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PHEASANT BLOOD TYPING

Paul A. Vohs

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Iowa State University

Under the proper circumstances it is usual to hear two people discussing their blood types but most unusual to run across a couple of Iowa ring-necked pheasants on the "back-40" exchanging information about their blood types. However, knowing the way hens gather to visit, blood typing experiences may be high on the list on some Iowa pheasant research study areas.

The whys behind the excellent pheasant populations in certain parts of Iowa, their absence in the southeastern portion and the decline in density of ringnecks as you near U. S. Highway 30 coming from the north have provided pheasant managers with one of their most complex problems. Some intensive studies and many cursory examinations of the farm lands south of the "good" pheasant range reveal little apparent reason why pheasants would fail to maintain self-sustaining populations when they are liberated in these areas.

A rapid increase in pheasant populations in Union and Adair counties from 1950 to 1954 raised an additional but related question—are these southern Iowa birds different from those in northern Iowa?

Techniques available at that time could not be used to answer the question of differences between the populations, and most efforts to discover what it was in the ringneck's habitat that restricted his southern extension involved all of our generally accepted techniques. A technique was needed to provide genetic information about our pheasant populations. A number of domestic animals including our common farm animals like cattle, hogs, sheep and chickens had been studied to determine if blood type differences occurred. The type of information gained looked promising to meet our needs for ringnecks, so the State Conservation Commission and Iowa State University initiated a cooperative experimental study of pheasant blood groups in November, 1960. It had to be experimental because no one had ever checked to see if pheasants had differences in blood types.

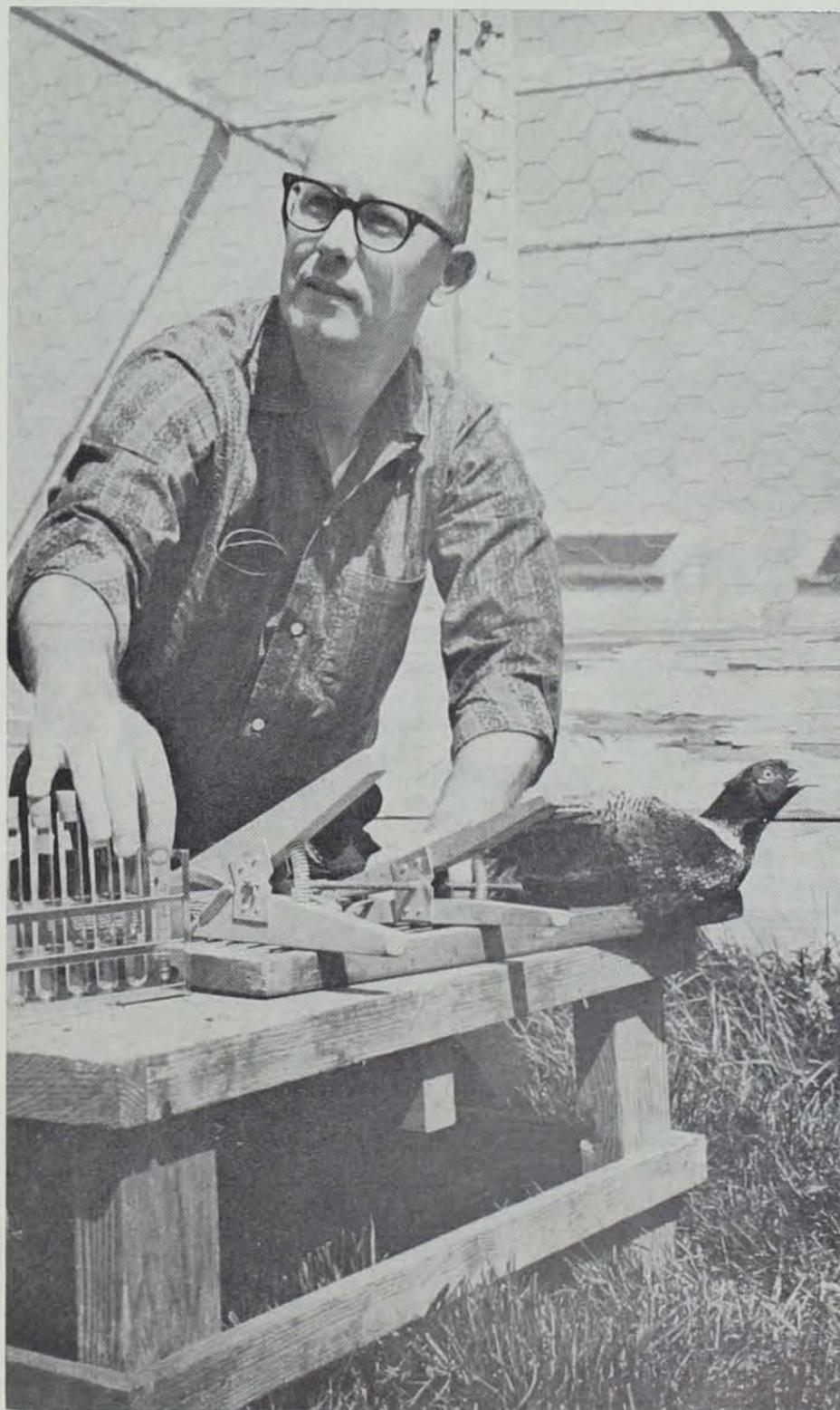
Typing pheasant blood is little different than the current procedure for human typing except that we had to start at the beginning by developing the typing fluids and testing the fluids on families of ring-necked pheasants. The blood typing fluids are obtained by injecting red blood cells of a bird having the blood group factor you wish to identify into a bird that lacks the factor. The physiological mechanisms of the pheasant receiving the red blood cells recognize that the cells don't belong, and the body defenses modify some of the serum proteins into antibodies. When antibody production reaches a peak, blood is drawn from the bird. The serum, which contains the antibodies, is extracted from the whole blood and saved for future study.

The serum is tested to determine the antibody content. Antibodies present in the serum that react with structures on the red blood cells other than the desired structures are removed. The serum then is called a reagent and is ready for testing among families of pheasants to determine if the structures identified are inherited and if so, how.

Families of ring-necked pheasants were not available in Iowa so the process of raising them was begun at the Commission's Wildlife Research and Exhibit Station at Boone. The initial year of raising birds for the study was experimental, and everyone involved learned how to integrate a program of raising a few hundred young chicks for experimental purposes along with a few thousand other young pheasants being raised for direct release.

The procedure agreed upon after a year's experience was to place a pair of birds in each of the twenty pens. Each pen was numbered, and the eggs were marked with a pen number before removing them from

(Continued on page 46)



Jim Sherman Photo.

A cooperative research program with the State Conservation Commission, Agricultural Experiment Station and the Department of Zoology and Entomology, Iowa State University.

Pheasant is placed on a restraining board so that it can't move quickly and sustain injury when blood is drawn for testing.

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CIRCULATION THIS ISSUE 57,174

COMMISSION MINUTES

State Conservation Commission
Meeting Held in Mason City
May 3 and 4, 1966

The Commission inspected West Swan Lake in Emmet County to obtain first-hand information on the area.

FISH AND GAME

Approval was given to 1966 Dear Season Regulations.

Approval was given to Emmet County for a conservation permit to build a road adjacent to Four Mile Lake in Emmet County.

The Superintendent of Land Acquisition made recommendations concerning the disposition of Keokuk Lake in Muscatine County and the commission recommended it for sale.

The present eligibility list of Fish and Game Conservation Officers was nullified and approval was given to hold a school and examination to establish a new list.

Another offer to sell the Darby land at Lake Odessa in Louisa County was received.

The Commission heard W. S. Clark and Cliff Hendrick of Esterville concerning the management of West Swan Lake in Emmet County.

After carefully considering whether West Swan Lake should be maintained as a marsh or open water lake, the Commission approved a motion to continue the present maintenance of that area as a marsh.

LANDS AND WATERS

Approval was given to exercise an option from Anderson for the purchase of 274.4 acres adjacent to Shimek Forest at \$55 per acre.

Appointment of twenty-five water safety officers was approved.

