash may be added. If mash is used, the proportion should be about ½ to 1 pound for each cubic foot of filler material. If corn meal is used, about ½-pound for each cubic foot of material is sufficient. The mash or corn meal provides a ration of carbohydrates, proteins and fats for the worms so that they will be well-nourished. In order that the mash or corn meal can be uniformly distributed, it should be added before the other material has been wet.

A layer of alfalfa or other hay should be placed in the bottom of each culture box. This improves drainage, prevents the compost from adhering to the bottom of the box and is favored by the earthworms as food. Each box should be about ⅔ full of the prepared culture material. Five hundred breeder worms should be placed in each box and covered lightly with the culture material. One or two thicknesses of well-soaked burlap should then be placed in the box to conserve moisture and keep the surface of the material dark and damp. The worms should be watered once or twice a week, the time depending on the weather and temperature. In watering, a gentle sprinkling is necessary so that the surface of the culture material will not be disturbed. The food supply in the box should be checked from time to time. This is done by lifting out and examining a handful of soil. A satisfactory food for supplementary feeding consists of five pounds of commercial rabbit food (pellets), one pound of soybean meal and one pound of sugar. The pellets, meal and sugar should be moistened to form a soft, crumbly mass, then stirred into the culture material. The worms will also thrive on foods such as kitchen and garden waste, fruits and vegetables.

Basement Wormery

For raising angleworms indoors, a wooden box about 3 feet long,

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BOOKS ON FISH AND FISHING

Compiled By
Kenneth D. Carlander
Iowa State College, Ames

This list was compiled with special emphasis on those books with useful information for the angler and conservationist. Most of the books can be read with real enjoyment—a few are included as reference works to which one may turn for specific information. Most of the books listed herein are new but a few old timers are included.

On the Fishes Habitat

MACAN, T. T. and E. B. WORTHINGTON. *Life in lakes and rivers.* Collins, London. 1951. xvi + 272 pp., 32 plates plus 40 color plates. A very readable summary of the biology of lakes and rivers.

COKER, ROBERT E. *Streams, lakes, ponds.* University of North Carolina Press. 1954. xviii + 327 pp., 24 plates. An excellent new book covering a wide range of material on freshwater environments.

RUTTNER, FRANZ. *(Translated by D. G. Frey and F. E. J. Fry). Fundamentals of limnology.* University of Toronto Press. 1953. xi + 242 pp. Excellent for the more advanced student.

CARSON, RACHEL L. The sea around us. Oxford University Press, New York. 1950. vii + 230 pp. I didn't want to get into the books on the oceans, but I felt that this best seller must be included.

Largely on Kinds of Fish

HARLAN, JAMES R. AND E. B. SPEAKER. *Iowa Fish and Fishing.* Iowa Conservation Commission. 1951. 237 pp. 22 plates (several of them the finest color plates available on native fish). The best buy for Iowa fishermen and among the top "regional" fish books.

SCOTT, W. B. *Fresh water fishes of eastern Canada.* University of Toronto Press. 1954. xiv + 128 pp.

CARL, G. C. AND W. A. CLEMENS. *The fresh water fishes of British Columbia.* B. C. Provincial Museum. 1953. 136 pp. (50c).

BECKMAN, WM. C. *Guide to the fishes of Colorado.* University of Colorado Museum. 1952. 110 pp. ($1.00).

HUBBS, C. L. AND K. F. LAGLER. *Fishes of the Great Lakes region.* Cranbrook Institutional Science. 1949. 186 pp. 26 color plates. Excellent for identification of fish of the region.

EDDY, S. AND F. SURBER. *Northern fishes.* University of Minnesota Press. 1947. 252 pp. Mostly fishes of Minnesota.

VESEY-FITZGERALD, B. AND F. LAMONTE (Editors). *Game fish of the world.* Harper, New York. xvii + 446 pp. 80 color plates.

LA MONTE, F. *Marine game fishes of the world.* Doubleday, New York. 1952. 190 pp. 40 color plates.

LAGARCE, J. O. (Editor). *The book of fishes.* National Geographic Society, Washington, D. C. 1952. xi + 339 pp. Excellent photos and paintings with interesting text on fishes of the world.

Biographies of Fish

HAIG-BROWN, RODERICK L. *Return to the river.* Wm. Morrow, New York. 1941. 248 pp. A delightful way to learn the life history of king salmon.

ESCHMEYER, R. W. *Tommy Trout.* Fisherman Press, Oxford, Ohio. 1951. 48 pp. This book and other books of the series listed below, is for children, 6 to 14 years old, but it has a lot for the adult, too.

ESCHMEYER, R. W. *Bobby bluegill.*

ESCHMEYER, R. W. *Billy bass.*

Largely on How to Catch the Fish

GABRIELSON, IRA N. AND F. LAMONTE (Editors). *The Fisherman's encyclopedia.* Stackpole and Heck. Harrisburg. 1950. xxix + 698 pp. A compendium of information on fish, fishing, where to fish, etc.

CARHART, ARTHUR H. *Fresh water fishing.* Dell Publishing Company, New York. 1949. 320 pp. Fundamental suggestions on how to fish. In an inexpensive pocket edition.

EVERETT, FRED. *Fun with trout.* Stackpole, Harrisburg, Pennsylvania, 1952. 287 pp. His philosophy of fishing should not be limited to trout. Delightful illustrations.

HARRIS, J. R. *An angler's entomology.* Collins, London. 1952. 268 + xv. 16 plates plus 32 color plates (depicting in color from life over 100 aquatic insects and over 30 artificial flies). A beautiful book for the fly fisherman's library and it costs only about $3.50 (25 shilling).

HAIG-BROWN, RODERICK L. *The western angler.* W. Morrow, New York. 1947. xii + 356 pp. Trout and salmon fishing.

DALRYMPLE, BYRON W. *Panfish.* McGraw Hill, New York. 1947. 398 pp.

BERGMAN, RAY. *Trout.* A. A. Knopf, New York, 1951. xv. + 482 pp. 21 color plates.

CARHART, ARTHUR H. *Fishing in the West.* Macmillan, New York. 1950. 144 pp.

BERGMAN, RAY. *Just fishing.* Pennsylvania Publishing, Philadelphia. 1932. 418 pp.

BATES, JOSEPH D., JR. *Spinning for American game fish.* Little, Brown & Co., Boston. 1948. xvi + 247 pp.

How to Raise Your Own Fish

EDMINSTER, FRANK C. *Fish ponds for the farm.* C. Scubners, New York. 1947. xii + 114 pp. Covers construction and managing of ponds for fishing.

DAVIDSON, VERNE E. *Homemade fishing.* Stackpole, Harrisburg, Pennsylvania. 1953. 205 pp. Problems of fish ponds. "Anyone who wants better fishing can have it!" (p. 16).

SWINGLE, H. S. AND E. V. SMITH. *Management of farm fish ponds.* Alabama Polytechnic Institute. Auburn. 1947. 30 pp.

INNES, WM. T. *Exotic aquarium fishes.* Innes Publishing Company, Philadelphia. 1953. 533 pp. A standard reference book; many colored plates.

EVANS, ANTHONY. *Aquariums.* Dover Publishing, New York. 1952. 115 pp. A good introduction to this subject.

DAVIS, H. S. *Culture and diseases of game fishes.* University of California Press. 1953. x + 332 pp. Primarily for hatchery operators and fishery biologists, but easily read by anyone.

