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Texas Game and Fish

DECEMBER

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TEN CENTS



WOOLDRIDGE



Staff photo by Clyde Graham

Ring-Tailed Cat

One of Texas' most numerous . . . yet least seen . . . mammals.

(See Story on Page 12)

Texas Game and Fish

A MONTHLY MAGAZINE DEVOTED TO THE PROTECTION AND CONSERVATION OF OUR NATIVE GAME AND FISH; AND TO THE IMPROVEMENT OF HUNTING AND FISHING IN TEXAS.

December, 1953

Vol. XII, No. 1

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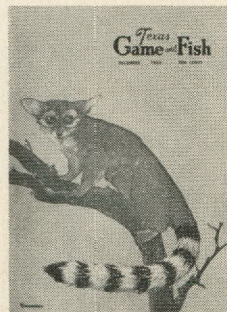
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The Cover

The ring-tailed cat is seldom seen, partly because it roams mostly at night, yet it is plentiful in Texas. In fact, it ranks among the top three furbearers. Sidney A. Woolldridge painted it for this month's cover. The story is on page 12.

PERSONAL INTEREST

Editor:

. . . In the last three issues I have noticed some cartoons by Will Eisner concerning safety in handling guns. I was a victim of a hunting accident eleven years ago and lost the sight of one eye. These safety cartoons really hit home.

If you could tell me where I might obtain large prints for my office, I would be even more indebted to you than I am now for printing such a fine magazine.

D. T. Walker
United Petroleum Corp.
Republic Bank Building
Dallas, Texas

(The cartoons are part of a campaign sponsored by the Sporting Arms and Ammunition Manufacturers' Institute. They are available in large poster size from that organization for use in sporting goods stores, club houses, etc., at 250 East 43rd Street, New York 17, N. Y.)

PRIZE-WINNER

Editor:

I am enclosing a snapshot of a big catfish which won second prize, all-species, all-season, in the San Antonio *Express* and *Evening News* contest. The fish weighed 59 pounds.

It was caught in the Llano River. Our fishing group also caught a 52-pounder in the same hole, and three fish in two nights weighing a total of 114 pounds.

Shown in the photo, left to right standing, are Paul Kraus, A. C. Seelig, Eddie Langerhans, myself, Felix Stehling and son Pat, Otto Goehman; kneeling, Billy Stehling, Don Durst (my son), and George Stehling.

Claude Durst
301 S. Adams St.
Fredericksburg, Texas



MORE WARDENS?

Editor:

I have talked to quite a number of hunters lately about game protection. We know our wardens are doing a good job, but there are so few for the territory they have to cover.

We know it would take more money to get more wardens. Our idea is to raise the cost of the present hunting license to \$5, which could be used to finance additional wardens.

I believe every true sportsman would be in favor of this, and I am sure their representatives in the Legislature would like to know about it.

Let's get busy and curb this wave of violations which is taking such a large toll on our game. I would like to see something done.

Houston Ellis
P. O. Box 545
San Marcos, Texas

(Yes, there is a shortage of wardens—less than one to serve each county. And, as you imply, this is due to a limited budget. Any changes necessarily must come from the actions of Texas hunters and fishermen through the Legislature.)

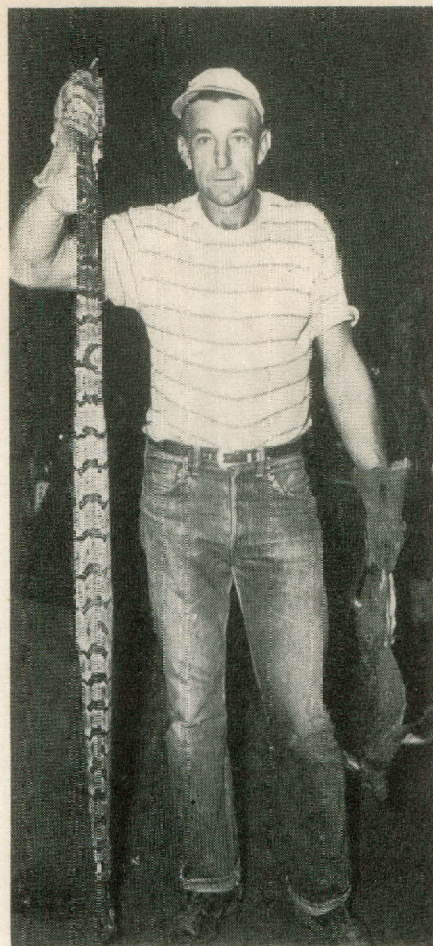
MANY THANKS!

Editor:

Congratulations on the last issue of *TEXAS GAME AND FISH*, as well as all previous issues. I have no pleasure so keen in connection with my "outdoors life."

My friends, too, appreciate your fine magazine, and you may be assured all are happy to rate it right at the top of any and all publications they see.

T. B. Connor
5427 Morningside Ave.
Dallas 6, Texas



FULL MEAL

Editor

Enclosed is a shot of Rancolph Chernosky, Bellville. He killed the large rattlesnake in Austin county while dove hunting. The rabbit was inside the snake.

A local doctor cut the snake open in front of several witnesses, including myself.

We enjoy your magazine a great deal.

Jerry Zuber
The Bellville Times
Bellville, Texas

ALASKA AND BACK

Editor

Enclosed please find \$1 for a one-year subscription to *TEXAS GAME AND FISH* . . .

I first became interested in your publication while stationed at Elmendorf Air Force Base, Alaska . . . and now that I am back once again on familiar Texas soil, I would like to learn more about her wild-life, etc.

S/Sgt. John G. Wood
Laredo Air Force Base
Laredo, Texas

(Welcome home, sergeant. Sorry you had to go all the way to Alaska to discover *Texas Game and Fish*.)

BABY RABBITS

Editor:
Young Buzzie Meyers (Letters to the Editor, September, 1953, issue) and I have one thing in common. I didn't know, either, that cottontail rabbits were hard to raise in captivity.

Last Easter Sunday we found a baby rabbit at Granite Shoals Lake. . . He appeared to be not over a week old.

We fed him a few drops of warmed milk in a teaspoon at first, then in successive stages he graduated to a doll bottle, a few green vegetables, and finally to rabbit pellets.

At this time, the only greens he will eat are alfalfa pellets and lettuce. He refuses carrots and cabbage. He is now over five months old and healthy.

Bill Frankie
610 Drexel Ave.
San Antonio, Texas

Editor:
. . . Several years ago I obtained three cottontails only a few days old, whose mother had been killed. My wife and I fed them a mixture of condensed milk and water for a few weeks, then graduated them to tender Bermuda grass and clover. . .

We have raised nearly every other kind of animal from this area . . . but I will say in all truthfulness that I have never seen any other animal so bad about biting as were those cottontails when they were about two-thirds grown. They eventually got so vicious that we decided to release them. When I reached in to catch them . . . one of them bit me entirely through my hand between the thumb and forefinger.

Just thought you would like to know, and if Mr. Meyer succeeds in raising his cottontail, I would like to know if it bites the dickens out of him every time he picks it up.

J. B. Caldwell
795 Third N. W.
Paris, Texas

(We also had letters about rabbits from Opal Lynch, Port Isabel, and Joe Tom White, Wichita Falls. Sorry we didn't have room to print them all.)

RAISING MINNOWS

Editor:
Since you have aroused my curiosity and interest in growing minnows by your publication of Mr. Philip F. Allan's article in the April issue, I feel you should be punished to the extent of helping me get educated on the subject.

. . . I have had our book stores on their ears trying to find Mr. Allan's book "How To Grow Minnows," but they seem unable

to find its source. Can you help me?