An order for the removal of a car body from Spirit Lake was approved.

Permission was given to the Dubuque Historical Society to display Governor Kirkwood's furniture which has been on exhibit at the Plum Grove Historical Monument.

A bid was accepted from Hoeg & Ames of Lincoln, Iowa, at a total cost of \$19,757.25 for waterwells at Backbone, Rock Creek,

Springbrook and Pine Lake State Parks.

Purchase of 12.14 acres of land adjacent to Lake Maebride at a total cost of \$20,000 from Nordon, Inc. of Cedar Rapids was approved and an option for the remainder of 74.53 acres was extended for two years.

The Commission met with William D. Kurth of Carroll, Iowa, to discuss purchase of farmland adjacent to Swan Lake in Carroll County and no action was taken.

COUNTY CONSERVATION BOARD PROJECTS

Audubon County received approval for the acquisition of two wildlife habitat areas of one acre each at a cost of \$12.50 each for the purpose of developing wildlife habitat plantings.

Cherokee County received approval for an addition to Martin-Little Sioux Access Area consisting of 58.78 acres of land at a total cost of \$5,900.

Des Moines County received approval for the acquisition of the one-hundred-year-old Zion School Museum and Historical Site consisting of one acre of land by a ten year renewable lease at a cost of \$15 per year.

Howard County received approval for the Roman County Park acquisition of one acre of land at no cost by transfer from the Board of Supervisors for the development of a picnic area.

Howard County received approval for the acquisition of Scharnwebber Wildlife Habitat Area consisting of one acre of land from the Howard Board of Supervisors.

Washington County received approval for the acquisition of the Foster Timber Addition consisting of 3 acres of land adjacent to the present timber area at no cost 4½ miles southwest of Wellman.

Winneshiek County received approval for the Merlin Moe Memorial Park consisting of 10.11 acres of land as a gift for the establishment of a multiple use outdoor recreational area.

Cerro Gordo County received approval for the acquisition of 72.83 acres at a total cost of \$17,872.50 as an addition to Shell Rock River Preserve.

Carroll County received approval for a development plan for a custodian's house at Swan Lake State Park.

GENERAL

Travel was approved to the Association of Midwest Fish and Game Law Enforcement Officer's Meeting at Jackson, Wyoming; to the Cooperative Waterfowl Banding Project at Saskatchewan, Canada; to the North Central States Boating Law Administrator's Association at the Wisconsin Dells; to the American Association for Conservation Information at Hot Springs, Arkansas; and for the Acquisition of Surplus Government Property at Fort Leonard Wood, Missouri; and to the Mid-

Conservation Forum

Dear Sir:

If you have only one fishing pole with you can you use two floats on one pole, instead of taking two poles with you?

G. A. B.

Maquoketa, Iowa

Law Enforcement says: We have no laws that pertain to the number of bobbers or floats you may use in pole and line fishing. There is a law as to the number of hooks you may use while pole and line fishing. Section 109.72 of the Iowa Code states that you may "use two (2) lines with one (1) hook on each line."

Therefore the answer to your question is that you may use as many bobbers or floats as you wish, but only one (1) hook on each of your two poles. If you put two (2) hooks upon one line, you would be illegal.

Dear Sir:

Enclosed you will find 2 slides taken of our daily visitor here at the bird feeders. This is a very definite blond and a beautiful sight to behold. For the past two winters he has been here. . . . At one time this past winter there was a smaller one here with this one. Don't know what has happened, but haven't seen it but once. It wasn't quite as white. . . . We hope and pray that no one kills it each hunting season, but of course, it can't live forever.



Sciurus Niger

We live in a timber and are well blessed with wild birds of all sorts. Have quite a few feeding stations around, cardinals, purple finches, in fact I have kept a record of the ones I've seen since Jan. 1, 1966, and there have been over 25 different kinds.

Mrs. L. L. C., Sr.
Cambridge, Iowa

One of our biologists has this to say about albino squirrels: Although the normal coat color for Iowa fox squirrels is gray-brown, variations from this color normally occur in wild populations. The most obvious variations are the pure white and black squirrels.

True albino squirrels result from a genetic chemical reaction which inhibits the production of pigment in the skin. The result of this reaction is an animal with white hair and pinkish eyes. However, there are white squirrels in the wild which are not true albinos. These individuals lack the pink eyes and are simply the result of genetic variations.

Black squirrels are the opposite extreme in genetic variation resulting in a heavy deposit of black pigment in the hair.

west State Park Association Meeting at Milford, Michigan.

A report was given by the Chief of Fish and Game concerning a proposed dam on the Cedar River near Rochester. Approval was given to a resolution approving a study of this project by the Army Engineers Corps.

A report was given by the Director of Planning concerning a possible Army Engineers Project on Walnut Creek in Dallas County and approval was given to a letter of intent stating that there are no plans for participation in such a project by the Conservation Commission at this time.

A report was given by the Chief of Fish and Game concerning Brown's Lake Fish and Wildlife Area near Salix. Approval was given for the boring of test wells to check the seal of the lake in order to study the possibility of increasing the water depth.

The Conservation Commissioners made an inspection tour of facil-

ities at Clear Lake, Eagle Lake, Morse Lake, West Twin Lake, East Twin Lake, Elm Lake, Cornelia Lake, Beeds Lake, Big Marsh and Lynne Grove Park at Rockwell.

The U. S. Fish and Wildlife Service is in the middle of a seven-year program to acquire 1.15 million acres of wetlands. The land is being paid for by the hunters' purchase of duck stamps and is open to the public for year-around outdoor recreation. Hunters use it only two or three months during the year.

Hunters who wear glasses should carry a spare pair with them on hunting trips, along with an up-to-date prescription, in case the regular pair is lost or broken, says the National Society for the Prevention of Blindness, Inc.

U. S. hunters invest some \$225 million annually in boats and water equipment.

The Problem: Replacing Our Dying Elms



Russell Nelson Photos.

For "in the yard" planting, homeowners sometimes select tree species that retain low growing limbs. This type is valuable where screening is desirable.

John Stokes—State Forester

Today a great many Iowa cities, towns, and landowners face the task of removing and replacing the dead or dying elms that have been attacked by Dutch elm disease. Many parts of Iowa are actively engaged in spraying, injection and sanitation programs to reduce the loss of elms. Other efforts center on the speedy removal of dead elm trees.

Eastern Iowa has already seen the destruction left by the disease; central Iowa is presently feeling the pressure of the battle, and western Iowa can only expect the western movement of Dutch elm disease to continue. Regardless of location of a city or town in Iowa some measure of replanting of ornamental trees should be anticipated. This article will deal with the choice of possible species of trees that can be secured to replace the lost elms.