Fishery Management and Conservation

ESCHMEYER, R. W. *Fish conservation fundamentals.* Sport Fishing Institute, Bond Bldg., Washington 5, D. C. 1955. 30 pp. Only 25c. A very readable evaluation of fish conservation by a top authority.

LAGLER, KARL F. *Freshwater fishery biology.* W. C. Brown, Dubuque. 1952. x +360 pp. Techniques and instructions for investigating fishery problems.

CARLANDER, KENNETH D. *Handbook of fresh water fishery biology with the first supplement.* Wm. C. Brown, Dubuque. 1953. viii + 429 pp. Tabulation of growth, lengths, weights, catch per-hour, etc. of fresh water fishes.

ROUNSEFELL, GEORGE A. AND W. H. EVERHART. *Fishery science: Its methods and applications.* Wiley, New York. 1953. xii + 444 pp. A text primarily for the fishery biologist.

Miscellaneous

WALTON, IZAAK. *The compleat angler.* Several editions. The Tricentennial edition is available from Izaak Walton League, 31 North State Street, Chicago 2, Illinois.

SCHULTZ, LEONARD P. AND EDITH M. STERN. *The ways of fishes.* D. Van Nostrand, New York. 1948. xii + 264 pp.

CLARK, EUGENIA. *Lady with a spear.* Harper's, New York. 1951. xii + 243 pp. Delightful experiences of an ichthyologist hunting fish around the world with diving mask and spear.

HEMINGWAY, ERNEST. *The old man and the sea.* Scribner's, New York. 1952. 140 pp. Outstanding picture of a commerical fisherman.

GRAHAM, MICHAEL. *The fish gate.* Faber and Faber, London. 1949. 199 pp. Best picture of commercial fishing I know. Also the "Theory of overfishing" is explained.

Snapping and soft-shelled turtles are fierce beasts of prey which eat large numbers of fish, water birds, and other animals which frequent the water.—*H.H.*

Jim Sherman Photo.

Yellow bass are the most abundant fish in Clear Lake. A favorite bait is the strip of white meat cut from the throat of a freshly-caught striper.

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TWO YEARS OF CLEAR LAKE ANGLING

Fishing was every bit as good in the summer of 1954 as in 1953, in some ways better. The average angler caught just a little better than one fish per hour of fishing.

These facts were revealed by Dr. Kenneth D. Carlander and Charles DiCostanzo, Ames, Iowa State College biologists, in the creel fish census, just released. The census was taken June 20 through August 31.

In 1954 about 279,436 man hours were expended in fishing, resulting in a catch of 290,000 fish. Of the 11 species recorded in the catch, yellow bass comprised 41 per cent of the total, bullheads 36 per cent, bluegills 13 per cent, yellow perch 5 per cent, crappies 3 per cent, northern pike 1 per cent. Walleyes, channel catfish, pumpkinseed, large and smallmouth bass made up the other 1 per cent.

Boat fishermen caught most of the yellow bass (111,000 or 92 per cent of the total).

A definite decrease in yellow perch population and a slight decrease in yellow bass of catchable size has been noted the past two summers.

Three species, bullhead, bluegill and northern pike showed a significant increase in abundance. The increase in northerns is due largely to the stocking efforts of the Iowa State Conservation Commission, Carlander said.

On a weight basis the total yield is about 106,645 pounds for an average of 29.3 pounds of fish per surface acre. The yield is much higher than has been reported for many warm water lakes of similar size.

(A Minneapolis paper reports 28 fish per acre of area surface for creel census of 12 Minnesota lakes. Also .87 fish per hour was caught.)

A comparison of the two years follows:

ESTIMATED NUMBERS

Species	1953	1954
Yellow Bass	88,400	120,000
Bullhead	50,700	105,000
Bluegill	5,980	38,300
Yellow Perch	25,400	13,700
Crappie	6,200	8,800
Northern Pike	125	2,500
Walleye	1,050	375
Channel Catfish	125	75
Pumpkinseed	725	750
Largemouth Bass	125	150
Smallmouth Bass	9	25
Totals	178,839	289,675

ESTIMATED WEIGHT

	1953	1954
Yellow Bass	37,975	50,000
Bullhead	15,575	38,000
Bluegill	925	8,000
Yellow Perch	5,275	2,700
Crappie	1,700	2,900
Northern Pike	275	3,800
Walleye	1,575	450
Channel Catfish	175	275
Pumpkinseed	125	150
Largemouth Bass	100	150
Smallmouth Bass	7	25
Totals	63,707	106,645

The census was compiled through the Iowa State Conservation Commission and the Iowa Cooperative Fisheries Unit. The purpose is to learn about the effects of changes in fish populations upon the fishing, the effectiveness of regulations, stocking and management practices. Information of the number of fishing parties and their catches is supplied partially through the boat liveries who act as receiving stations for the collection of fish tags.—*Mason City Globe-Gazette.*

The burrows of the common fishworm have been traced to a depth of 18 feet from the surface of the ground.—*H.H.*

Jim Sherman Photo.
The point of McIntosh Woods State Park is a good fishing spot; a hangout for yellow bass and walleyes. It offers public access to the lake, plenty of shade and picnicking.

There's only one way to learn nature: in the open. As the students watched, George Worley of the Commission called up an angry male cardinal, demonstrating "territories" among birds.

McINTOSH WOODS STATE PARK

Prof. C. S. Gwynne
Department of Geology
Iowa State College

One of our newest state parks, McIntosh Woods, is in a delightful location on the north shore of Clear Lake. It is almost at the western end of the lake, a mile or so east of Ventura. The length of the park shore-line is about three-quarters of a mile, the total area is 60 acres.

Hidden beneath the park is a geological story that goes back hundreds of millions of years. It is a story of shallow seas which repeatedly flooded the North American continent, and left their sediments as evidence of their visit. These sediments, now hardened to rock cannot be seen at the park because of the thick layer of glacial deposits above them. Around Mason City and eastward they are visible at the surface, and the limestone and shale of these deposits are used in cement and ceramic plants at Mason City.

We know that this shale and limestone also underlie the park area, because they were penetrated when the park well was drilled. This well is about 160 feet deep and the water comes from limestone. It's interesting to realize that one is drinking water that has been stored in the limestone deposits of ancient seas; deposits millions of years old. It must be added, hastily, that the water got into the limestone only recently. It fell as rain in the surrounding area and penetrated to the limestone, where it is stored in crevices and cracks.

Looking around the area we find evidence of recent geological events. First, there is the lake. Or at least the depression in which the lake lies. This depression is in a belt of hilly country which extends generally north-south through Cerro Gordo County. The lake basin is just at the eastern edge of this belt. The hills are recognized as part of the terminal or end moraine made by the last glacier to spread over north central Iowa, the one geologists have named the Wisconsin glacier. In Iowa it extended in the form of a lobe as far south as Des Moines. Over most of the lobe area the country is gently rolling and almost level, quite different from that around Clear Lake. The almost level country is called the ground moraine.

Both the terminal and the ground moraine are composed of glacial drift. Most of the subsoil of Iowa is glacial drift, for glaciers at one time or another have covered all of Iowa. The terminal moraine is more hilly than the ground moraine because it is the result of the accumulation of drift at the ice front over a period of many years. All the while the ice in the glacier was moving forward, but it was melting at the front about as fast as it moved forward. As a result the drift was piled up in an irregular fashion. The Clear Lake basin is a large depression in this terminal moraine. Back of the terminal moraine the ice melted away more rapidly. The front probably moved back farther each year, without much readvance. As a consequence the drift deposits were spread out and are more nearly level.