C. W. Beale
1519 Lakeview Dr.
Dallas, Texas

(We accept our punishment. But don't say we didn't warn you. Beside the title of the original article, we wrote, "Minnow raising is a risky business." Caution also

was expressed in the review of the book. Selling minnows is easy—raising them consistently is a tough go.

("How To Grow Minnows" may be obtained from the author by writing Philip F. Allan, P. O. Box 1898, Fort Worth, Texas. The cost is \$1. The book was reviewed in the March issue.)

"Only the earth and the mountains live forever," observed the Wise Ones. And with the loss of the Four Sacred Medicine Arrows, the fate of a great Indian nation was sealed. A bloody, gripping saga of **The Real People**, the proud and mighty

FIGHTING CHEYENNES!

by Norman B. Wiltsey

This story is terrific! It is a double length feature—the life story of the most fabulous tribe of Indians on the North American continent. It is the first of a series. If you like Indian lore, drama, history, and FACT—the true, unvarnished story of what happened to our American Indians—you CAN'T AFFORD to miss this series!

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Other articles in the cram-packed Fall issue include:

LONGROPE'S LAST GUARD

by the Famous Western Artist and Author
Charles M. Russell

A Story From

APACHE GOLD & YAQUI SILVER

by J. Frank Dobie



HELLACIOUS YOUNG HELLION

Trails End for Billy the Kid
by Jeff Adams

BLIZZARD TRAIL

A Real Trail Drive Adventure
by Fred Gipson

OUTLAW QUEEN

Life Story of the Fabulous Belle Starr
by Glenn Shirley

Also, full length features on John Ringo, Shorty Harris and many others.

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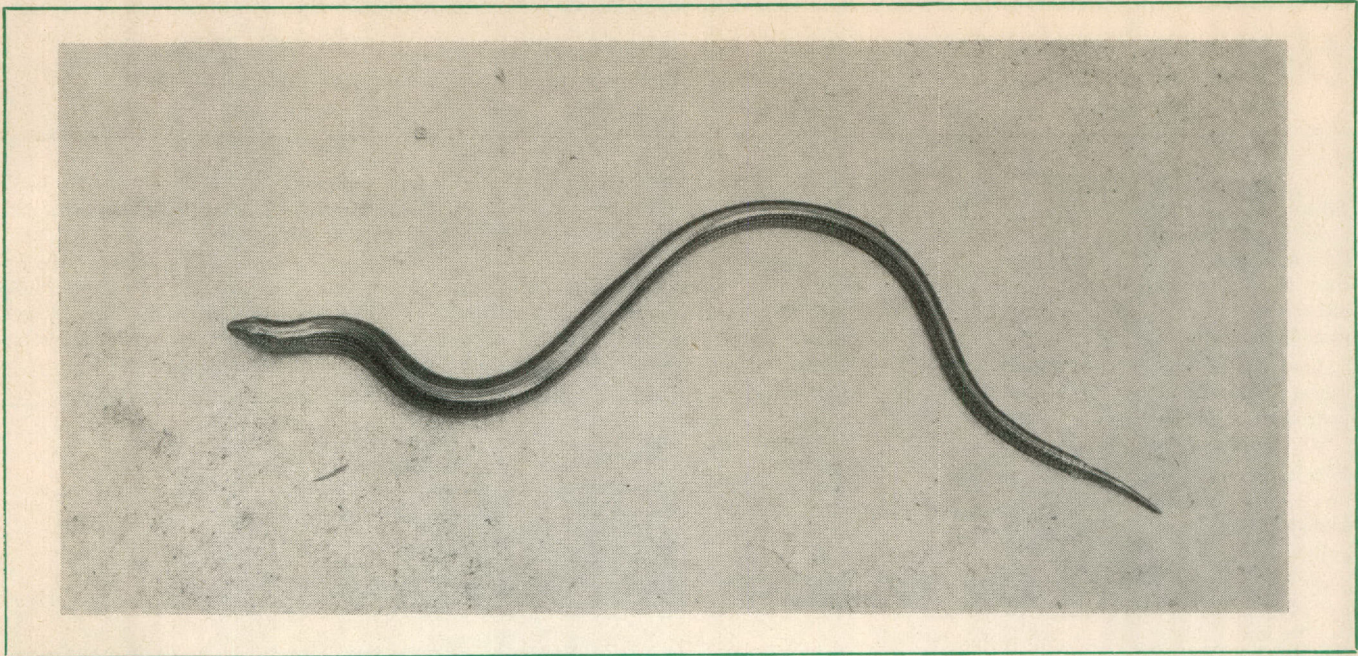


Photo from American Museum of Natural History

The Glass-Snake

Here is the fellow who started all those fables about snakes which break themselves into little pieces.

LIZARD

By WAYNE McALISTER

TO THE average person, the mention of the word "glass snake" quickly brings to mind a snake-like creature possessed of unusual powers. Usually the only information known about this "snake" is that under provocation it has the ability to break its body into several pieces and that it inevitably returns to rejoin the segments when danger is past!

Unfortunately for the layman, this single bit of natural history is entirely false in several respects.

Many believers in the glass snake myth are surprised to learn that the subject of their fabulous story is not a snake at all, but is actually a lizard. Even though its common name, "glass

snake," is misleading, many characteristics serve to differentiate this legless reptile from the snakes. Close examination would reveal eyelids, ear openings, and a broad thick tongue. Dissection would disclose that the halves of the lower jaw are solidly fused together. None of these facts are true of the snakes.

In regards to the "rejoining of the body," it must first be understood that this little animal never actually disjoints its body, but merely the extra long tail. Because the tail is usually approximately two times the body length, the lizard seems to literally break in two. Although lizards have been known to gobble up their

lively-moving tail segments none, the glass-snake lizard included, are capable of rejoining the pieces.

Even deprived of its supernatural powers, this species is an interesting and unusual animal worthy of acknowledgment.

The glass-snake lizard is an elongate, slender animal with a serpentine, cylindrical body. The tail, as stated above, is almost twice as long as the body, and is rather "loosely attached," being easily disjointed from the body.

An internal examination shows that although external limbs are entirely absent, both limb girdles are present. These lizards grow to a fairly large

size, the average body length (from snout to vent) being approximately nine and one half inches. Some exceptional specimens reach an overall length of almost a yard.

The general coloration is rather sombre. The top of the head and a wide area down the middle of the back and tail is usually brownish or grayish-brown. There may or may not be a dark median stripe. The sides of the body are a contrasting dark brown which is horizontally transversed by several thin light lines. Sometimes these lines are indistinct and a series of light specks and dashes take their place. The sides of the head and neck are usually dark with vertical, thin, light lines. The lower surfaces are generally uniform white and are sometimes indistinctly marked with faint dusky lines. The dorsal coloration is subject to much variation.

As is stated above, the glass-snake lizard cannot rejoin the segments of its tail, but this certainly does not mean that it must live the remainder of its life without the appendage. Almost as soon as the original tail has been discarded, a process called regeneration immediately begins. This is a faculty of many species of lizards. It involves the growing of a new tail similar to the original. In the species here discussed, the process is especially rapid.

The new member differs in that it has no bone, but is supported by a cartilaginous mass of muscles. The regenerated tail usually is not as long or as "complete" as the natural one. This unusual process is very useful to the glass-snake and many other species of lizards, for the tail is used as an organ in which to store much-needed fat for the winter months of hibernation.

Although these lizards are usually abundant within their range, they are not observed as often as might be expected, because they are largely nocturnal during the deep summer months. However, in the spring, when the days are fairly cool, these lizards prowl by day. These reptiles generally retire to some animal burrow (there is some argument on the extent of burrowing done by the lizards themselves), crevice, or possibly under debris during the daylight hours.