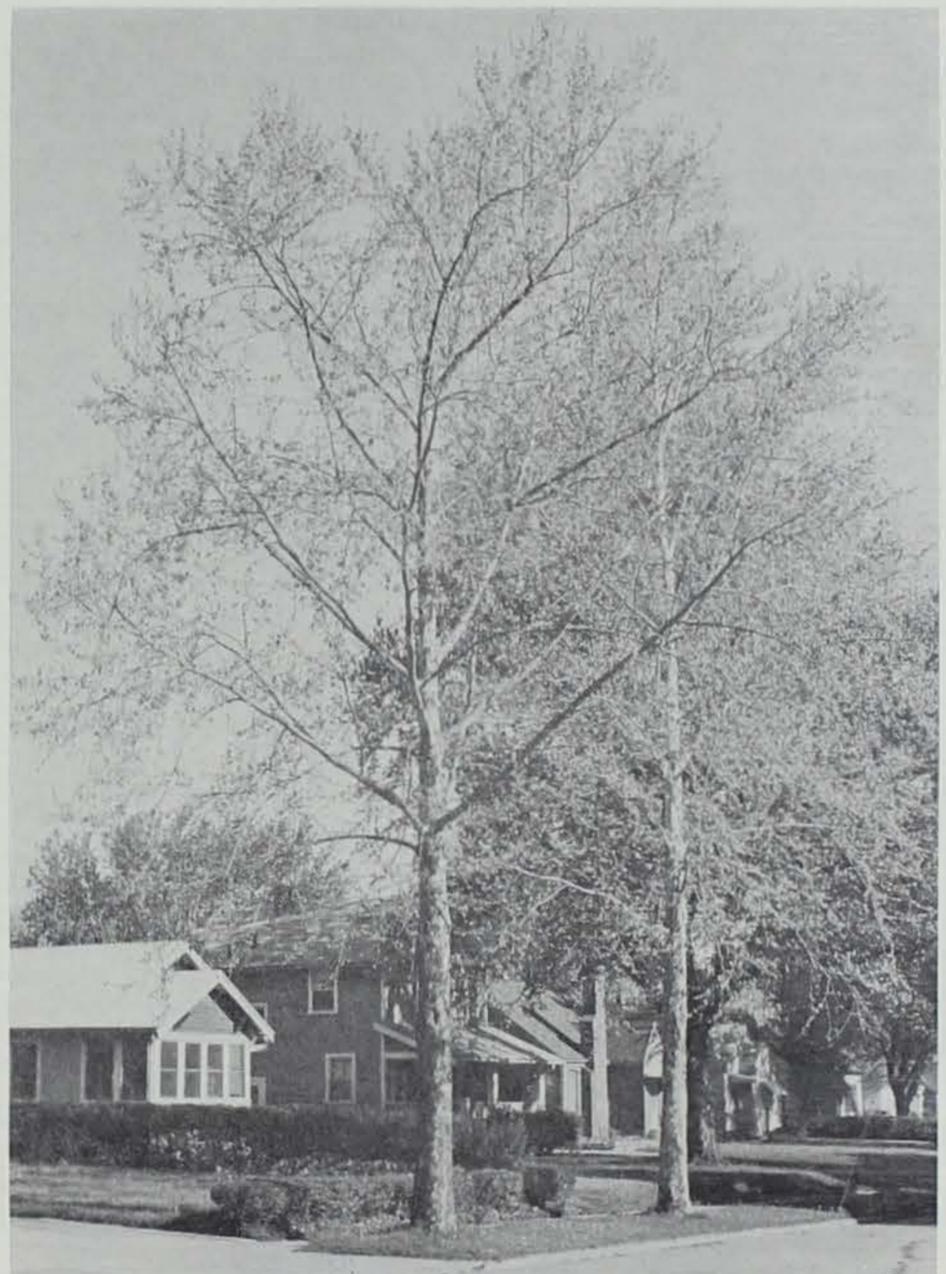
Making a Choice of the Tree

Trees, like other growing things, have individual characteristics some of which make them more desirable for shade and beauty to the general public than other plants. One obstacle the nurseryman or forester must face is the fact that trees are generally long-lived and cannot be easily removed once they are established. It is important, therefore that the best judgment be used in picking kinds of trees that are most likely to provide the wanted shade, beauty, resistance to wind or ice storm damage and which are not susceptible to known insect or disease attacks causing death of the tree.

Tree Shape and Size

Most ornamental plantings require trees providing abundant shade in the quickest possible time. In many cases height is desirable and trees reaching 80 to 100 feet are not objectionable.

Generally the slow growing species, the oaks and hard maples, are longer lived than some of the fast growing trees. The oaks and



Trees planted along streets are generally selected from groups that have upward reaching branches. This growth pattern allows limbs to be pruned away so that a traffic safety problem won't be created.

hard maples are trees which grow to maximum height and have a dense, shapely crown providing excellent shade and beautiful appearance.

Faster growing species include the poplars, Chinese elms, and soft maple. These are popular species since they provide early shade and height, but are short-lived compared to the oaks and hard maples.

They also have the disadvantage of being damaged by Iowa's frequent wind and ice storms. Most of these trees will grow rapidly, but their maximum heights will not be as tall as the oaks or maples.

Perhaps the most acceptable group of trees fall in between these two extremes. Species to be considered here include hackberry, sycamore, linden or basswood, and ash. These trees have a fairly rapid growth rate and provide good to excellent shade. Most of these trees have foliage that is acceptable for beautification purposes. The trees generally obtain heights greater than the poplars or Chinese elms and are only slightly shorter than the oaks and hard maples.

Special Considerations

In replanting trees the individual landowner often has more leeway than cities or towns. Trees along streets must normally have a clear trunk with compact crowns. Branches must not extend downward to interfere with traffic flow. The pin oak, which has branches extending to the ground, is an excellent example. For the individual seeking a yard tree it is an excellent choice, but is not a good choice as a street tree. This is often the reason why spruces and many pines are not generally found along city streets. All species of evergreens should be considered for parkways in cities and towns or by the individual landowner for planting in yards with the leafy trees.

Some species although desirable in shade production and general beauty often have a serious defect. The female cottonwood is an example. In Iowa, lawsuits have resulted from the cottony-covered seed that floats over the country side each year. Presently nursery-

(Continued on page 45)

Commercial Fishing

Bob Melvold

One of Jackson County's industries that is often overlooked is commercial fishing. And commercial fishing could be a lot, lot bigger if the prices on some species were not so astoundingly low.

Furthermore, commercial fishing actually aids the fellow with the casting, spinning and fly rod gear. Commercial fishermen have to content themselves with mostly what are known as "rough" fish—the carp, sheepshead perch and the buffalo. The only so-called desirable fish they can take are catfish and bullheads, and their big tonnage isn't in these species. Cleaning out "rough fish" makes more room for game fish.

Large- and small-mouth bass, walleyes, northern pike, striped bass, crappies, sauger and bluegills are all protected. They get in the nets just like the rest but they had better be turned loose. The size of fines, confiscation of equipment and loss of license and livelihood is too big a chance to take when Iowa, Illinois and federal conservation agents may be watching from a nearby wooded island or shore—even if a fellow did want to keep a few game fish for the freezer. All nets, trotlines and traps must be buoyed and contain an identifying license tag.

But the commercial fishermen catch tons and tons of "rough fish" nearly every week in the year for sale in the Chicago market. There are from 20 to 25 commercial fishermen who operate on a full or part-time basis in the Bellevue to Sabula areas. And on a recent afternoon I chanced upon two of them whom I had seen many times before.

Driving north out of Bellevue, I had a few minutes to spare so thought I would turn off down to the "old Izaak Walton landing" and see what the water looked like and if there was any activity.

It was a little early in the year for any of the bass fishermen, but commercial fishermen Ed Putman and Peter "Blackie" Steil were sitting on the backend of a pickup load of nets and traps just enjoying the first real warm sun of the year.

In front of them on the ground was a long wing net . . . a succession of hoop skirts with an interior netted funnel arrangement that makes it easy for the fish to get in but tough to find their way out. The "winged net" name comes from the leading out of wings of netting fences to lead them to the hoops.

Ed has fished the Mississippi some 30 years and "Blackie," who is considerably older, merely said he had fished it all his life.

The Putmans live a few miles west of Bellevue, just off of Highway 62. They have nine children and Ed relates that two older boys are crew members on Mississippi River barge lines.

"Blackie" is single and is a familiar figure and good friend to the many "above the dam" bass fishermen who put in at the landing.

I asked Ed how many fish they get. His answer was, "I've got 7,000 pounds, so far this week (it was a Thursday) but that isn't what you would call good fishing." They have seen times when they had 3,500 lbs. of fish in a single winged net. That would include catfish up to 50 pounds and buffalo up to 30. Some of the other fishermen have caught catfish considerably larger.

But the most fantastic hauls come from a pull under the winter ice with a big seine. There are only a few of the big seines. Putman has one, Orville Steines and Henry Pemberton have the others. From 150 to 200 yards long and 40 feet deep, they run them under the ice and gather in as much as 50,000 pounds of fish in a haul. Naturally, they don't drag any 25 tons of fish out of the water at one time. The strategy is to work them into a pocket of near solid fish and dip them out and into the waiting pickup driven on the ice. Two men might spend a week dipping out one seine haul, pulling the seine in a little tighter as they dipped out more fish.