There are many small depressions in the end moraine in the vicinity of Clear Lake, undrained by any stream. These were particularly noticeable after the heavy rains in the spring and early summer of 1954. Water accumulated in these depressions and drowned out the crops.

The materials of the drift were carried here frozen in the bottom of the ice. The glacier gripped the loose material already present on the surface over which it moved. Thus the subsoil of the glaciated country was gradually carried away. Finally in places, the ice was moving over the solid rock. The dirt and stones at the base of the glacier scraped against the rock and wore it away. The ice was also able to gradually dislodge large pieces of bedrock and once freed they were carried along with the ice.

The nature of this drift can be observed along the bluffs at McIntosh Woods State Park. Most of it is clay, silt, and sand, but there are pebbles and larger stones. Erosion by waves has carved the bluff out of land which originally sloped gently to the lake shore. The finer material has been carried out into the lake. This has shallowed the lake, particularly near the shore. Weeds and rushes are able to grow in this shallow water, and tend to help catch more sediment.

The coarser material has accumulated at the shore, most of it as a sort of submerged beach. The larger rocks have been pushed against the shore by the winter ice. Where the bank is low the ice-push has resulted in the development of a low ridge. The path along the shore is partly on this ridge.

The sandy point stretching out into the lake at the park may be in part at least the remains of what was once a higher strip of land. Waves beating on the point on both sides would erode the land away until only a sandy strip was left. The point or most of it was more probably built up of sand deposited by currents moving downshore from the northwest on one side and from the northeast on the other. In the summer of 1954 a prominent sand ridge extended along the point on the east side. This feature was developed by ice-push.

During a period of drought the source of Clear Lake's water is not so evident. In the summer of 1954 a good-sized stream was flowing under the foot-bridge in the park, coming from a swampy depression farther east. It was not direct runoff when the writer observed it, but

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LAKE SHORE HIGH SCHOOL

There were 17 teen-agers from Dallas Consolidated School who didn't mind attending classes in late April.

Led and chaperoned by biology teacher Gerald Stoops and Mrs. Stoops, the mixed group spent April 27 and 28 in Ahquabi State Park learning natural history where it counts—in the open.

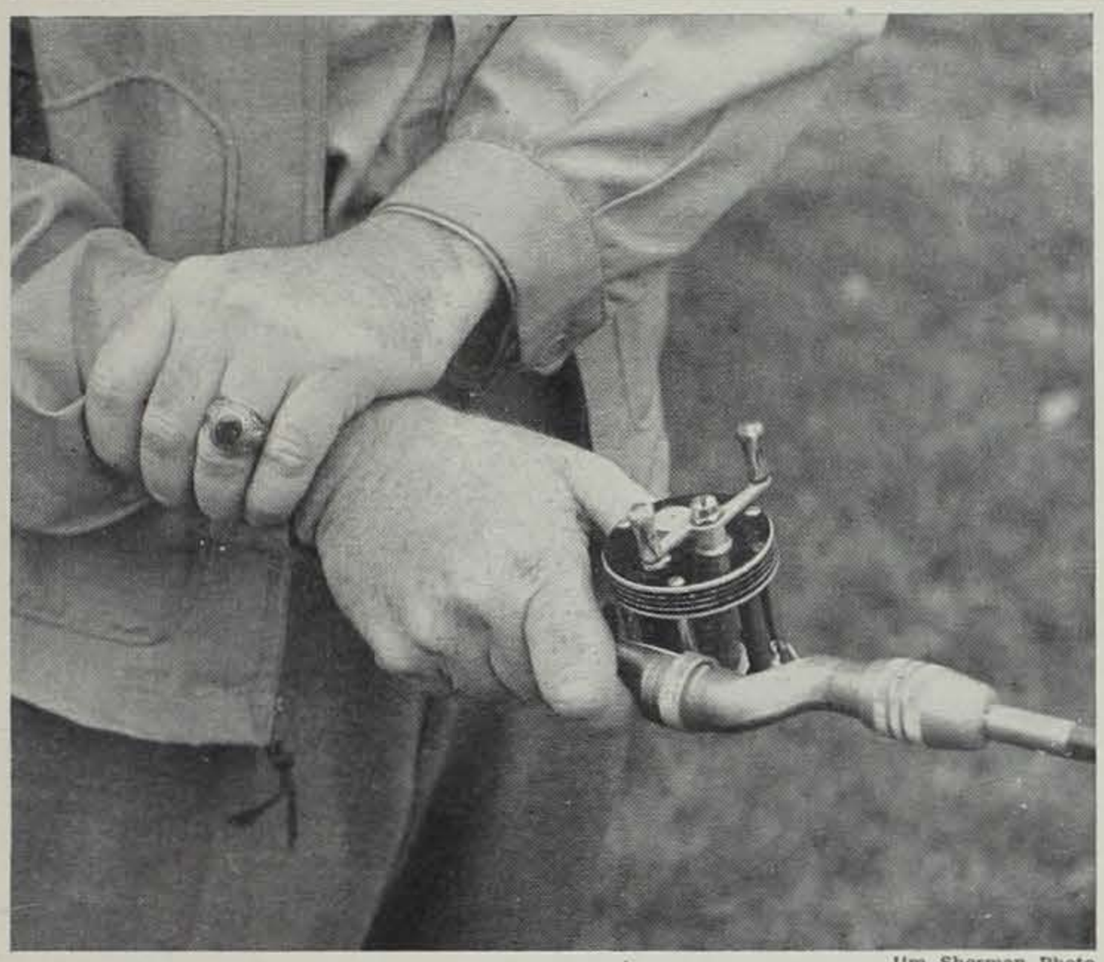
Lectures and field trips conducted by Conservation Commission personnel included plant, bird and animal identification, conservation of natural resources, and state park practices. Back at school they received examinations on their two-day field trip.

It's hoped that this may start something. A number of schools have considered such intensive classes in state parks but few have done anything about it. The Dallas school was the first to hold such a trip in a state park this year, and one of the first Iowa high schools to try such a project at all.

Long field trips and outdoor lectures are common among many colleges and European schools, but somehow the idea has been slow catching on in Iowa.

Although the earthworm is without eyes, it is quite sensitive to light. The front end or portion ahead of the light colored collar is most sensitive to light while the extreme tail end is next most sensitive. The middle portion is least sensitive. Slight differences in light intensity are detected, and the worm will seek a region of faint illumination in preference to one where the light is strong.—*H.H.*

The crayfish is capable of extending or withdrawing its eyes. In addition, they can point each eye in a different direction at one time.—*H.H.*



Jim Sherman Photo.
To restrict arm movement while learning to cast, hold the forearm with the other hand. Correct plug casting is done with wrist action; not a full-armed swing.

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Fundamentals of Fishings

(Continued from page 129)

braided line will be the easiest to "thumb" properly.

Hollow glass casting rods of 5½ to 6-foot length seem to enjoy the greatest popularity today because of their excellent durability and lack of maintenance and they have nearly as fine casting action as the best split bamboo. For true casting the various anti-backlash devices are not used, although most reels are equipped with them. The reel arbor should be adjusted so that a very slight end play may be felt. Just loosen or tighten the end caps and jiggle the arbor sideways. Be sure to oil the reel each time it is used.