They then emerge as the cooler night begins, when they move about on the ground with jerky snake-like motions.

Food consists of insects, beetles, spiders, and many varieties of ground-loving insects. Sometimes even smaller lizards are eaten.

These reptiles frequent grassy ground, gentle hillsides, and low brush in both partially damp and in drier situations.

An interesting fact about these lizards is that after the eggs are laid, the female broods her clutch. Although no actual attempt is made to "protect" the eggs, the female will occasionally curl about the clutch and gently move the eggs back into place if they are slightly scattered. During this period the actions of the cold-bodied female do not serve to raise the temperature of the clutch.

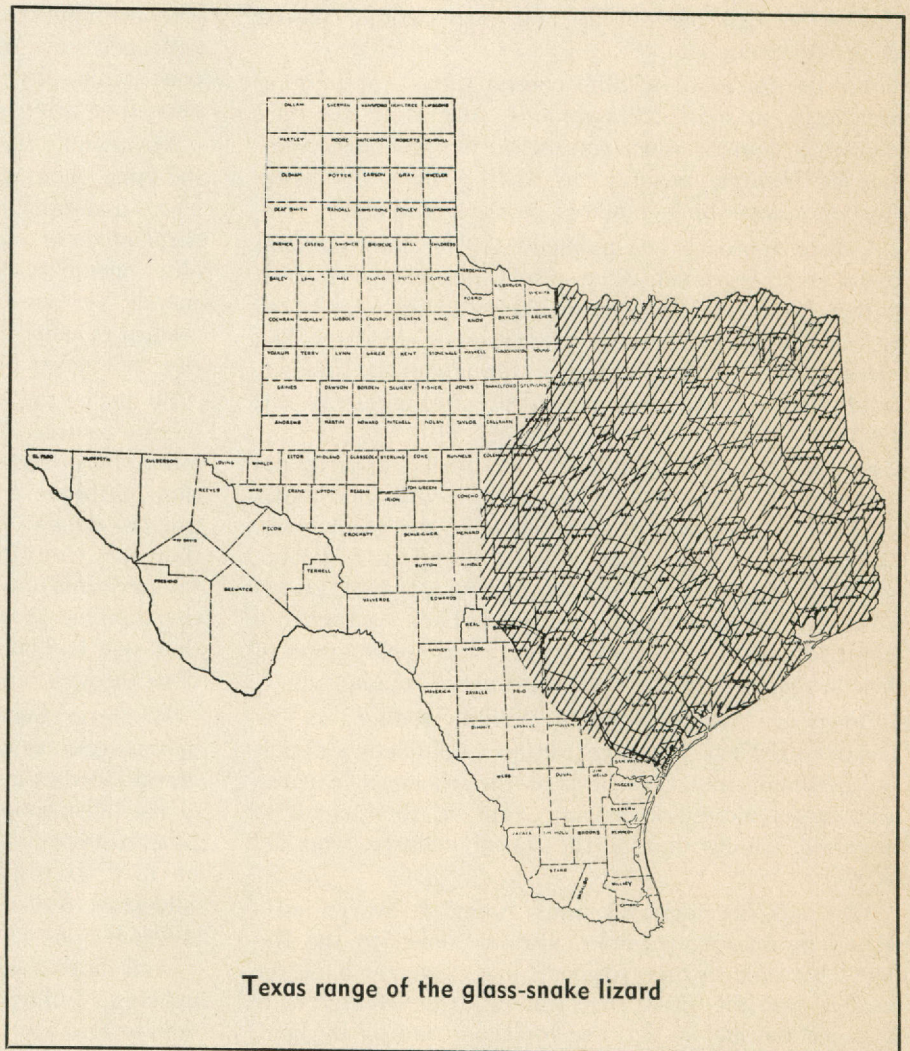
The eggs are laid underground and usually number approximately 10-15. These are deposited from early June through the middle of August, with

the incubation period averaging about 60 days. Hatchlings are about three and one half inches in total length.

Occasionally these lizards are surprised above the surface of the ground during the daylight hours, and at such times they usually quickly disappear into some nearby crevice. If captured and held in the hand, most specimens try to "burrow" between the fingers and many do not hesitate to bite.

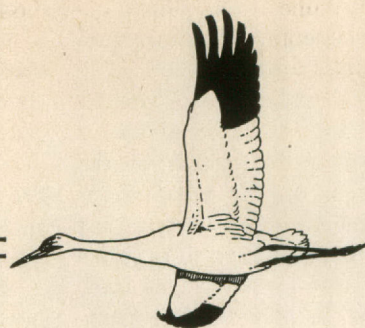
In Texas the glass-snake lizard is found in the eastern half of the state from the eastern boundry west to Clay, Kerr, and Atascosa counties and south as far as Refugio county; however, the range is rather "spotty" in some sections.

The glass-snake lizard is the only species of its genus within the borders of the United States, it being technically known as *Ophisaurus ventralis*. It is one of the three lizards of the country which do not possess external limbs.



Whooping Cranes Make

Progress



By JAY VESSELS, Assistant Director of Publications

THEY granted an armistice to the whooping cranes' thinning ranks during the 1953 migration period. And the impact was so great, the immediate results so gratifying, that wildlife authorities are hopeful that this comparatively rare achievement bodes good for the entire Animal Kingdom.

Because the primary factor in permitting the scant whooper population to fly safely southward to its Texas wintering grounds was public cooperation. Lack of that indispensable gesture has been the main drawback to wildlife, as first one species and then another passed along into extinction.

But the forces of wildlife conservation kept pushing relentlessly to spare the remnants. And after the 1952 migration debacle when several of the whoopers were shot by hunters, sordidly mistaking them for flying saucers or something, renewed pleas were made.

A main approach was publicity. All the informational media were recruited. As a result, the whoopers, even as they began their mysterious flights to their far north nesting Shangri-La, became international celebrities. The educational movement continued throughout the summer. Emphasis was on the whoopers, distinctive great size and markings.

So when the 1953 fall migration period arrived, the whoopers were big news. The wire services and radio crackled with reports of movements of the giant birds. Blase reporters accustomed to laughing off such wildlife manifestations as exclusively for the bird watchers, grimly chronicled the exciting developments. They even sent up an airplane with cameramen for a historic photograph of three whoopers winging southward over Canada.

Down at Aransas National Wildlife Refuge, on the Texas Gulf Coast, they got letters and telephone calls and personal visitation reports on the whoopers. Farmers from states along the flyway wrote in, their scrawled longhand joining that of the school children who did likewise.

The fall developments thus funneled everything—whoopers, reports, inquiries, visitors—down to the Refuge. A feeble country phone line bore much of the burden. And the pitted road leading to the Refuge truly presaged the end of the line for those moving by land.

But the airborne whoopers spotted their ancestral winter habitat without trouble. They even found things just a little better than before. Because Julian Howard, Refuge manager, climaxed the newly created whooper consciousness by putting the big birds' rendezvous area out of bounds to the public. He even tries to keep its very location on the Refuge a secret for fear unthinking persons might try unauthorized approach by water.