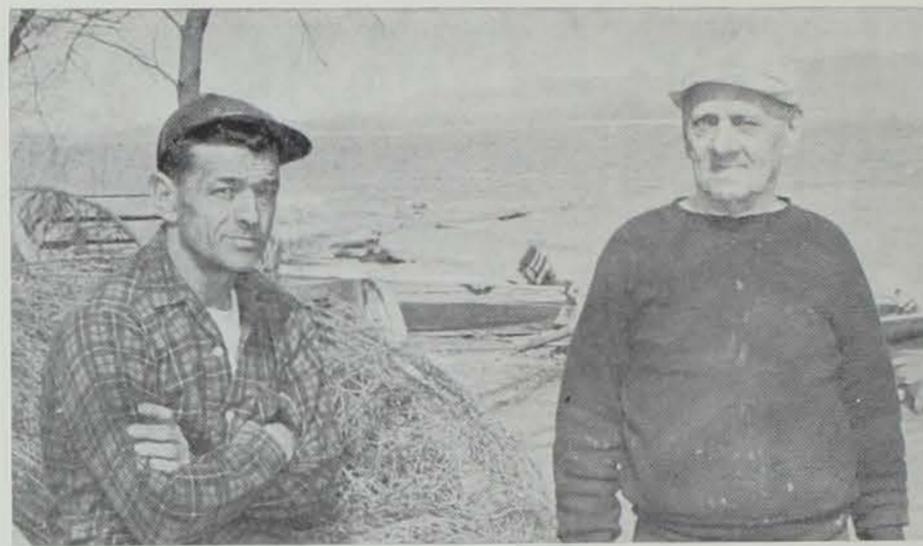
Putman recalled that four of them once got 100,000 pounds of fish in three weeks.

Carp, of course, are the most plentiful—but the price is terribly low. The quotation as of early March was 4 cents a pound for small carp and 5 cents a pound for those eight pounds or more.

But it costs 2 cents a pound to ship them to Chicago, half cent a pound to "run them through the market." There is an icing facility in Bellevue. Boxes hold from 60 to 100 pounds of fish, with a couple of inches of ice top and bottom. The fish are dressed in Chicago. A truck picks them up three times a week.

So the commercial fishermen only net about 1 cent a pound on carp. Buffalo and perch are better although they are not exactly a bonanza. Both are around 10 to 12 cents a pound, with the same overhead costs to pay. Catfish are worth 65 cents dressed.

Walleyes are quoted on the market at 60 to 65 cents a pound live—but as mentioned above, they are "off limits" to commercial fishermen. One of the best hauls they ever had they could keep was 27,000 pounds of "solid buffalos."



Bob Melvold Photo.

Ed Putman and Peter "Blackie" Steil share over 50 years of fishing on the Mississippi. They say bass and northern populations are on the increase.

Stripped bass, as Mississippi River fishermen well know, travel in big schools much of the time. When you get into a school that is feeding it is possible to catch one on practically every cast. Either "Blackie" or Ed, I can't recall which one, once had to release 5,000 pounds of stripers from a single seine haul.

What about bass and northerns? They frequently release northern pike in the 20 to 25 pound range and do the same to a lot of bass running in the seven pound range. Both believe the game fish run generally larger above the dam but that they are harder to find for the sportsman as there is so much more backwater area.

And good news to the non-commercial fishermen is that they have witnessed enormous increases in the numbers of bass and northerns . . . especially in the sloughs and backwaters above the dam. They estimated there is several times the amount of bass prevalent than 20 or 30 years ago, and it seems to be getting more each year.

From lead nets and trammel nets placed back up in the backwater lakes and sloughs, they get a rather good census sampling of the total fish population.

Trammel nets are made of netting about six feet deep and are formed in a "V" of about 50 to 100 yards on each flank. Then the fishermen get off a distance from the "V" and hit the water with a 9 foot length of pipe that is bent slightly on one end. Putman related that it makes a "plunging" noise that scares large numbers of fish into the net and they get their fins caught in the mesh.

Lead nets consist of a barrier of netting put out vertically from shore. When the fish going upstream or downstream encounters this he follows it out and ends up at one of those funnel arrangements that are so easy to enter and so difficult to find a way out.

Typical equipment for the average Bellevue area fisherman is an 18 foot heavy duty Polar Kraft-type float boat with a Johnson or Evinrude motor running anywhere from 18 to 40 horsepower—and a large capacity pickup to carry the nets, traps out, and the fish back in.

And what do commercial fishermen do for hobbies? Well, I've never seen one sporting a casting rod and tackle box on his "day off."

Ed Putman is a star bowler and gets over to Maquoketa once a week in league season. In a recent tournament here, he was on the winning doubles team with a 1,249. He rolled a 668 series.

And he likes to travel . . . by car. And he likes to use a movie camera. He's got some colored films of some of their record fish hauls that he has loaned or shown to various outdoor sportsmen clubs.

"Blackie" didn't claim any particular hobby . . . but I knew from about eight years acquaintanceship that it is "fisherman watching." It's observing all of the embarking preparations early in the day and the return to the landing at dusk with or without a few of the fish that "Blackie" may have turned loose at some time or another. And the giving of a helping hand or a little information to a stranger from Davenport, Cedar Rapids or Maquoketa.

A commercial fisherman has to keep his trade secrets—but sometimes one like "Blackie" will throw out a good hint on where they might be found or what they might be hitting. Locating the fish is often a mystery to the weekend sportsman—but not to commercial fishermen like "Blackie" Steil or Ed Putman, who have been setting nets in all parts of the channels and backwaters at all times of the year and stages of water for decades.

—Reprinted from the COMMUNITY-PRESS, Maquoketa, Iowa.

Polar bears have been known to stalk and kill humans in winter—either because of extreme hunger or total ignorance of man. In spite of its armor, the armadillo is a good swimmer but if the waterway is short, it walks under the water on the bottom.

THE MARTINS AND THE SWALLOWS

Each spring for many years a pair of Barn Swallows have returned to a cup of hardened mud plastered on an overhead beam just inside our barn door. Once, the nest was knocked down by an overcurious boy, but the swallows rebuilt it with fresh mud pellets interwoven with grass—on the same spot with the same rusty nail as an anchor. From April until September they elect themselves members of our family, just as they adopted our predecessors who lived there ever since that barn was built to stable a team of horses, fifty or more years ago. Since time immemorial swallows have cast their lot with man and repay his protection by their cheerful twittering, and by gleaming insects from his gardens and fields.

All kinds of swallows seem to enjoy flying and spend more time on the wing than any other birds. They have slender graceful bodies, long tapered wings for swift flight, and all except one have long forked or notched tails. Their beaks are short and wide for catching insects on the wing. The legs are short and the feet are weak. All except one migrate to far South America for the winter.

Six common kinds nest over most of the United States. The largest is the Purple Martin of which the male is shining blue-black all over and the female brownish with a gray throat. Supposedly, they once nested in hollow trees but, long before the coming of white men, the Indians made martin nests from empty gourds hung on poles in their gardens and corn patches. Now, martins nest almost exclusively in specially built "apartment houses" mounted on poles. They boldly attack crows and hawks but are often crowded out of their houses by English sparrows and starlings.

The Tree Swallows nest in tree holes or in ordinary bird boxes,

preferably near marshes and ponds. There they skim the surface for mosquitoes and other aquatic insects. They occasionally eat seeds and berries. The head and back of the adults are metallic greenish black, and the breast pure white. This is the swallow which often lines telephone wires for miles in late summer before they migrate south.

The Barn Swallow, with its deeply forked tail, has that well-tailored look—a smooth blue serge tail-coat and a reddish brown vest. Formerly they nested in caverns and under overhanging cliffs, but now they stick close to man's barns, bridges, and other buildings. They boldly "dive bomb" cats, dogs and people who venture near their young as they teach them to fly and feed on the wing.

The Cliff Swallows are better named Eaves Swallows because, nowadays, they most commonly build their mud nests in large colonies under the eaves of buildings. One barn near Deerfield, Wisconsin, has over two thousand nests under its eaves. This is the swallow with a square tail. Otherwise it is similar to the barn swallow except that its forehead is orange instead of white.