Casting can be fun and not hard work if the angler will learn to use the proper form. In starting the cast hold the rod straight out in front with the reel handles up. Quickly snap the tip of the rod back and just before it reaches a vertical position tilt the handle forward and release the thumb from the reel arbor. It is very important that the cast be made in one continuous motion with no stop between backcast and forward cast. To get maximum distance and accuracy it is also very important to limit all movement to the hand and wrist. *The arm should not be used as in throwing something.* The angler who uses his arm instead of the rod to do his casting soon grows tired. It has been suggested that a good method of preventing arm movement is to hold just above the wrist with the left hand while practice casting. An old tire casing will provide a good target to use in the back yard. A practice weight is available in any sporting goods store and a few minutes practice casting in the back yard each evening will soon make an expert out of a dub. Remember: While you are picking out backlashes your bait isn't working.

Correct form will allow you to cast all day without tiring your arm.

A balanced outfit it just as important for plug casting as for fly fishing. Make your cast one continuous motion with no hesitation between back and forward motion of the rod.

Hold your arm still and let your wrist and rod tip do the work.

Lures for use with the casting rod include plugs, flies and natural baits. The natural baits used by Iowans are many and include minnows, worms, crawfish, frogs, "stink" baits, as the most common varieties. The natural baits are used with and without sinkers and will catch anything from the lowly bullhead to the highly prized trout and walleye. For the beginner a bobber is often a help in setting the hook.

Plugs and spoons fall into three main types according to use: Surface plugs, sub-surface, and sinkers. Surface plugs are often used to catch the largemouth bass found in all of Iowa's artificial lakes. Many of these surface plugs pop or gurgle when retrieved and will arouse the fighting instincts of Mr. L. M. Bass with results that are almost terrifying to behold. Red and white or frog-colored poppers are usually the most successful. The sub-surface plugs are often torpedo-shaped, have a darting and diving motion, and are also used for bass.

On the days when surface plugs won't interest the largemouth, the sub-surface lures will often prove successful. These plugs also on occasion will prove effective on crappies, walleyes and northerns. One of the most consistent fish-getters is the sinker plug which will sink to eight or ten feet. Some of the floating plugs can be used as "sinkers" by adding split shot. Walleyes are usually caught with the sinking type lure fished near the bottom with a jerky or erratic retrieve which may be accomplished by lifting the rod tip occasionally while reeling. The red and white or black and white casting spoons are also very effective for this type of fishing for walleyes and northerns.

Flies are very good lures for the casting rod. A spinner ahead of the fly will usually improve its attraction for fish; to cast a fly on the casting rod it is necessary to add weight ahead of the leader. Split shot is usually used and sometimes a keel sinker is preferred. Fly and spinner combinations are particularly good for walleye fishing in Iowa lakes such as Storm, Clear, Okoboji, Silver, Lost Island, and Spirit. White bucktail flies or red and white flies have been the most popular for walleye fishing.

A nylon leader will usually help fishing success, and it may be two feet or six feet long, depending on the preference of the angler. The leader should be attached to the line with a bloodknot so that it can be reeled through the casting rod tip without interference. Good casting is much easier if the lure or weight is reeled in to the tip of the rod when the cast is made.

A snap swivel tied to the end of the leader will facilitate the changing of lures but the knot with which it is tied weakens rapidly and should be checked several times during a day's fishing. Some fishermen prefer the jamb knot for attaching the lure to the leader and when this knot is used, the end of the leader should be "tucked" back through the loop of the knot before it is tightened to prevent slipping. Instructions for tying the blood knot and the jamb knot are usually printed on nylon leader packages.

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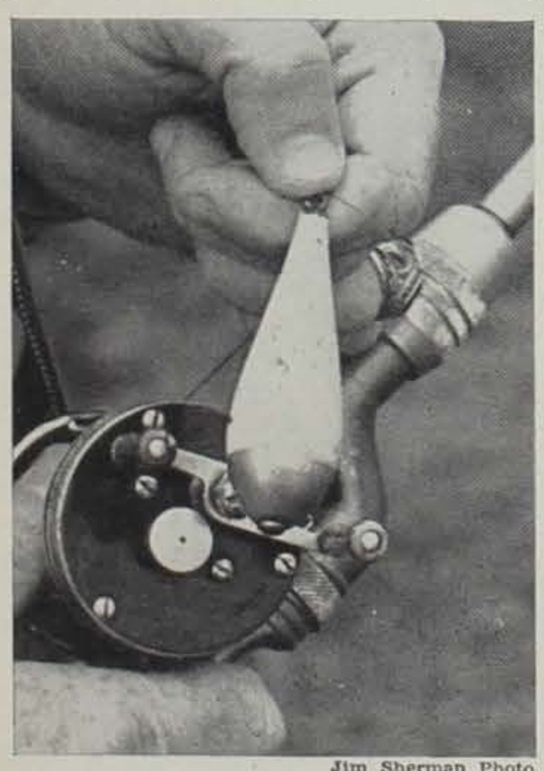


Jim Sherman Photo.
"Back yard fishing" will help dub casters become experts. Practice plugs without hooks are used gadgets.

HERE WE GO AGAIN!

A Sioux City trucker reported he saw two "lions" along the highway near Correctionville about 3 a. m. Saturday, April 16 in an area where there have been reports of calves disappearing.

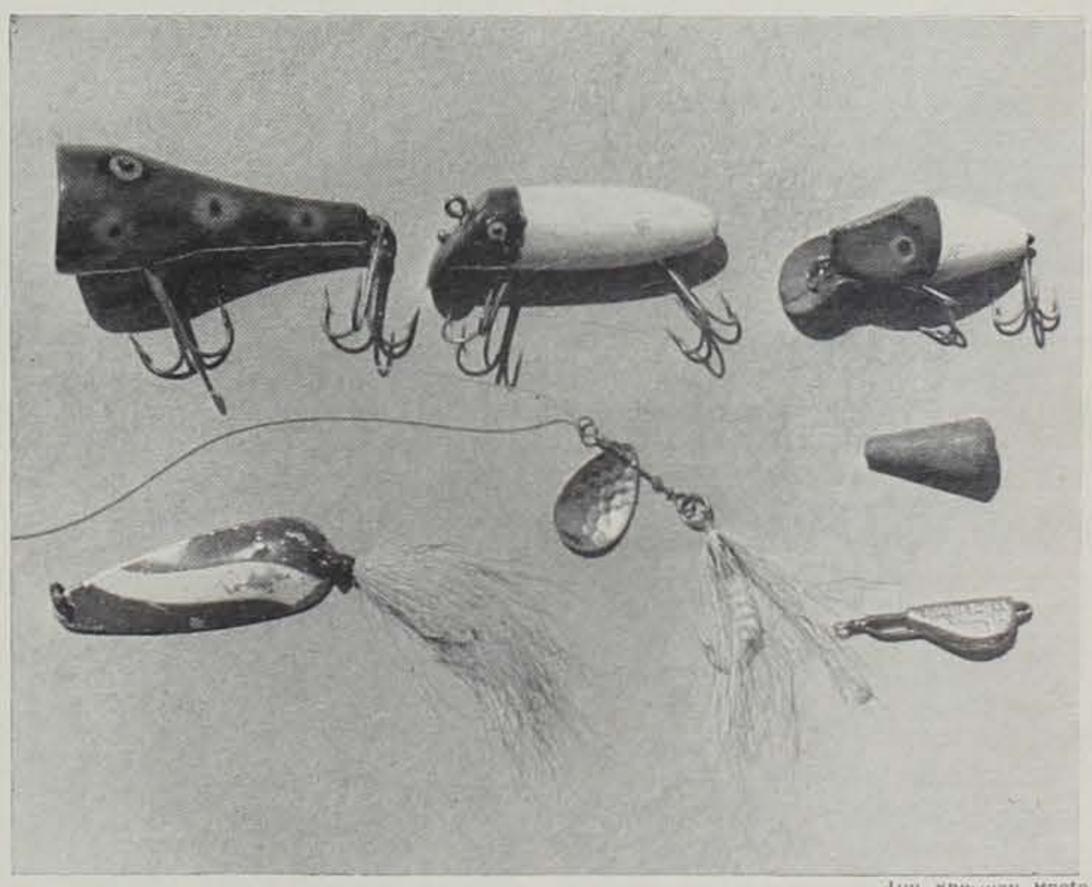
Sheriff Ed Lunde sent deputies to investigate in the area, near Highway 20 two miles west of Correctionville, where Herman Broderson reported sighting the beasts.