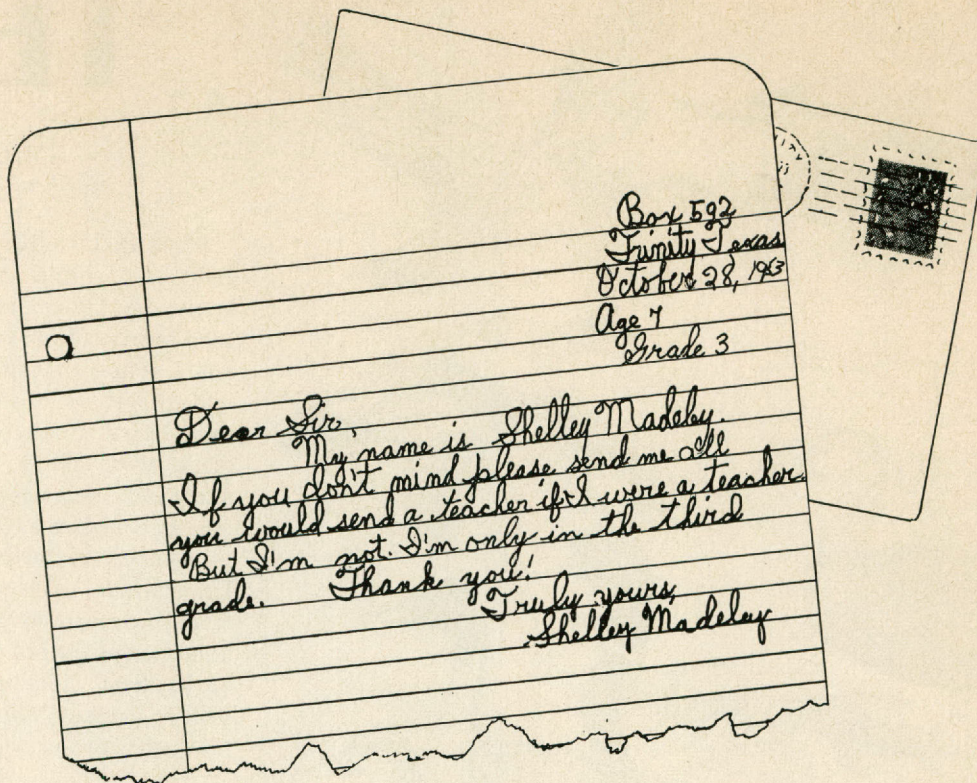
While a day and night vigil was maintained, the fall census continued. Howard said that although the whooper migration ends in December he will keep the poll open since invariably some of the huge birds postpone joining the main flock, tarrying in nearby areas for some time after arriving from the north.

Meanwhile, the bulk of the great cranes whoop away the time on a water front strip about ten miles long. They maintain strict isolation from all other birdlife. Some of them are particular about even associating with other members of the concentration. Refuge men frequently see one or more of the four-foot-tall feathered celebrities assume warlike poses and emit cackled threats. But they never observe any actual combat.

So during the winter, the whoopers carry on their own private routine. They feed in the shallow water just like other shore birds but no one is definitely certain what they eat because there is no "stomach record" on them. Lacking definite proof of their diet, Refuge staffers judge that they eat small blue crabs and other crustaceans. Pinning that down is rather difficult because, to impose the supreme protection, the men never approach closer than one half mile and have to make all their observations through binoculars.

Whatever the final count shows, whether there is a definite gain over last winter's count of twenty-one, wildlife authorities can smile over the successful completion of the fall whooper lift from the northland. For the first time in several years no losses were reported. There were no mad airplane mercy flights to save gun-crippled whoopers. Above all, a public was alerted to the perils facing wildlife generally.

And that's a mighty fine bonus for the folks constantly bucking a falling market to help adjust the Animal Kingdom to Man's ruthless massaging of the face of the earth.



Are You There, Santa?

Jewels of composition is the way they describe the pencil scrawled letters that come by the thousands into the Game and Fish Commission headquarters in Austin, seeking literature on wildlife.

The apt description was given by E. T. Dawson, director of resourceful education, and a leader in the school study program that now is penetrating all phases of Texas school room work.

As the scope of the vital program grows, so does the flood of mail increase. And the variety of mail likewise expands.

They want to know all about the various kinds of animals. They want to know where each exists. By an average of one hundred letters each day they expose this pulsating curiosity about the world around them.

It is hoped that, by capitalizing on this youthful curiosity, the new generation may be led along a straight path toward recognizing the indispensable part the land, the trees, the wildlife, the water play in modern civilization. By knowing they thus will avoid the ruthless exploitation of past generations.

So they personally write these precious tokens of childish inquiry. Some, perhaps in the spirit of the Christmas season, appeal for ordinary personal possessiveness, such as the lad from Dickinson, Texas, who wrote:

"Dear Sir:

If you know anybody who have or knows some body who wants to get rid of a baby lion or tiger. If so will you write me.

Yours Truly."

Or the little girl from Trinity,

Texas, whose honesty and good citizenship shines through her request for an extra quota of informational materials as she writes:

"Dear Sir:

My name is Shelley Madeley. If you don't mind please send me all you would send a teacher if I were a teacher. But I'm not. I'm only in the third grade. Thank you!"

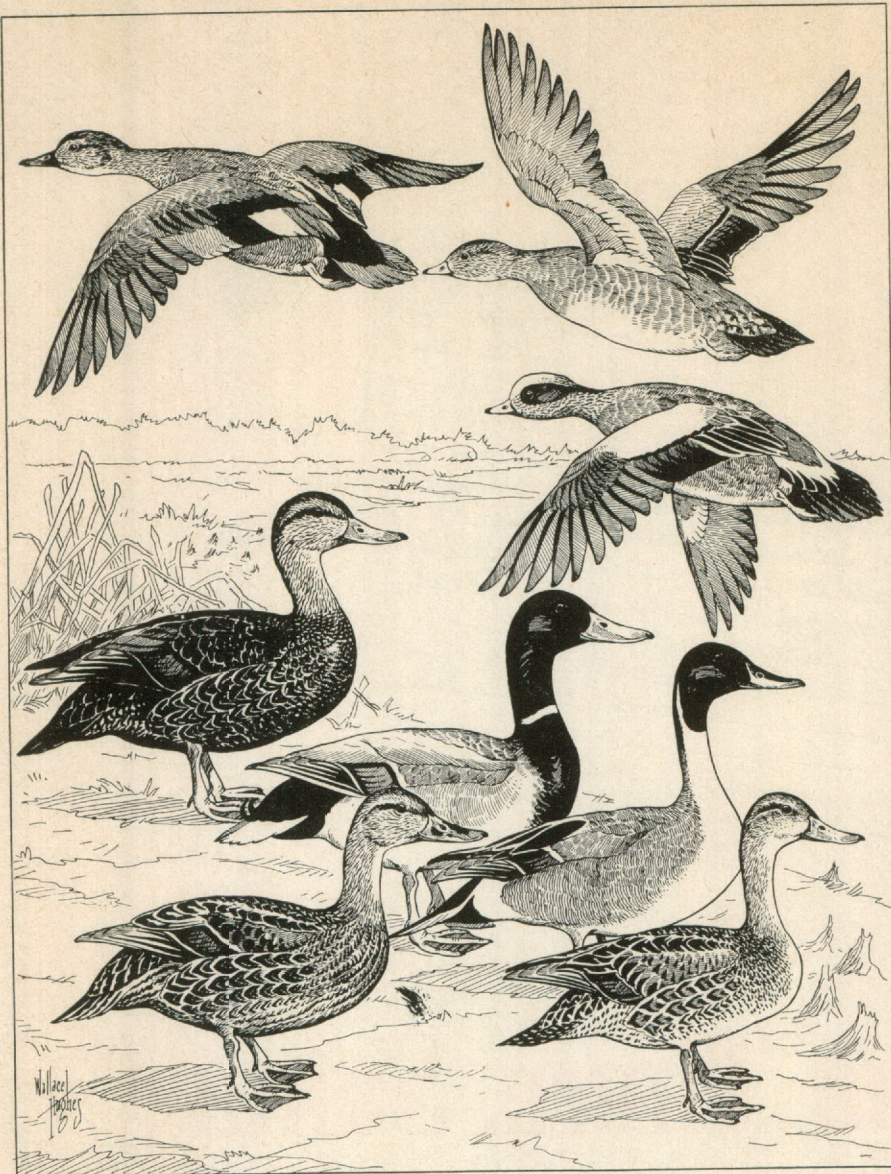
You see, teachers are sent comprehensive literature designed to be spread over an entire school room. Individuals are sent comparatively small packets.