The Bank Swallow and the Rough-winged Swallow are similar in habits and appearance. Both are grayish above but the first has a white throat and breast crossed by a brownish band, whereas the latter has a gray breast. They differ from other swallows by nesting in holes which they dig deep into steep sandy banks.

The cigar-shaped Chimney Swift, remarkable for its speed and agility in the air, and which glues a nest of twigs on the inside of unused chimneys, is not a swallow at all, but a relative of the hummingbirds.

The Martins and the Coys were feudin' fightin' boys—but the martins and the swallows live in peace.

—Reprinted from the Forest Preserve District of Cook County, NATURE BULLETIN.

Sighting Upstream

John Garwood

Someone gave me the following dissertation on fishing. It answers a lot of questions so am passing it on to you for your consideration.

"There is a common and accepted fiction that fishermen go fishing to catch fish. Some do, of course; but more don't. The fish caught are only a lesser part of the catch. The greater part is the day in the open, the little things that feed the eyes, the ears, and the soul, though we are so perverse and so practical that we seldom talk about them.

"How many of us would get to see an early Summer dawn without the excuse that fish bite better then? Yet it's really the dawn world that a man goes out to see; a sunrise full of the golden green trees spangled with brand new leaves, full of robbin song, full of mist from the lake or river, full of the strange, thin echoes of man's world just coming awake. It's the sudden flight of a nesting duck, startled into whirring wings and beaten water and gleaming light

or swift ripples. It's the sight of wild geranium bowing under the weight of dew, and the red and gold and blue-silver leaf of wild columbine. It's the smell of wood smoke from a farmhouse chimney, and the taste of vacuum coffee on a sunlit bank or sand bar.

"It's the fishing, yes. The way a fly follows a riddle, the way a plug plops, the way a wormed hook goes down into a deep pool. The strike, the rush, the play of line, the sound of reel, the catch, or the lost fish. But it's also the gleam of a dragonfly, the rattling cry of a king fisher, the stark awkwardness verging on grace and beauty of a heron. It's the slow climb of the sun, the slow travel of the shadows, and drift of a cloud.

"Fish? Oh, yes, one must have a reason and the day must have a purpose. But it's the fishing, really, the dawn and the morning and the day, and man's knowing that it's still there, still real."

—Reprinted from the TIMES-REPUBLICAN, Marshalltown, Iowa

OUR DYING ELMS

(Continued from page 43)

men can provide desirable cottonwood that are guaranteed not to produce such seeds.

We have not tried to cover the many flowering fruit trees or varied-colored foliage such as sunburst Locust, that Iowa nurserymen can provide to landowners. These special trees should be considered and your nurseryman can give you full details on the individual species.

Another group of trees that are finding acceptance in cities are exotic species, that is trees not native to our country. A good example would be the ginkgo with its attractive fan-shaped leaves.

The tree planting problem is here or just around the corner. The time to plan a program for replacement of dead or dying elms is now regardless of where a landowner, city or town is located in the state.

Antelope fawns develop much faster than young deer and, when only a day or two old, are able to run about 25 miles an hour for short distances.

In 1964, hunters paid more than \$72 million for licenses, permits and tags. This money was used by state game departments to care for all wildlife, both hunted and non-hunted species.

There are more than one million licensed women hunters in the United States.

It is a federal offense for unlicensed individuals to use the U. S. mail for shipment of pistols, revolvers or other concealable guns.

Hunters drive about 5 billion miles a year in pursuit of their favorite recreation.



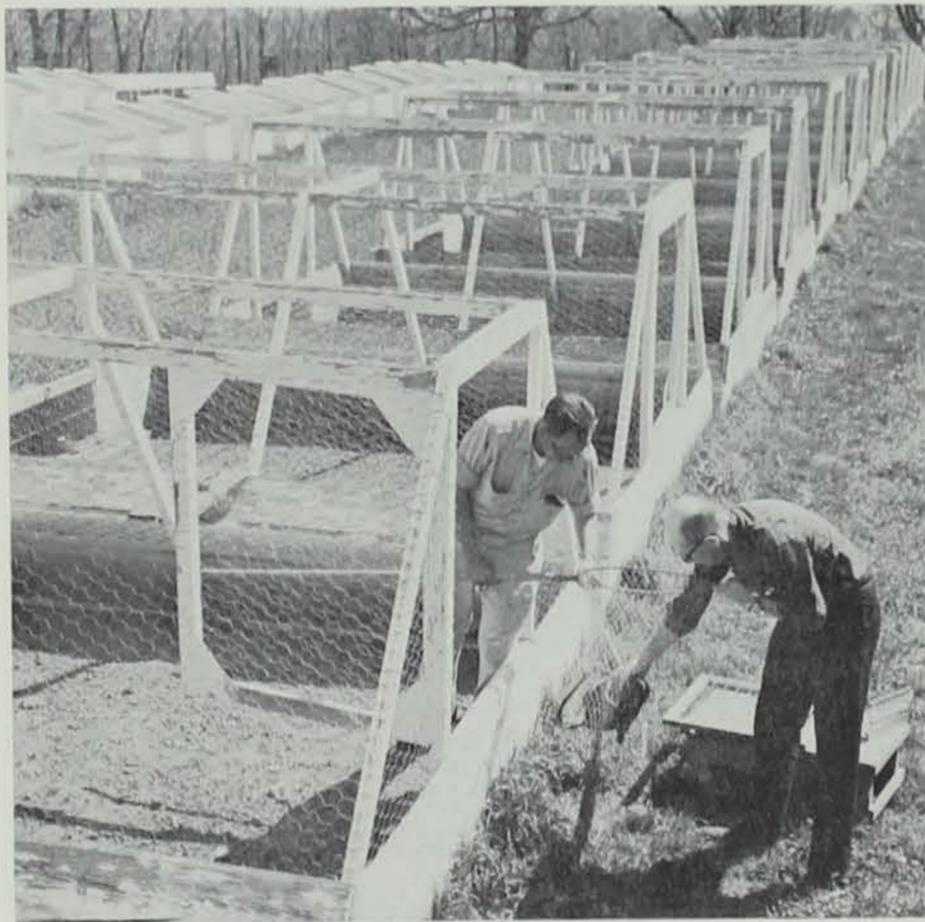
"Would you believe a pussycat? ? ?"

BLOOD TYPING

(Continued from page 41)

the pen. All of the eggs from the experimental study were stored separately from the hundreds of other pheasant eggs. Once each week the eggs gathered during the previous seven days were placed in incubator trays. The trays then were placed in the incubator for 19 days of continuous warmth and controlled humidity. On the 19th day the eggs were placed over a strong light (candled) to determine if growth was progressing. After candling, the eggs were separated by pen number, and eggs from each individual mating were placed in separate hatching trays. After three or four days in the hatcher the young chicks pipped their eggs and exited into the dark depths of the hatching machine tray.

The timing of hatching was placed to occur on Monday, and the little chicks were dry and ready to be removed on Tuesday. Since brooding facilities were not available to keep each family group separate, the individual members had to be marked in some manner. They were too little for placing tags on their wings, and they grew too fast to make a leg band useful. The problem was solved by painting their chins and breasts with Easter Chick Dye. Several colors were used, and some chicks were marked with combination of two dyes. The colors lasted until the chicks lost their down.



Jim Sherman Photos.