Broderson said he was driving east when he saw some animals about 20 feet from the highway. He said he stopped and flashed the spotlight mounted on his gas transport truck.

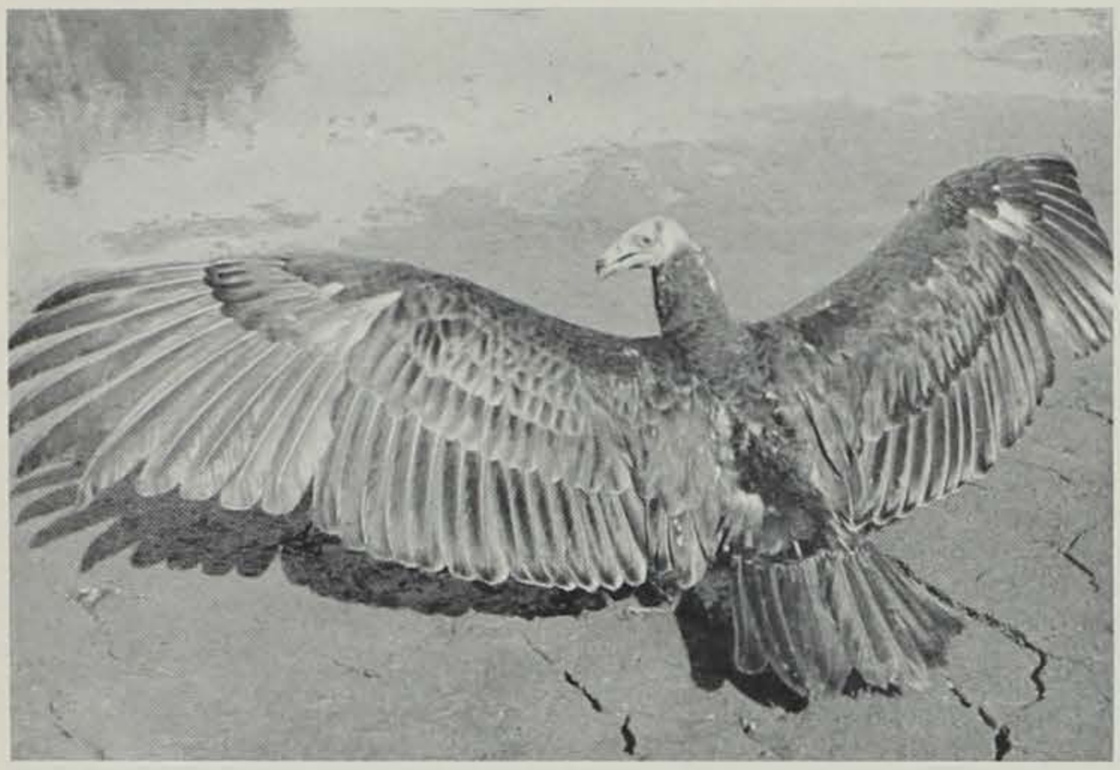
"I swear it was a male and female lion," Broderson told Lunde.

The sheriff said he regarded Broderson's story as meriting investigation because of the recent reports on missing calves.

There have been no circuses in this area lately. A "black panther" was reported seen near Charles City a few years ago. It never was caught.—*Des Moines Register.*



Jim Sherman Photo.
Some typical casting rod lures. Top row, left to right: surface plug, sub-surface plug, and deep-diving plug or "sinker". Bottom row: spoon with bucktail, a "killer rig" (fly with spinner), and the keel sinker and slip sinker.



For all his ugliness, "Old Gloomy" is our finest flier. His great wings, spanning 6 feet, enable him to soar tirelessly in his search for carrion.

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Iowa's Gloomiest Bird . . .

(Continued from page 129)

eagles with which he is often confused, his tail is long and not spread in flight.

Not Fussy

He will eat anything that is dead. (Although Dobie reports that even a turkey buzzard will not molest the fresh kill of a cougar.) The buzzard finds his carrion from immense altitudes by sight, and not by scent. Experiments show that a dead animal may be lightly covered with grass or weeds and a vulture cannot detect it. In one case a dried deer skin was stuffed with grass and a turkey buzzard tore it apart before he realized he had been tricked. Many studies indicate that the vultures' sense of smell may even be deficient.

If it wasn't they probably couldn't live with themselves. The turkey buzzard may not care, but he "offends". He has a characteristic air about him. In short, he stinks. This may be caused by his diet or by natural plumage oils, but only a hardened biologist can stand to investigate the bird closely.

A friend of ours who once tried to make friends with a family of buzzards in an Ozark cave learned a lot about the birds in just a few minutes. When a turkey buzzard gorges on a carcass he may be too heavy for a quick takeoff when surprised. So he just salvos his payload, regurgitating his food until he can fly. This nervous reaction is also a defensive one, and both young and adult buzzards can regurgitate at will when frightened. That's what our friend learned in that Ozark cave. It was a couple of years before he would even talk about it.

The turkey buzzard is well adapted to his way of life. His are possibly the finest eyes in nature, for a vulture can see a dead rabbit in a field when the bird is almost out of sight. His great wings equip him for tireless soaring. His beak is designed for tearing flesh and the outside nostrils pass entirely through the beak, the inner nostrils opening from the inside. Some believe that this helps prevent clogging of the nostrils by bits of food, and that the featherless head is more easily kept clean.

Snatched Bald

An Iowa Indian legend explains this naked head. The mythical hero Ictinike once hitch-hiked a ride with a turkey buzzard, but on the way the bird dropped him into a tall hollow tree. Since Ictinike was wearing coonskins and their tails stuck through a crack in the tree, some passing women (probably dreaming of new coonskin coats) cut a hole in the tree and Ictinike escaped. By this time, he was mighty peeved. So the fur-clad Indian lay down on the ground and a buzzard landed nearby thinking he was a dead animal. With a howl of rage our hero seized the great bird and tore off his scalp. Even since, the turkey buzzard's been bald.

They are fairly common Iowa summer visitors, found mainly in the southern and eastern parts of the state. In more northerly country they are replaced by ravens and crows. The vultures are found breeding in a number of Iowa counties, particularly along the Mississippi. They do not really build nests, but lay their eggs in any handy natural cavity such as a hollow tree, a cave, or a sheltered ledge. Nests have been found in the Ledges and Keomah state parks and the birds are frequently seen and often mistaken for eagles.