But there's not much that can be done to the feller who wants that lion or tiger. There just aren't any available at the commission, sonny. And Santa probably is in the same fix.

—Jay Vessels

TEXAS

Second Group



BLACK DUCK (*Anas rubripes*). Fall and spring migrant. Better known as "Black Mallard." Distributed over most of state. Never abundant. Occurs in small flocks. Same size and shape as Mallard but usually more wary. Color, dark brownish-black with lighter markings. Head and neck noticeably paler, grayish and streaked. Speculum dark purplish-blue, without white borders. Underwings, silvery white. Feet vary from brownish to bright red. Sexes alike except for bill color. Bill of male varies from light greenish to clear yellow. Female's bill, greenish or olive marked with dusky.

GADWALL (*Anas strepera*). Also known as "Gray Duck." Smaller than Mallard. Square white patch on hind edge of wing, easily seen in flight, and chocolate wing patch present in both sexes. Male, gray-bodied with black rump and lighter low. Female, similar to female Mallard. Smaller size, white patch in wing, feet yellow, bill yellowish. Average weight, 2 pounds. Average wingspread, 35 inches. Never abundant, occurs in small flocks. Usually in company with Mallards or Baldpates.

PINTAIL (*Anas acuta*). Spring and fall migrant. Earliest spring duck. Very common in February and March. Smaller than Mallard. Long necked and slender. Male, chiefly gray, black and white, with brown head. Bill and feet, gray. Middle tail feathers long and pointed. Wing patch, iridescent bronze, green and purple bordered with buffy on the front edge. Bordered with a bar of black, then a bar of white on the hind edge. Female, streaked and mottled with browns. Resemblance to female Mallard and Gadwall. Bill and feet, gray. Wing patch or speculum, mostly brown, speckled with black, with some iridescent green. Pointed tail. Average weight, slightly over 2

GADWALL

**Female
BALDPATE**

Male

BLACK DUCK

Male

MALLARD

Female

**Male
PINTAIL**

Female

DUCKS

Third of a Series With Text and Drawing

By WALLACE A. HUGHES, Oklahoma Game & Fish

Surface Feeders

pounds. Average wingspread, 35 inches.

MALLARD (*Anas platyrhynchos*). Fall and spring migrant, winter resident. Most common, best known duck. Green head of male identifies it. Other markings: ruddy breast, white neck ring, gray body, black rump, white tail. Bill yellow. Feet pinkish to orange red. Female, mottled and streaked with various shades of brown. Bill, orange with dusky markings. Feet, pale orange. Speculum or

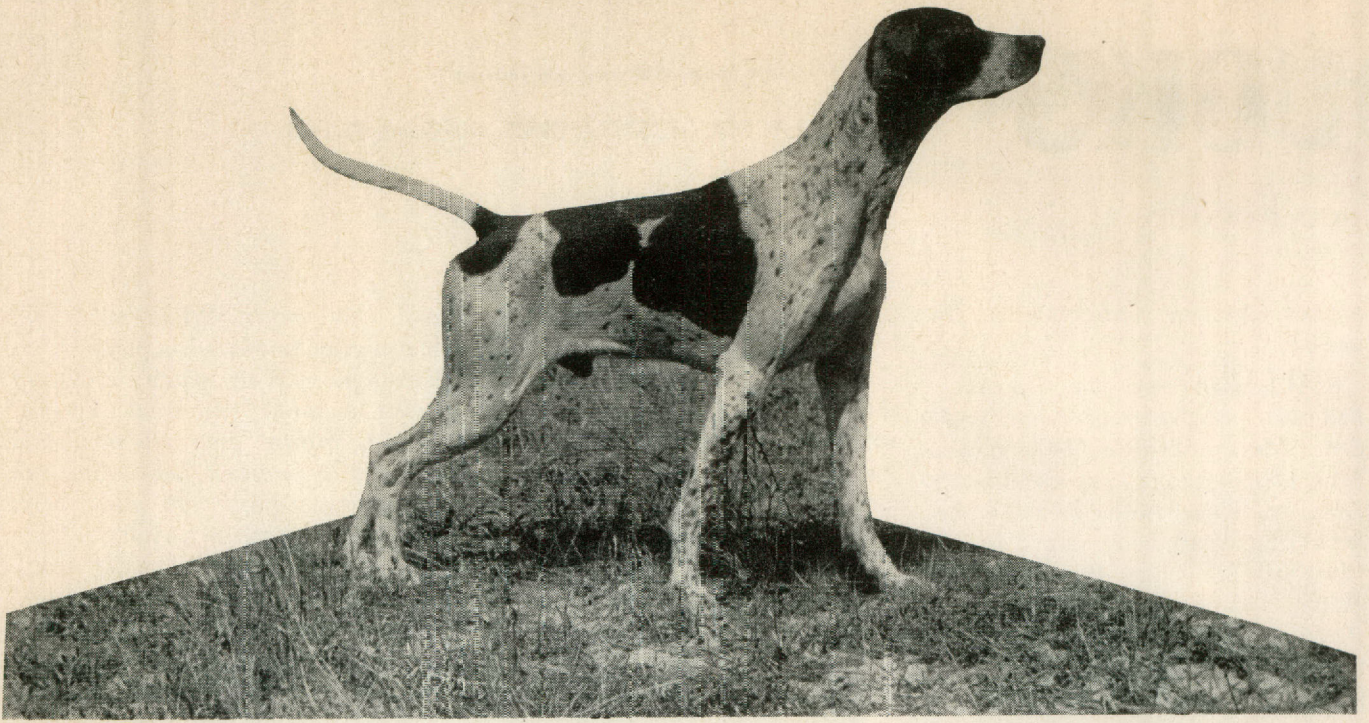
wing patch, iridescent purplish-blue, bordered in front and behind with white. Same in both sexes. Frequents all waterways. Occasionally feeds in upland fields. Average weight, 2 pounds, 11 ounces. Average wingspread, 36 inches.

BALDPATE (*Mareca americana*). Spring and fall migrant. Also called "Widgeon." Prefers small ponds. Male very colorful. Pinkish-brown breast, brown body, gray neck and face, dark green mask through eyes and distinc-

tive white crown. White belly. Bill, bluish-gray tipped with black. Feet, bluish-gray. Wing patch, iridescent green bordered with black. Female, pinkish brown, grayish neck and head, finely streaked. Belly white, bill bluish-gray, tipped with black. Feet, bluish-gray. Both sexes have large white patches on front part of wings, easily seen in flight. Patches are grayer in the female. Average weight, 1 pound, 11 ounces. Average wingspread, 34 inches.

Roger T. Peterson from National Audubon Society





Common Infectious Diseases

Last in a series about dog care by Martin P. Hines, D. V. M.

The understanding of canine diseases has advanced greatly in the past few years. Formerly a dog exhibiting symptoms of a nasal discharge, emaciation, and diarrhea was generally believed to be suffering from distemper and, if he became acutely ill, poisoning was frequently suspected. Now the serious diseases of leptospirosis and infectious hepatitis have been clearly defined as separate diseases, but a careful examination is still needed to differentiate these three diseases. The purpose of this article is to acquaint the dog owner very briefly with the nature of a few common dog diseases and how they may be prevented.