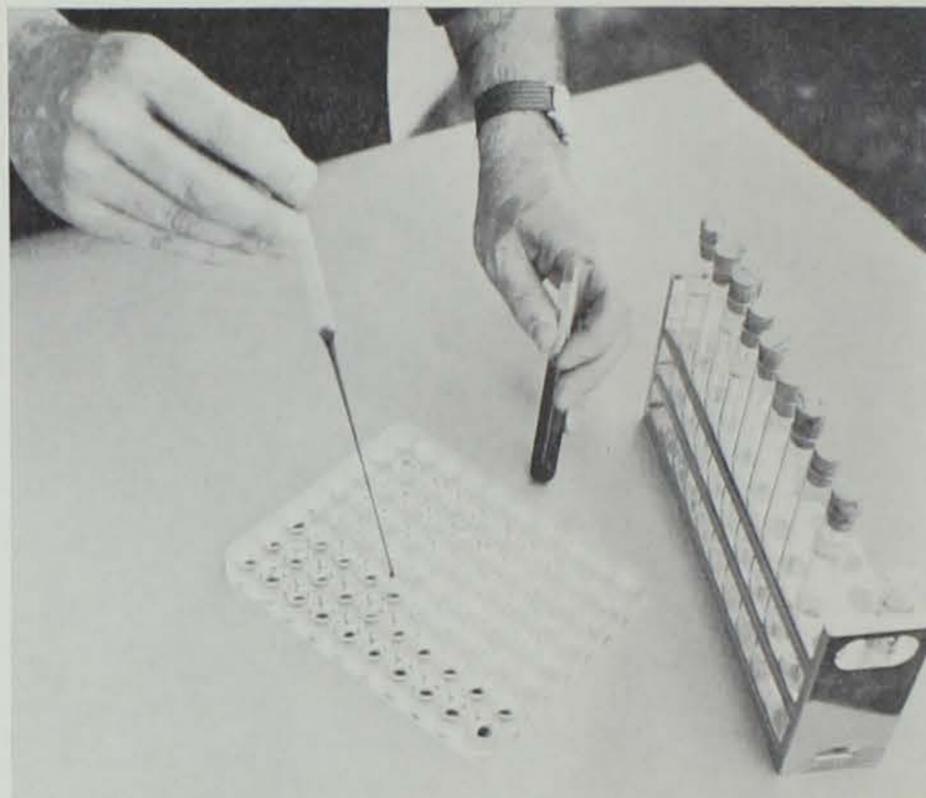
One pair of ring-necked pheasants is placed in each laying pen. Birds are captured for final blood testing before the mating season.

For the first two weeks the chicks were kept in battery brooders in the main building. A colored and numbered wing tag was placed on each chick on the day it was two weeks old. Each chick from the same family had the same color band, and every family had its own combination of colors and numbers so that each chick could be identified as a member of a particular family. After the wing bands were in place, the experimental birds were placed in brooder houses adjacent to fenced outdoor ranges and handled in the same manner as other young birds at the Station.

Blood was drawn several times from each bird during the summer and early fall. Initial extraction of blood occurred when many of the chicks were only one week old. A needle attached to a syringe was inserted into the neck vein on the right side of the bird. The little birds were not bothered by the process and were returned to their quarters in good shape.

The blood was placed in individual tubes containing an anti-clotting agent and marked with the number and family of the bird that donated it. The tubes were taken to the laboratory in the Science building at Iowa State University for processing and testing.

Red blood cells were washed free of serum by changing the liquid in each tube three times. The washed cells were suspended in a salt solution so that 3 percent of the material in the tube was cells. To perform the test, one drop of the red blood cell suspension was added to two drops of reagent in a special plastic tray. If the red blood cells were drawn together to clump, the bird providing the cells was con-



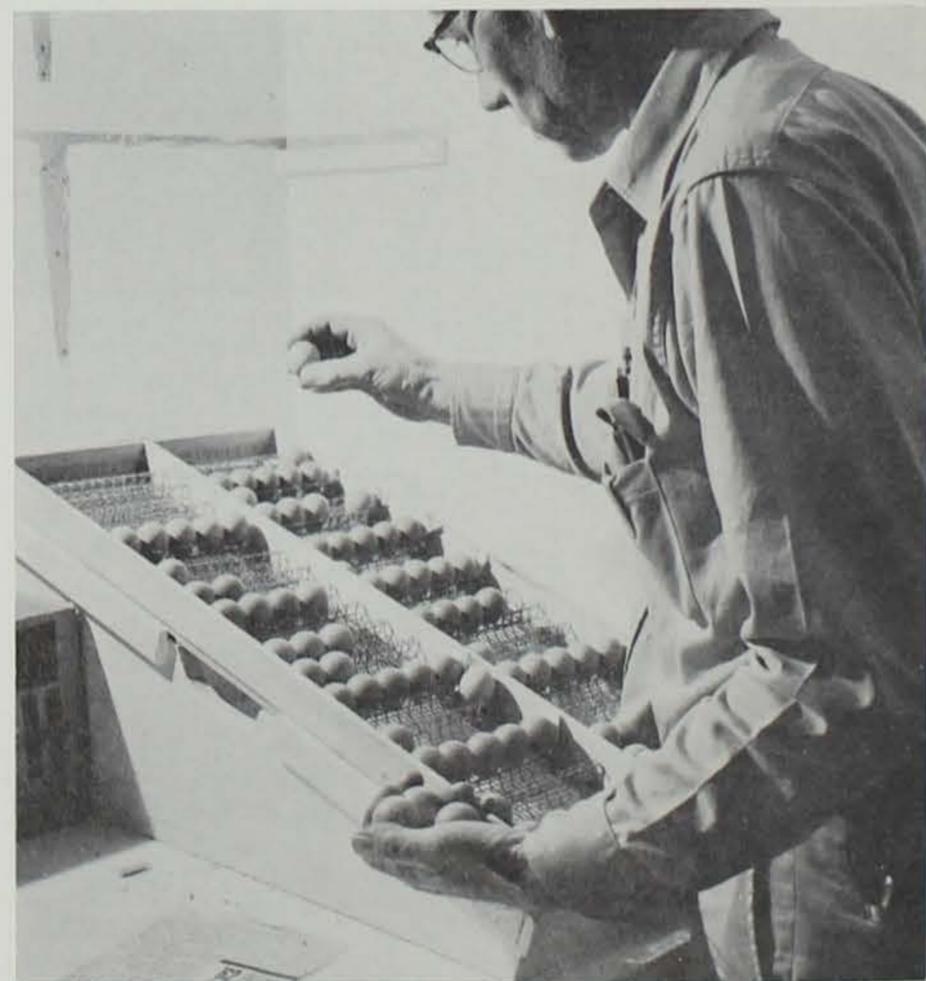
Blood testing is accomplished in plastic depression trays by mixing two drops of reagent with one drop of red blood cell suspension.

sidered to possess the blood group factor that the reagent detected. Failure of the red blood cells to clump indicated absence of the blood group factor.

The parent birds were blood typed before being placed in mating pens. The inheritance of the blood group factors was predicted in advance of testing the young. If the results of testing the offspring of all matings were in agreement with the predictions, the reagent was considered to detect a genetically controlled character and be ready for field testing. If the results were not in agreement, further testing was necessary. Two reagents have been field tested on a limited scale and others are expected to be ready this fall when young birds hatched in the wild will be available.

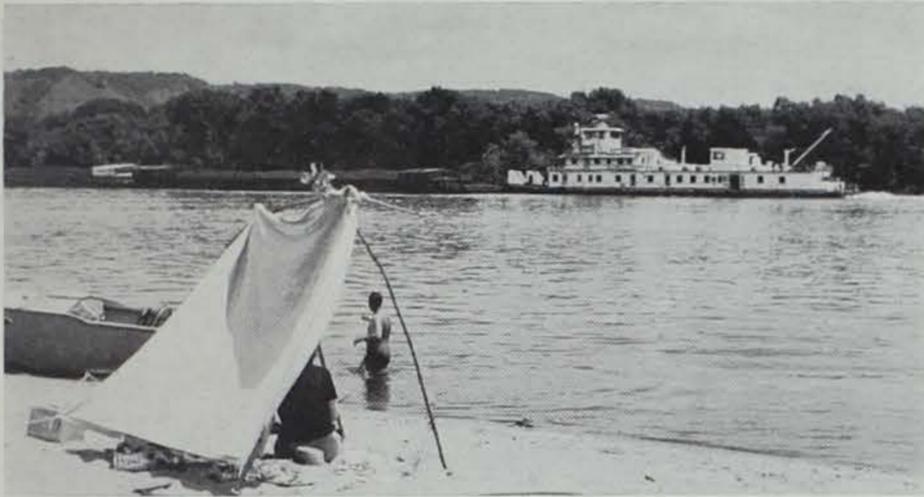
Wild ringnecks were captured in northern, central and southern Iowa by nightlighting, and blood was drawn for testing. The birds were banded and released at the place of capture. Red blood cells of these birds were tested with two reagents, and frequencies of the

(Continued on page 47)



Eggs from each pair of parents are marked before being removed from the pen. The eggs are then sorted into family groups before placing them in the incubator.