Buzzards usually pull into Iowa during March and leave in late October or early November, depending on weather. They have been recorded as far north as Howard, Black Hawk, Dickinson and Woodbury counties.

"Buzzard's Roost"

Some people believe that Iowa buzzards are scarcer than in the days when there was plenty of big game in the state. In 1868, Allen saw them congregated by the hundreds near Panora in Guthrie County, attracted by two dead pigs. In southern Guthrie County there was a locality known as "Buzzard's Roost", from the number of these birds in the area. Our buzzards may also have declined in recent years with the exit of the horse and better marketing and production methods of other livestock.

The turkey buzzard is valuable poultry in many southern states, for a flock of the birds can reduce a dead cow to shining bones in a couple of days. A southern farmer seldom needs to bury a horse or a cow, but just drags it to some remote section of his place and forgets about it; buzzards do the rest. In Charleston, black and turkey vultures once roamed the streets like sparrows, cleaning up any refuse that was edible. Although the turkey buzzard has been accused as a vector of hog cholera, Florida research has acquitted him. The virus of hog cholera is digested completely by the buzzard, and is evidently not transmissible by him.

In southern states it is not only against the law to kill buzzards, but against strong public opinion. They also are protected in Iowa, as they should be. They harm neither wildlife nor domestic stock, and killing a buzzard is no sign of skill, bravery or common sense.

The turkey buzzard is reviled by modern man, largely because of its food habits. And who are we to criticize food habits? Vultures were eating carrion ages ago, at a time when primitive man was happy to do the same.

We're more sophisticated in our tastes now and shun the vultures, eating our fresh meat and vegetables and trying to live to be 70. But the buzzard clings to his carrion diet, and according to one authority may live for 118 years! —*J.M.*

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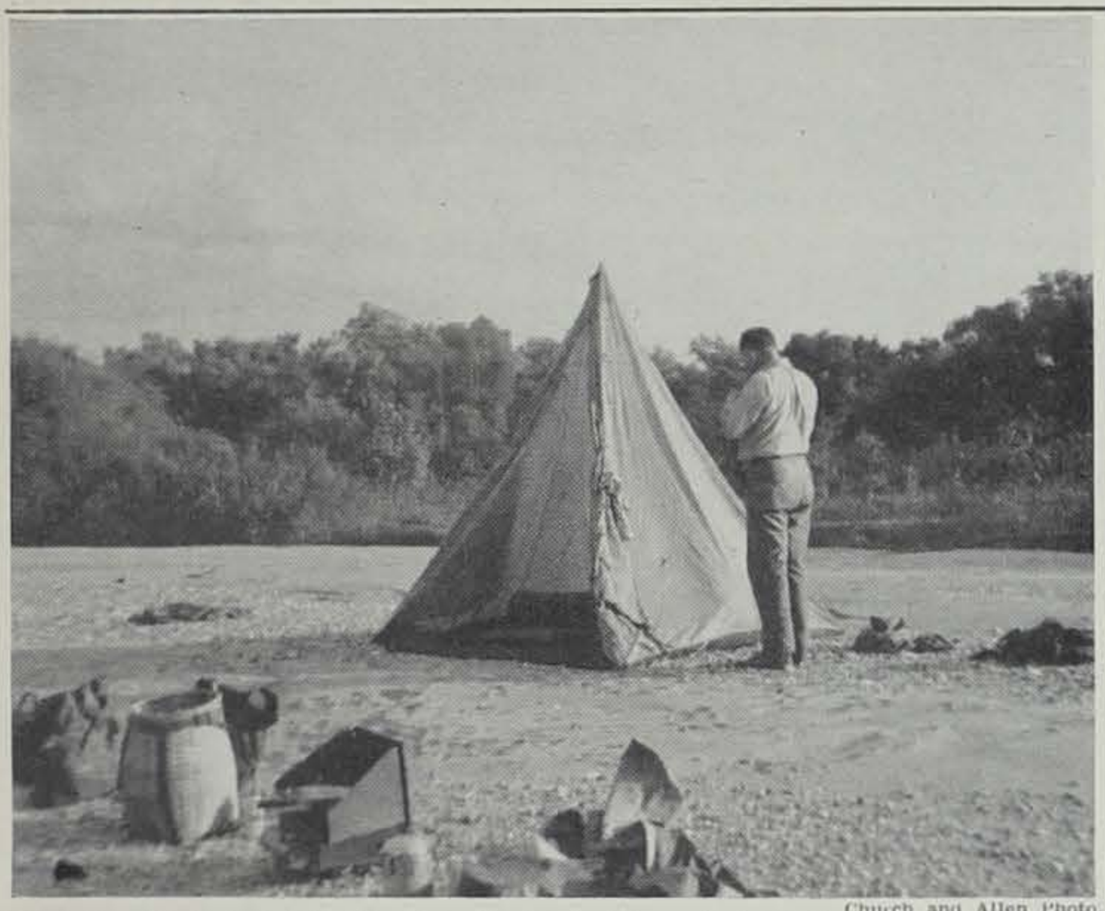
Rex Pendry Photo.

Pictured in a hollow tree, these sleepy, newly-hatched buzzards are hiding their faces. No one can blame them.

ANCHORING TRICKS

There are several basic styles of anchors, each with specific uses and limitations. The mushroom type is good for permanent moorings in soft and yielding bottoms. The kedge type (Northill) is fine for all-around use, although it has its limitations in soft mud, and its free arm will sometimes foul slack line. The twin fluke (Danforth) has good holding power once dug in, but it tends to slide over the bottom in weedy areas. The plow type anchor is used mostly on larger boats, and it is a good holder. The grapnel type is best for rocky bottoms, since it relies on one of its prongs catching under the edge of a rock. It is light weight and should be attached with a self-clearing rig for best results. The bell type is good style for sand and mud, as it digs deep. It self-cleans readily but is poor on weedy or hard bottoms. The dead-weight type, a stockless affair, is best in sheltered and currentless waters.

Scope is the length of line from boat to bottom, divided by the vertical distance from boat to bottom; it is measured from the boat's deck or wherever the anchor line is fastened. If you have too little scope, the anchor's flukes won't catch the bottom; you'll just be dragging it with the crown bumping along. About four-to-one scope is usually sufficient for most fishing anchorings, but up to seven-to-one is appropriate in a half-mile-an-hour current or a stiff breeze. In fact, enough line should be carried to give you a ten-to-one scope for the depths where you usually anchor.—*Roland Birnn, The Fisherman Magazine.*



Church and Allen Photo.
The little miner's tent is light and easily erected; important points when you're hungry, tired or in the rain. Other handy canoeing items are the folding gas stove and the pack basket.

Canoeing the Raccoon...

(Continued from page 129)

water periods these times should be increased.

The place to put in is below the Highway 30 bridge west of Jefferson on the east bank. The river has a good strong current at this point and is relatively clear, its bed being gravel, sand and hard clay. This is typical of the river for the first 20 miles or so of the trip, down to below the Dawson bridge in Dallas County. Jackson bridge is passed 2½ miles (½-hour) below the No. 30 bridge, and 1½ miles (½-hour) farther on the Highway 17 bridge south of Jefferson is reached. Negotiate the electrified fence just above this bridge with caution as the current is swift and the water deep.