Distemper

Canine distemper is one of the most common and frequently fatal diseases of young dogs, although it can now be largely prevented by vaccination. It is a highly acute contagious disease, usually characterized by generalized infection, with a wide variety of symptoms, and caused by a filtrable virus. Distemper is often compli-

cated by secondary bacterial infections. Young dogs under one year of age are usually affected. Older dogs are more resistant, many of them having developed an immunity from previous exposure.

Because of the serious and complicated nature of this disease, a veterinarian should be consulted immediately when it is suspected.

Distemper is prevalent in all countries and throughout the United States. It appears to be more prevalent in purebred animals than in mongrels. Dogs with weak constitutions, not properly fed or exercised and kept in overheated quarters, seem to suffer most from the disease. Distemper rarely occurs in unweaned pups since some protection through the bitch's milk is given the pups. There are many factors which predispose to distemper, such as parasitic infection, rickets, poor sanitation, insufficient ventilation of quarters, and improper diet. All of these and others tend to lower the resistance of puppies.

The first stage of this disease is accompanied by a sharp rise in temperature, followed by a loss of appetite and depression. Frequently, secondary infection takes place, causing respiratory and gastrointestinal disturbances. Many cases develop characteristic nervous symptoms. When the latter are present with respiratory disturbances, the mortality is quite high.

A detailed description of the symptoms will not be given, but when young dogs that have not been vaccinated have a temperature, loss of appetite, eye and nasal discharge, diarrhea and sneezing, it is suggestive of distemper, and a differential diagnosis must be made.

Distemper is transmitted from infected to healthy animals by direct contact, through the ingestion of food and water contaminated with infected secretions or excretions, and by air currents carrying the virus.

Dog owners may prevent this disease by temporary and permanent vaccinations. There is much confu-

sion among the public concerning temporary vaccination.

Puppies should be permanently immunized against distemper when they are two to four months old. Complete immunity is probably not produced under two months of age. Until puppies reach the age when they can be permanently immunized, many veterinarians administer anti-canine distemper serum (temporary), which has a high degree of protection for ten days to two weeks against possible exposure.

Before a dog is permanently immunized, it should be free of parasites and in a state of good health. There are several methods of permanently immunizing dogs against distemper which are effective, but it should be undertaken only by a veterinarian, as proper immunization involves not only an understanding of the principles of immunity but the consideration of a number of other factors.

Good nursing and proper care are important in promoting recovery of sick dogs. So-called quick cures have no value. No drug is known that has specific action against this virus. Antiserum may help to lessen the severity of the attack if administered early. Clean, dry quarters that are warm and ventilated and small quantities of nourishing foods (milk, raw eggs, raw beef and broth) will aid recovery. The eyes may be bathed in a weak solution of boric acid, and the dog should not be allowed to get wet or chilled.

Infectious Canine Hepatitis

Infectious hepatitis is a newly recognized disease of dogs. Rubarth in Sweden in 1946 first reported the disease and isolated the filtrable virus which is the causative agent. Hepatitis is primarily a disease of young dogs, as the average dog reaching adulthood has been exposed to the disease and developed an immunity.

Practically all acute general infections present symptoms similar to those of hepatitis, and hepatitis can be mistaken for distemper or leptospirosis. Differentiation is sometimes difficult for the veterinarian.

Symptoms vary a great deal but in the early stages a dog with hepatitis is restless. There is a noticeable change of attitude, and he wants to be

left alone. A high temperature, accompanied by tonsillitis and swollen lymph glands, is suggestive of hepatitis but these are not always present. Loss of appetite, watery eye and nasal discharge are some other nonspecific symptoms. Some may vomit, but it is not too common. Nervous symptoms are absent.

Some infected dogs develop no symptoms and run and play like healthy pups, but the next morning several may be dead. Autopsy usually reveals severe liver damage.

Specific hepatitis antiserum has been found to be valuable in protecting dogs while they build up an immunity by exposure and also in treating the disease if administered early. Recently, research workers at Cornell University have developed a vaccine that appears to be very effective toward preventing this disease. Your veterinarian can inform you about this vaccine and its availability.

Leptospirosis

Leptospirosis is an infectious disease caused by two spirochetes, *Leptospira icterohemorrhagiae* and *Leptospira canicola*, which are spiral-shaped bacteria. Leptospirosis primarily affects rats and dogs, but man is sometimes affected and in humans it is known as Weil's disease.

As previously mentioned, it is frequently difficult to differentiate leptospirosis in the early stages from distemper, hepatitis, nephritis and other toxemic diseases. A careful and thorough examination of the dog, with a complete history, is required. A positive diagnosis can be made only by laboratory methods.

In dogs the severity of infection varies from acute cases, with death occurring within eighteen hours after onset of symptoms, to subclinical cases, which are more difficult to diagnose due to lack of apparent illness. Dogs in the early stage of this disease usually have a poor appetite, are stiff in the hindquarters, with a tucked-up appearance. The temperature is quite high. The owner may think the dog is constipated. Following the septicemic stage is the toxic stage with a normal or subnormal temperature. The tissues may become yellow stained or icteric, especially the white of the eyes, gums and skin. Vomiting and diarrhea may be present, accompanied

by dehydration and emaciation. Because of kidney damage, the breath is usually fetid from uremic poisoning. This type of infection is caused by *L. icterohemorrhagiae*.

Dogs contract the disease usually from infected rats and dogs and their discharges, especially urine.

Dogs contract *L. canicola* from the urine of other infected dogs and not from rats. *Leptospira* localize in the kidneys of animals, if not properly treated, and are shed in the urine, which is an excellent means of spreading the infection among animals.

Although the dog is susceptible to both organisms which produce the natural disease, *L. canicola* is much more prevalent and produces little or no jaundice. *L. icterohemorrhagiae* produces a typical jaundice.

The fact that both of these organisms are infectious to man should not be overlooked. Fortunately, about 90 per cent of leptospirosis observed in dogs is caused by *L. canicola*, which produces less severe symptoms in humans. A system is being developed in North Carolina where leptospirosis and all diseases infectious from animals to man will be reported. This will locate where such diseases exist so proper control measures can be taken. Anyone owning a dog with leptospirosis should handle him with care, washing his hands thoroughly afterwards.

Since no vaccine is now available, dog owners should seek professional advice when the animal first shows symptoms as certain antibiotics are quite effective for treating leptospirosis. Rat eradication, closer confinement of dogs, and elimination of stray dogs, together with proper diagnosis and treatment of sick dogs to eliminate carriers, will assist in controlling this disease.

Rabies

The menace of rabies has been discussed many times. However, the importance of this acute infectious disease of all warm-blooded animals cannot be overemphasized. Because rabies is 100 per cent fatal in both man and animals, every dog in Texas should be vaccinated annually. Each year hundreds of Texans take the uncomfortable but lifesaving series of antirabic treatments because they

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Staff Photos
By CLYDE GRAHAM

The Ring-Tailed Cat

By W. C. GLAZENER
Director of Wildlife Restoration

OF THE bright-eyed and beautifully marked ring-tailed cat it may truly be said, "they walk by night." For that reason few people ever see one of them in the wild, although they are quite numerous in Texas. As a matter of fact, the ring-tailed cat ranks among the top three furbearers in numbers trapped in this state each year.

Various species of the ring-tailed cat occur throughout the Southwest, into California and Southern Oregon. The Texas species (*Bassariscus astutus*) is rather widely distributed over this state. While most common in the Edwards Plateau, it has been found in the Trans-Pecos, Lower Plains, Cross Timbers, parts of the Coastal Prairie and in portions of the East Texas piney woods.