URGE SKIPPERS TO PRACTICE SAFETY



Jim Sherman Photo.

Boaters on either of Iowa's two great border rivers, the Mississippi and the Missouri, have to maintain a respect for the many barges plying the waters.

Whether you are the proud owner of your first powered boat, or a seasoned skipper, the responsibility for keeping water recreation safe rests squarely on your shoulders. You are like the driver of a car—you have to navigate safely, sanely and defensively.

There are definite laws and regulations governing the state's waterways. And even though you are not required to pass a driver's (or pilot's) test, you are required to know and obey them. Failure to observe the courtesies of the waterways in other states has resulted in zoning of the waters. Currently, Iowans aren't restricted, but that is not to say that zoning won't come back into the picture with a bang. (Okoboji was once zoned by law, and Lake Manawa has some zoning on it already.)

Every boat operator should be familiar with the laws affecting him. These are published in a pamphlet called "Iowa Boating Regulations" which is distributed by the Commission. Briefly, however, normal operating rules can be boiled down to these:

1. Power boaters must honor fishing rights. This means no passing closer than 250 feet at a speed in excess of 5 mph (or simply, no wake).

2. Pleasure boaters give way to water skiers.

3. All powered boats use extreme caution in swimming areas.

In addition to the hazards presented by the boats and operators, there are the dangers involved in navigation. Navigation is called an art because even the most placid looking water course can harbor a countless number of hidden hazards. This is particularly true of our rivers, and is especially so on the Missouri and Mississippi.

Shifting channels, floating debris and sunken wing dams make pleasure boating on these two great rivers more hazardous than that encountered on most lakes. A smart man will go to the Mississippi or Missouri rivers armed with navigation charts.

Charts are available from the U. S. Army Corps of Engineers Headquarters in Rock Island, Illinois, or Omaha, Nebraska. They sell for a dollar and a half and are called "Navigation Charts of the Middle and Upper Mississippi from Cairo, Illinois, to Minneapolis, Minnesota," and "Navigation Charts of the Missouri: Sioux City, to Rulo, Nebraska." If you plan to boat the Mississippi, be sure to ask for a copy of "Locking Through." This latter publication will be invaluable when your cruise takes you from one pool to another.

Of course, one of the biggest hazards encountered on these two rivers is barge traffic. A few simple rules apply here.

1. Barges headed down river have the right of way over all upcoming traffic.

2. Only the barges pushing upstream create dangerous wakes—and they are dangerous.

3. Night boating is extremely foolhardy and should be avoided.

Boating will always be popular. Let's hope that we are able to keep it as free as it is today. The best way to assure this is to be courteous and practice safety.—J. H.

Only a greyhound can run down a jackrabbit in a fair chase. Coyotes and foxes must resort to their wits to catch it.

* * *

In 1922, there were about 12,000 pronghorn antelope in North America. Thanks to efforts of sportsmen, more than 500,000 now roam the continent.

* * *

Ducks Unlimited, Inc., a non-profit sportsmen's organization, has collected more than \$12 million since it started in 1937. These funds have gone for the restoration of thousands of acres of breeding and feeding land; setting up more than 700 "duck factories"; and preservation of more than 5,000 miles of waterfowl-breeding shoreline.

* * *

Hunters outnumber golfers nearly 3 to 1.

"GOLDEN PASSPORT" AVAILABLE

Russell Nelson

Annual entrance permits for Federal Recreation Areas (such as National Parks) are available from the State Conservation Commission in Des Moines. Only the \$7 permit, good for one year, is available from this office. One-day and 30-day permits may be obtained at the entrance to federal recreation areas.

Vehicles displaying the "Golden Passport" will be admitted free of charge to all federally owned recreation areas in the United States. As of this writing, the only federal areas in Iowa requiring the passport are DeSoto Bend and Union Slough Wildlife Refuges, and the Guttenberg and Manchester fish hatcheries.

Certified checks, cashier's checks, or money orders should be made payable to the Iowa Conservation Commission. Season permits must be signed by the owner and are not transferable.

All income from permits sold goes into the Land and Water Con-



servation Fund. These monies are then allocated to the various states on a matching basis. Iowa has established a program for matching Federal grants for development of state and local outdoor recreation areas.

Iowa's plan places primary emphasis on: acquisition and development of multiple-use recreation areas near quality water bodies; creation of artificial lakes and river impoundments; provision for playgrounds and outdoor sports facilities, including swimming pools; acquisition of areas of high scenic, scientific or historical significance; and development of facilities for conservation and natural resources education.

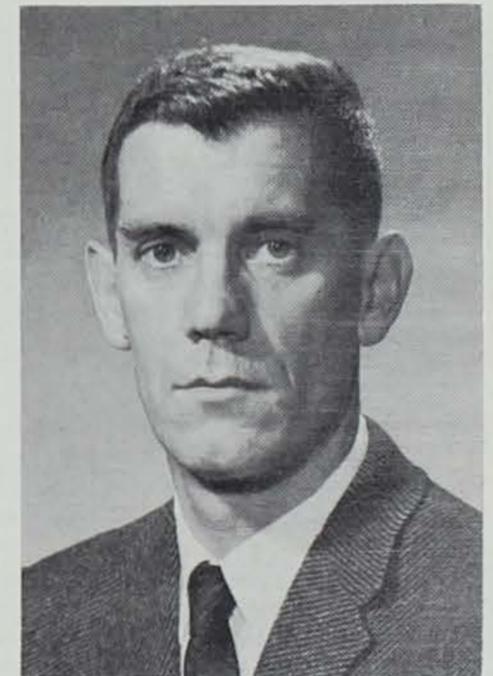
New Head for Cooperative Fishery Unit

Established last December, Iowa's Cooperative Fishery Unit at Iowa State University is now under the leadership of Dr. Robert J. Muncy, formerly of Colorado State University. The new unit will enlarge the role of the former Iowa Cooperative Fisheries Research Unit that had functioned at ISU since 1941. Dr. Muncy's main task will be to expand activities in fisheries research.

The fisheries unit was jointly created by the Iowa State Conservation Commission, Iowa State University and the United States Department of Interior's Bureau of Sport Fisheries and Wildlife.

Dr. Muncy said that he believes the accomplishments of the former unit will allow the programs and goals of the newly established unit to be realized more easily.

Dr. Muncy, who received his Ph.D. degree in fisheries management from Iowa State in 1957, will coordinate activities within the unit, including research, teach-



Dr. Robert J. Muncy

ing and extension activities. He received his B.S. and M.S. degrees in forestry and wildlife conservation from the Virginia Polytechnic Institute, Blacksburg, Va. He is a native of Narrows, Va.

A CREED TO PRESERVE OUR NATURAL HERITAGE

- The Right to Clean Water and the Duty not to Pollute it.
- The Right to Clean Air and the Duty not to Befoul it.
- The Right to Surroundings Reasonably Free from Manmade Ugliness—and the Duty not to Blight.
- The Right of Easy Access to Places of Beauty and Tranquility where Every Family can find Recreation and Refreshment—and the Duty to Preserve such Places Clean and Unspoiled.
- The Right to enjoy Plants and Animals in their Natural Habitat—and the Duty not to eliminate them from the Face of the Earth.