It is another 1½ miles (½-hour) to the Milwaukee Railway bridge, past the site of an abandoned highway bridge. Six miles (1¾ hours) beyond is Squirrel Hollow Park. In this section, draining the entire north portion of Greene County, Hardin and Buttrick Creeks enter the Coon from the left bank within one-half mile of each other.

Squirrel Hollow Park is a spot to linger. It is sponsored by the Greene County Conservation Club and was developed in the old CCC days. It is on the summit of a steep bluff commanding a magnificent view of a great bend in the river. The stone shelter house in the park can be reached from the river by a stone stairway cut into the face of the bluff. Millstones brought by oxen from Pennsylvania in 1858 by Josh Locke for the early Coon Valley mill, a few miles downstream in Franklin Township, have been set in the shelter house floor.

About ¼-mile below the park is Squirrel Hollow Bridge, and 2½ miles (1 hour) farther downstream is Adkins bridge. The river in this section is similar to the Little Sioux between Linn Grove and Cherokee charted in the October 1954 issue of the IOWA CONSERVATIONIST. It is winding, narrow and wild, with many driftwood jams in the bends.

Just below Adkins bridge a suspended natural gas pipeline crosses the river and 6½ miles (2 hours) beyond, the Dawson bridge north of Dawson in Dallas County is reached. About 1 mile upstream from the present Dawson bridge the remains of the old State Ford bridge on the Greene-Dallas County line will be seen. This is a popular spot with local residents.

The Coon makes a long bend to the north and east past towering clay and rock bluffs in the next 5¾ miles (2 hours) to the Davey Hall bridge west of Perry. This is a good stretch of deep fast water for a one-day float fishing trip.

There are three more bridges in the next 1 mile (½-hour): the Milwaukee Railway bridge, the Perry or Highway 141 bridge and the Wolfe bridge. There is a good landing above the Perry bridge on the right bank. One-half mile below the Wolfe bridge, Frog Creek enters the Coon from the left bank.

The character of the river changes in the next 4½ miles (1 hour) to the Graney Highway bridge where there is another good landing on the left bank. The water continues deep but it is no longer clear as the river enters flat country. The current is slower than that upstream.

It is another 4½ miles (1¼ hours) to the highway bridge southwest of Minburn, and 4¼ miles (1¼ hours) more to the Garoutte bridge, west of Dallas Center, where Highway 64 crosses the river. The remains of an early grist mill can be seen above the Garoutte bridge when the river is low. It is 4 miles (1¼ hours) downstream to the upper dam above Adel. This dam diverts water from the left or east channel of the river in order to provide more water to operate the generating plant on the west channel at Adel. The right or west channel should be taken for the next 1½ miles (½-hour) to the take out place at Riverside Park in Adel, just below the cemetery on the right bank. It was from this point back in the 1900's that a steamboat used to take passengers to the upper dam on sight-seeing tours.

The trip can be extended for another 36½ miles to Des Moines if desired. It is 10½ miles (2 hours) from the Milwaukee Railway bridge at Adel to Van Meter, after making a portage around the Adel dam and powerhouse; 5 miles more (1 hour) to the railroad and highway bridges at Booneville, and another 10¾ miles (2¾ hours) to the Commerce bridge at Walnut Woods State

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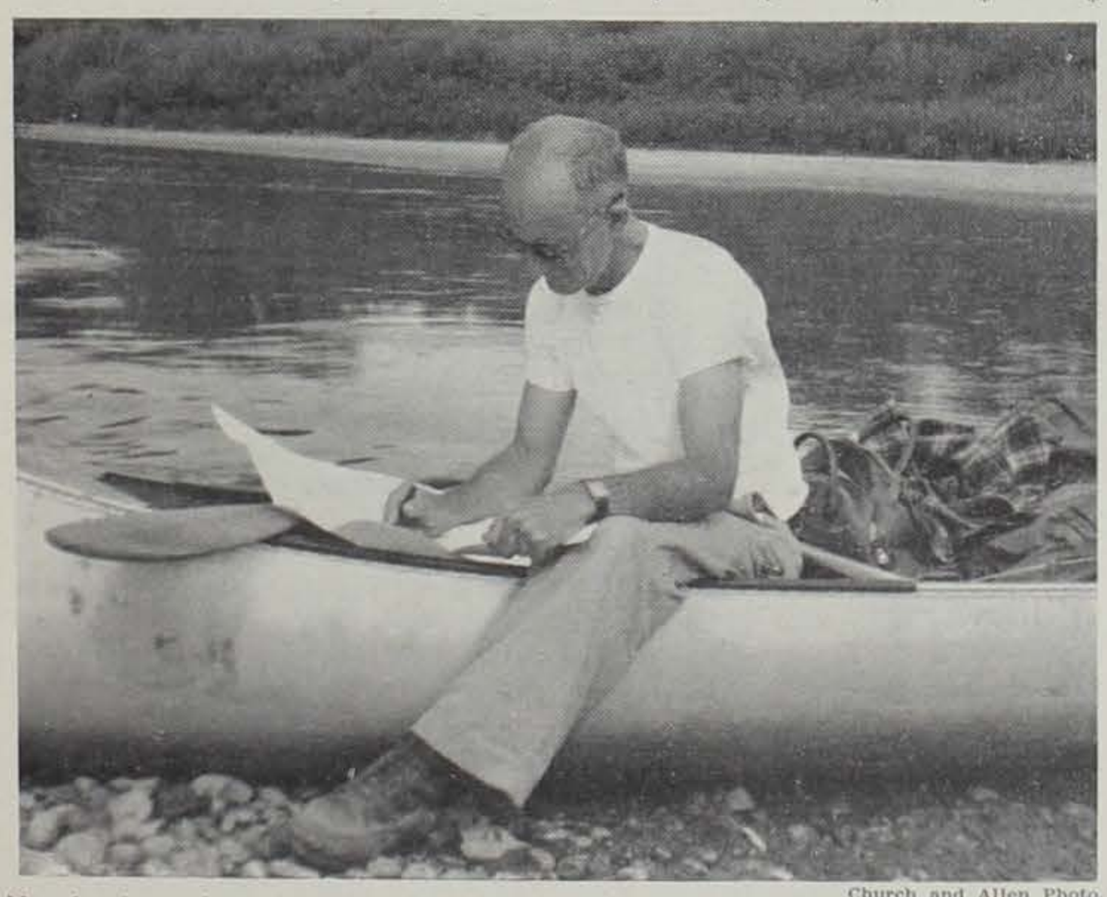
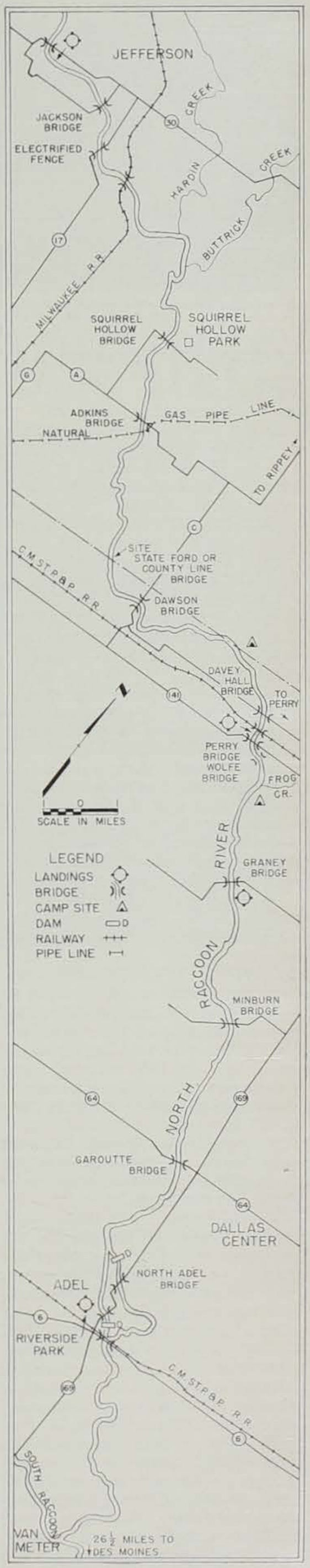


Church and Allen Photo.
Mapping Iowa rivers for canoe trips is a job when a paddle is the only desk. Pausing on a gravel bar, Ralph Church checks the day's river mileage.