The ringtail, as it is commonly called in Texas, bears some resemblance to its relative, the raccoon. However, it has a very slender body and a conspicuously longer tail. The tail is prominently marked by alternating black and white bands, and is as long as the animal's body. Two other striking ringtail features are its large eyes and ears.

For many years the ringtail was a popular fur species in Texas. A later fashion trend favoring the short furred species, such as mink, caused a drop in price. In this connection, a report prepared by Walter P. Taylor for the Game and Fish Commission points up an interesting side light, as follows: "With its relatively limited distribution (southwestern and west-



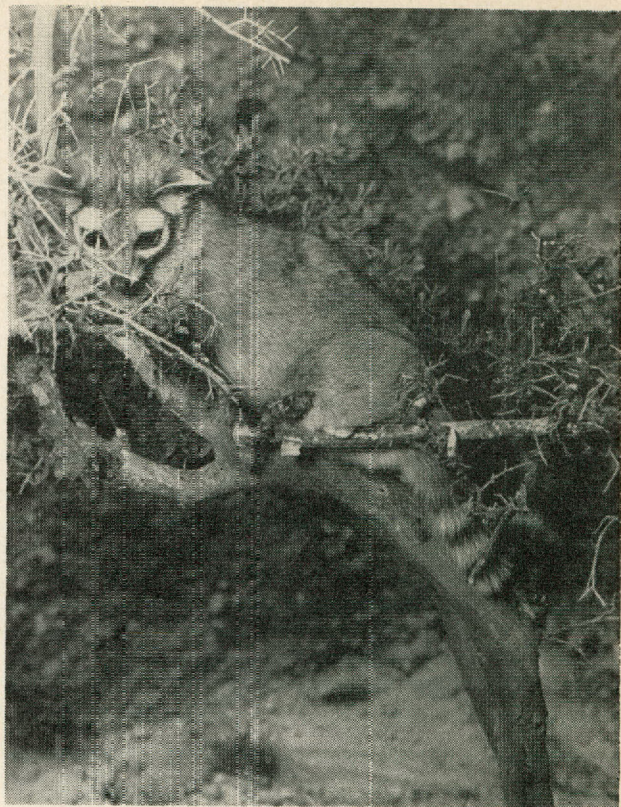
ern United States), the ringtailed cat is less well known than the more broadly distributed fur animals such as mink, fox, raccoon, and skunk. An amusing happening based on this was brought to our attention during the last year of World War II (1945). Those were the days of the Office of Price Administration which, quite logically, had imposed a ceiling price on designated fur animals, including the raccoon, mink, and others, excepting the ring-tailed cat, of whose existence the OPA had apparently never heard. Thus it transpired that while relatively low prices were compulsory for the better-known and normally more expensive furs, the trappers were selling prime ring-tailed cat skins to buyers for \$10 each, or indeed, for anything they could get."

Ringtails apparently favor habitat that contains rocky ledges and cliffs. They also take to woods having hollow trees, such as post oak woods in Goliad County, mesquite and chaparral range in Hidalgo County and the mixed pine-hardwood type in Houston County. Whatever the terrain and cover, they do require readily accessible surface water. Recent development of well distributed stock watering places on Trans-Pecos ranches may be responsible for their spread in that region.

Most young ringtails are born in May, with from two to four in each litter. Dens may be in rock crevices or hollow trees. The young stay with their mothers for about four months but when weaned late in August, they are nearly grown.

Food of the ringtail includes a variety of fruits, insects, mammals and birds. A favored plant item is cedar (juniper) "berries," followed by fruits of hackberry, persimmon, and mistletoe, as well as acorns. Mammalian food eaten by ringtails includes fox squirrels, ground squirrels, cotton rats, pocket mice, wood

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Trans-Pecos Deer Kill Surveyed

By TOM D. MOORE, Wildlife Biologist

IT IS a fact that figures don't lie, but at times they are apt to be misleading. With this in mind the game commission is now pondering a collection of facts and figures gathered from a recent Trans-Pecos hunter survey of last year's deer kill. It was found that nearly 2,000 mule and white-tailed deer were bagged west of the Pecos River during the November season in 1952.

To those familiar with this vast scope of country, which takes in some of the largest counties in the state, this figure may seem low. Others know, too, that almost that many deer are killed annually in a single county in the hill country during good years. In all probability last year's season would not compare to a normal one because of drouthy conditions which have prevailed. But despite the drouth and the resulting losses to the deer herds, the hunting pressure was still considerable.

The ever increasing problem of more hunters and less wildlife befalls the state game department for it must formulate and administer game harvest regulations to the greatest degree of efficiency. For the sake of adjusting these laws, it is necessary to have some idea as to the number of each species harvested each year.

With this aim in mind, a hunter poll was undertaken. All methods used were experimental, and it should be emphasized that the results will be of value only after comparisons are made with data of future years to determine whether or not significantly different results were obtained.

Three methods were used. The results of all three were evaluated, and, in the case of deer kill, two were combined to give a total kill figure.

The methods were:

- (1) Information on game harvest was obtained by use of double reply questionnaire postal cards sent to 6,838 hunters who purchased licenses in the Trans-Pecos region

in 1952.

- (2) Landowners operating a shooting preserve (those ranchers who took paid hunters) kept a list of each deer killed on their ranch, and these figures were tabulated.
- (3) Of 5,466 hunters who were residents of the Trans-Pecos, 250 were selected by random method and personally interviewed.

Method No. 1

(Post Card Questionnaire)

To each approach there immediately arose "unknowns and variables" which had to be reckoned with. One was the question of whether or not an unsuccessful hunter would reply as often as a successful one and whether or not enough of each would respond in sufficient numbers to make the sample size trustworthy. Poll surveys of this nature have shown that about 30% of the recipients return the postal cards. Response to the recent survey was 25.06 per cent. Of the 6,553 cards mailed and which apparently reached the addressee, 1,642 were returned with answers.

The number of cards mailed out which were returned undelivered are left out of the total, since they represent largely the transient military personnel of Fort Bliss (El Paso) and the agricultural workers at Pecos, and neither class had an important effect upon the total kill.

The survey shows that the 1,642 hunters who replied to the questionnaire killed 443 deer of both species. This would indicate that 26.98 per cent of the hunters were successful.

Expanding this ratio to the entire 6,553 hunters and allowing for variables, the range of kill was computed to be between 1,571 and 1,965.

Method No. 2

(Shooting Preserve Books)

On the 125 licensed shooting preserves in the region a total of 2,411 hunters (guests and paid) were reported as having hunted during the

1952 season. They spent an average of 2.43 days per man in the field. These hunters were 56 per cent successful. Hunters who lived in the Trans-Pecos were only 34 per cent successful, whereas non-Trans-Pecos hunters enjoyed a per cent of 61. As one might suspect, guest hunters on these areas were highly successful. Their rate of kill was figured to be 62 per cent.

Computation of shooting preserve record figures indicated a kill of 1001 deer by Trans-Pecos non-resident hunters and 874 by Trans-Pecos residents for a grand total kill of 1,875.

Method No. 3

(Personal Interview)

Of 5,238 hunters residing in the Trans-Pecos, 250 were selected at random for a cross-section sampling. These were interviewed personally. The 250 hunters reported a kill of 47 deer, which if expanded would indicate a total kill range of between 701 and 1,227 deer.

A serious limitation to the personal interview method is that only the Trans-Pecos hunters are sampled. Hunters register and hunt in the Trans-Pecos from all parts of the state and as many as 50 from out of state. To reach these by personal interview would be too time-consuming and costly.

Since the personal interview sample was so small, Method No. 3 was disregarded, and Methods 1 and 2 were combined to give the most accurate deer kill for the Trans-Pecos region.