FISH AND GAME CONSERVATION OFFICERS

Name	Address	Off. Ext.	Code Area	phone Tele-
Kakac, Kenneth, Supv. V Fish and Game Cons. Officer	602 Lawrence Drive Ankeny, Iowa	5918	515	964-4577
Adams, Ervin, Air Pilot	5522 S.W. 15th St. Des Moines, Iowa	5918	515	285-6211
Davis, Ben, Supervisor (Dist. No. 1)	509 W. 10th Street Spencer, Iowa (51301)		712	262-1789
Smith, Curtis, Supervisor (Dist. No. 2)	609 E. Fifth Cresco, Iowa (52136)		319	547-2688
Lemke, Louis, Supervisor (Dist. No. 3)	DeSoto, Iowa (50069)		515	834-2109
Emerson, Rex, Supervisor (Dist. No. 4)	1115 N. Fourth Ave. Washington, Iowa (52353)		319	653-2566
Olofson, Charles, Hunter Safety Officer	517 E. Second Street Ankeny, Iowa (50021)		515	964-3964
* * * * *				
Anderson, Maurice—Clinton	523 Second Ave. Clinton (52732)		319	242-6956
Angell, Glen—Bremer, Chickasaw	303 N. Locust New Hampton (50659)		515	394-2037
Ashby, Michael—Dickinson	Box 233, Spirit Lake (51347)		712	336-3643
Ashby, Wesley—Fayette	Fayette (52142)		319	425-4001
Baldwin, Jim—Clay, O'Brien	121 W. Tenth Spencer (51301)		712	262-3001
Basler, Bill—Kossuth	Box 187, Algona (50511)		515	295-7046
Basler, Dick—Woodbury	Box 154, Lawton (51030)		712	872-6633
Becker, Jim—Buchanan, Delaware	512 Fourth, Independence (50644)		319	334-2197
Beebe, Bill—Louisa	Route 1, Wapello (52653)		319	523-2804
Beecher, Wesley—Jackson	300 High Street Bellevue (52031)		319	872-3391
Bruun, Jens—Crawford, Monona	1214 Diamond St. Onawa (51040)		712	423-1591
Carter, Herold—Clarke, Decatur	830 S. Park, Osceola (50213)		515	342-3221
Downing, Berl—Jefferson, Wash- ington	306 E. Briggs, Fairfield (52556)		515	472-5248
Draves, Ronald—Davis, Van Buren	Box 76, Bloomfield (52537)		515	664-1074
Edwards, Leo—Hancock, Wright	714 First Ave. S.E. Clarion (50525)		515	532-3353
Entner, Dale—Lee	1627 Ave. "G", Fort Madison (52627)		319	372-3513
Ford, Larry—Keokuk, Mahaska	514 Jackson, Box 341 Sigourney (52591)		515	622-3546
Heinkel, Galen—Butler, Franklin	1408 Central Ave. East Hampton (50441)		515	456-2659
Handeland, Oran—Linn	Central City (52214)		319	438-6319
Harris, Glenn—Warren, Marion	602 S. 3rd, Indianola (50125)		515	247-3360
Harvey, Walt—Grundy, Marshall- town	6 No. Second, Marshall- town (50158)		515	753-8886
Hein, Christie—Mills, Montgomery	7 Elm St., Box 329 Glenwood (51534)		712	527-4188
Hoilien, Jerry—Allamakee	26 Third Ave. N.E. Waukon (52172)		319	568-4102
Holmes, Verl—Palo Alto	103 Call St., Emmets- burg (50536)		712	852-4969
Horton, John—Clayton	Box 181, Garnavillo (52049)		319	2231
Hoth, John—Howard, Winneshiek	Box 106, Decorah (52101)		319	382-2717
Huff, Lloyd—Polk	2604 37th St., Des Moines (50310)		515	277-9233
Jennings, Ermin—Benton, Tama	1116 East Third, Vinton (52349)		319	472-4494
Johnson, Richard—Harrison, Shelby	213 W. Huron, Missouri Valley (51555)		712	2-3578
Judas, James—in training				
King, Duane—Pottawattamie	1499 Indiaville Rd., Council Bluffs (51502)		712	328-2786
Leigh, Ralph—Poweshiek, Iowa	Box 127, Marengo (52301)		319	2-6811
Lemke, Lester—Adams, Taylor	R. 2, Bedford (50833)		712	523-2278
Machaek, Wilfrid—Worth, Winnebago	Forest City (50436)		515	582-3553
Meggers, Jack—Cerro Gordo	Box 75, Ventura (50482)		515	829-3323
Mineck, Bob—Cedar, Jones	211 13th St., Box 29 Tipton (52772)		319	886-6725
Moats, Bob—Emmet	Box 115, Estherville (51334)		712	362-2962
Nelson, Dennis—Dallas, Madison	Van Meter (50261)		515	3501
Newel, Gene—Plymouth, Sioux	176 S. Main, Sioux Center (51250)		712	722-3961
Nichols, Dan—Muscatine	819 Cedar, Box 202 Muscatine (52761)		319	263-3919
Oden, Robert—Wapello	808 E. Woodland Ottumwa (52501)		515	684-7693
Priebe, Donald—Black Hawk	404 Bertch, Cedar Falls (50613)		319	266-2889
Ray, Marlowe—Adair, Guthrie	509 N. 12th St., Guthrie Center (50115)		515	747-3002
Roemig, Alan—Mitchell, Floyd	1020 Maple, Osage (50461)		515	732-3307
Rokenbrodt, Floyd—Humboldt, Pocahontas	403 Sixth Ave. N. Humboldt (50548)		515	332-1236
Rowley, Keith—Dubuque	3192 Kerrigan Rd. Dubuque (52002)		515	528-6018
Runyan, Mike—Jasper	R. 2, Kellogg (50135)		515	598-8402
Shiple, Jim—Fremont, Page	301 Fremont, R. 2 Shenandoah (51601)		712	246-2370
Simonson, Wendell—Johnson	Oxford (52322)		319	628-4443
Speer, Myron—Scott	2629 Cedar, Davenport (52804)		319	391-4060
Starr, Frank—Buena Vista, Cherokee	802 W. Sixth, Box 402 Storm Lake (50588)		712	732-5463
Tellier, Frank—Lyon, Osceola	Box 139, Doon (51235)		515	2821
Tellier, George—Calhoun, Webster	Box 410, Fort Dodge (50502)		515	573-2508
Tilley, Archie—Ringgold, Union	1101 Orchard Drive Creston (50801)		515	782-5068
Uhlenhake, Mark—Monroe, Appanoose	R. 1, Moravia (52571)		515	724-3571
Wagaman, Kenneth—Audubon, Cass	Box 226, Atlantic (50022)		712	243-1285
Wallace, Jim—Ida, Sac	Box 32, Lake View (51450)		712	3241

BLOOD TYPING

(Continued from page 46)

genetic material for each population were calculated. It was apparent that the frequencies of the blood group factors differ among the populations of Iowa ringnecks. Further study is planned to determine how much they differ, why they differ and if there is an advantage to having a certain combination of blood group factors.

Thanks for the Memories...

Has a friend or relative included you on one of their hunting, fishing, camping or boating trips lately? Show your appreciation in the form of a two-year gift subscription to the IOWA CONSERVATIONIST! All you need do is send us (1) the name of the recipient, (2) his/her complete address, and (3), one dollar in check or money order. Our address is: IOWA CONSERVATIONIST, East 7th and Court Avenue, Des Moines, Iowa 50308. We will send each and every name on your gift list a suitable notification of your thoughtfulness.

Deer at one time were hunted with music. European sportsmen would hire violinists to lure the animals within shooting range.

Hunters spend more than \$272 million a year on automobile travel for gas, oil, tires, and the maintenance and replacement of cars.

Hunters spend more than \$268 million a year on hunting clothing.

Hunting fatalities in New Jersey have been cut in half since firearms safety training became mandatory in 1954.

There are more than 20 million recreational shooters in America.

Hunting accidents in Utah dropped 71 percent after the introduction of mandatory hunter-safety courses for licensees.

The number of accidental deaths involving sporting arms has dropped a third in spite of the growth in population and the doubling of licensed hunters during the past 30 years.

In one year, hunters and fishermen spent more money on their sport than the entire nation spent on radio and television receivers, records and musical instruments combined.

Hunters spend about \$160 million a year to buy and feed hunting dogs.

Name	Address	Area Code	Telephone
Wilson, Duane—Hardin, Hamilton	Alden (50006)	515	859-7246
Wilson, Warren—Boone, Story	121 Cedar, Boone (50036)	515	432-5581
Wiltamuth, John—Lucas, Wayne	319 North 17th St. Chariton (50049)	515	774-5693
Zmolek, Delbert—Carroll, Greene	405 N. West, Box 148 Jefferson (50129)	515	386-4234



"Something tells me this might be a long wait."