Now that worms can be raised without dirt there is no reason why an angler can't culture fishworms in his basement—unless it's his wife.

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Keeping Earthworms . . .

(Continued from page 130)

2½ feet wide and 1½ feet high is recommended. Remember to seal the seams of the container so that the worms cannot escape. The top of the box should be fitted with a frame covered with hardware cloth. Having the frame hinged to the box and fastened with a small screen-door hook makes a very convenient setup. Several small holes should be drilled in some part of the bottom of the box for drainage. The holes should be covered with fine-mesh copper screen that is tacked to the container. If the worm box is in such a place so that it cannot be drained, place small cans under these holes to catch water. If the culture material has excessive moisture that cannot be drained it may sour and kill the worms.

The preparation of indoor cultures is the same as for outdoor boxes. The same feeding and watering procedures also apply.

After about 21 days after stocking the worms may be ready for harvest. Dump contents of culture box on smooth table and rake material into cone-shaped pile. Give the worms a few minutes to work down into the pile and then begin raking material from the tip of the pile and replacing in box. This is the material that will have a lot of egg capsules and should be placed in a newly prepared box.

Culture boxes should be kept fairly dark, as earthworms work in darkness. Boxes should be moist but not soggy.

When worms are being used on the lake or riverbank, try carrying them in a small cloth sack filled with sphagnum moss. Dampen sack whenever necessary.

No Dirt Needed

In a recent article in *The Fisherman* magazine, Earl Kennamer, tells how to raise earthworms without soil. He recommends a mixture of 75 parts cottonseed meal "flue" bran, 10 parts soybean meal, 10 parts steamed bone meal and 5 parts wheat shorts. A similar mixture is five pounds cottonseed meal, five pounds peanut meal, one pound corn meal and two pounds of wheat shorts.

The bedding material is allowed to rot by wetting it down and turning it daily. Worms are stocked only after the bed is no longer warm . . . usually about five or six weeks.

The worm bed recommended is an outside proposition; a pit about 12-15 inches deep and about four feet wide, with the sides and ends of rot-proofed wood. About 20 worms are stocked for each square foot of worm bed.

McIntosh State Park . . .

(Continued from page 132)

water from springs and seeps, bringing water into the swampy depression and thence to the lake. In dry weather the lake level is similarly maintained by the springs and seeps in the lake bottom and along the shore. There is not much runoff into the lake. Its outlet is on the east side into Willow Creek. The latter joins Lime Creek at Mason City.

While walking through McIntosh Woods, take a look at the boulders found along the shore that have been dropped from the bluff as erosion proceeded. They are all hard crystalline rocks, samples of the bedrock of some of the northern country over which the glacial ice has traveled. Formed from molten rock in a remote period of earth history, they are silent reminders of the changes time brings to the earth's surface.

Canoeing the Raccoon...

(Continued from page 135)

Park. The West Des Moines bridge is 4½ miles (1½ hours) below the Commerce bridge. It is another 6¼ miles (1½ hours) to the low head rock dam in the Charles Denman Woods Water Works Park in Des Moines. A good place to take out is on the right bank just above the dam, downstream from the Fleur Drive bridge.

In the April issue, two dams were shown on the map of the Red Cedar River near St. Ansgar, one just above the Mill Bridge and one just below the bridge. The dam above the bridge does not exist, and the portage noted there should be on the west bank of the river at the dam south of the Mill Bridge.

The biggest artificial lake in Iowa, Rock Creek Lake, will open to fishing on May 30. Commission biologists predict plenty of fish, plenty of fishermen, and a good opening.

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TWO NEW LAKES SOON OPEN TO FISHING

Iowa's two newest artificial lakes, Green Valley Lake, near Creston, and Rock Creek Lake near Kellogg, will be open to fishing on May 30, 1955.

Fishing in the new lakes will begin at 5 a.m. on May 30. No fishing will be permitted before that hour.

Rock Creek Lake, which is three miles north and three miles east of Kellogg, in Jasper County, is an even square mile in area—640 acres of virgin fishing waters that have been stocked with black bass, bluegills, catfish, silver bass, crappie and bullheads.

Green Valley Lake, a 400-acre impoundment three miles north and one mile west of Creston, has been stocked with bass, catfish, bluegills, walleyes and bullheads.

The fishing season for the two lakes was set for the opening of the bass season, since a May 30 opening would prevent the disappointment of throwing back "closed season" bass if the season opened earlier.

Although each of the lakes has been completed for several years and stocked with fish, fishing is not usually allowed in such waters until the fish populations are in balance biologically, with all species reproducing well and growing rapidly. Recent tests by Commission biologists indicate that the fish in the two lakes are in good condition and the opening is predicted to be a good one.

Fishing boats may be obtained at commercial boat liveries at the two lakes. Privately owned boats and motors may be used but the motors may not exceed five horsepower, a ruling that applies to all artificial lakes over 100 acres in size.

Bait minnows and outboard motors must be inspected by Commission personnel before they may be used in the new lakes.

LOOKING AT THE "WISHBOOKS"

Lately I've been poring through my outdoor magazines giving deep thought and much consideration to the new world of adventure suggested by the 1955 models in fishing tackle, in outboard motors, in boats, and in firearms.

This will sound silly to most readers, but the fact is I'm far more thrilled by the new spinning reels and rods than I am by the 1955 models of automobiles. Sure, a new car is pretty and it has lots of power and it has gadgets, but, after all, it can only take me from here to there, provided I don't kill my fool self somewhere in between.

But a new spinning reel and rod! Now, that's something altogether different! If I can escape the perils of highway travel and get to the fishing spot I desire, then for hours and hours that spinning outfit becomes my dependable tool for perfect enjoyment and relaxation, permitting me to forget dull care, and all of life's frets and worries.

In my hours of retrospection and reveries, my fondest memories are not of how quick I made the trip to my favorite fishing waters, nor of how much time I saved in the return—the joys and happiness are of the time of quiet contentment, whipping a lure or floating a bait—and the thrill of a good fish's mad rush to break loose!

So it is that I find rare delight in thumbing through the pages of my recreation magazines and the leaves of the sporting goods catalogs. Not only do such perusals bring surges of desire for the new things offered—they bring up vivid memories of bright, happy days when I was at peace with God and man, along some quiet stream or afloat on some lovely gem of sweet water. — *Fins, Furs and Feathers, Manchester Democrat-Radio.*