As mentioned before data presented is for comparison with future years. It is apparent that certain limitations must be accepted and the best possible correction factors worked out and applied.

It is hoped that a greater return of postal cards will be had this year. Hunters are urged to fill out the card properly and return it promptly, for the greater the sample size, the more reliable will be the record.

Groom, Texas
Oct. 26, 1953

Dear Mr. Miller:

I am sending you a manuscript I have written. This is my first attempt at writing a story. I am only 16 years old, but I thought you might publish my article to help the other boys my age and younger.

I love hunting and fishing very much, and it would make me very happy if my article is published. I hope you will excuse my typing, because I am just learning.

Yours truly,

Richard Clark
Richard Clark

We, too, thought Richard's article might help other youngsters and maybe some grownups, also. So here it is, just as he wrote it for the magazine.

Duck Hunting

Along about this time of the year many boys my age and men, too, are turning to duck hunting. But many of these happy and some not-so-happy hunters go after their quarry without the proper equipment. The proper equipment will go a long ways toward making a duck hunting trip more enjoyable. In my years of hunting ducks I have found the following items make up the complete duck hunter.

A good pair of hip boots. To be complete a duck hunter must have hip boots. This applies especially to hunting the puddle ducks. Not so much, though, to the diving ducks. The boots should be plenty large so as to allow room for two or three pairs of heavy socks. I think the plastic boots should not be used as they tear so easily. The straps should be of the heavy duty type. Pulling a boot out of the mud puts a lot of strain on the straps. There is a wide variety of boots, but be sure to get the best possible. It will pay off in the long run.

Not so important, but should be picked with some deliberation, is a pair of pants. They should have a waterproof seat as this is the part

most likely to get wet. They should be water repellent. For the cuffs, I prefer the straight bottom to the knit cufftype as they can be used for upland game hunting.

A companion article to the pants is a coat. The coat should be plenty big. Better too big than too small. It should have a game bag. One that drops down to make a waterproof seat is just dandy. It should have plenty of big pockets, and it should also be water repellent. The universal colors seem to be brush brown and olive drab.

The cap should also be one of the above colors, with *lined* ear flaps.

For your hands you should have either gloves or mittens. I prefer mittens with a slot cut in the right one for your trigger finger to slip out when it's time to shoot.

That takes care of the outside. Now for the inside. You should have on one or two pairs of long johns, according to the weather, and one heavy wool or heavy cotton shirt or sweater. An extra change of clothes will sure come in handy if you get dunked.

You do not have to have the following, but either one sure comes in

handy at times. The handwarmer is the most necessary one of the two. You can have your pick of a wide variety in either the flat or round shapes. Personally, I prefer the Jone warmer. I find one sufficient for me, but some people may need two or more. One company makes a special glove with a warmer inside in a pocket. Costs about \$10.00 though. Another useful article is a wool cap that covers all of your face and head except your eyes. It sure keeps the ducks from seeing your face and flaring away.

If you are a beginner, you should have some advice on the right gun to pick. Contrary to popular opinion it *does not* have to be full choke, nor does it have to be a 12 gauge. A 16 or 20 will do just as well. Only difference is they each have smaller charges of shot and powder.

While we're on the subject of shot let's discuss the proper size.

For shooting over decoys, No. 6 or No. 7½ are the best. There are quite a few more pellets in 6's than in 4's, and so you have a thicker pattern. For pass shooting at longer ranges

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MENHADEN

and
the

PURSE SEINE

In recent years the catch in pounds of Texas Gulf menhaden has been nine times that of all other sea fish combined! Yet few persons are acquainted with this valuable oil-yielding fish and its method of capture.

By JOSEPH P. BREUER, Marine Biologist

THE purse seine is probably the least familiar of all methods of fish capture used on the Gulf Coast because of its lack of use in Texas waters. However, its importance in commercial fishing is well known in the fishing ports of all other Eastern and Gulf Coast states. In 1946, 99% of the 920 million pounds of menhaden caught by the Atlantic and Gulf Coast states, which was valued at over \$9,500,000, was taken by purse seine.

Essentially, the purse seine is a long, straight net equipped with a cork line on top and a lead line with rings and purse line on the bottom. When this seine is set in a circle around a school of menhaden, a vertical wall is formed extending from the surface to a depth of 50 to 85 feet. When the bottom of the net is closed by pulling the ends of the purse line, the entire school of fish is trapped.

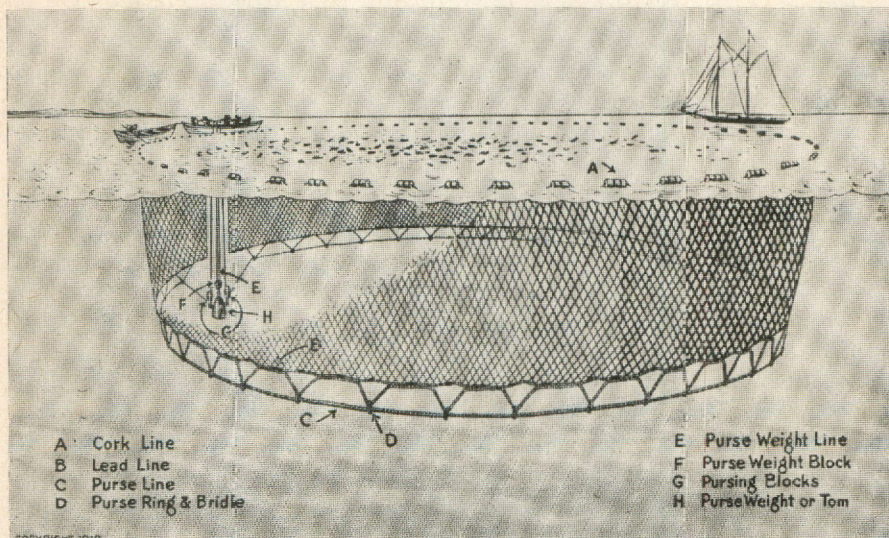
The earlier purse seines were about

600 feet in length, 130 feet in depth, and of 2½ inch stretched mesh. The two wooden seine boats, each of which carried half of the seine, were about 28 feet in length and were propelled by oar. The mother boats were small schooners or sloops of about 50 feet in length. These sloops were later replaced by slightly larger steamers.

The seine boats were able to approach the very edge of the school without alarming the fish, and the seines needed only to be long enough to encircle the school. With the coming of gasoline engine powered seine boats, or purse boats as they are now called, the seine had to be lengthened, since the noise of the engines would frighten the fish if the boats came too close. The larger nets required larger purse boats and crews, which in turn called for larger mother boats.

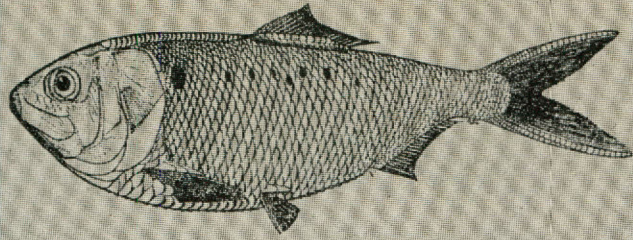
The menhaden boats in use at the present time are specially built for purse seine operations. These boats vary in length from 100 to 150 feet and are powered by 250 to 550 horsepower diesel engines. The hold for the storage of fish is located near the center of the boat, with the engine room, water and fuel tanks aft and

Purse seine used on schooling menhaden.



A Cork Line
B Lead Line
C Purse Line
D Purse Ring & Bridle

E Purse Weight Line
F Purse Weight Block
G Pursing Blocks
H Purse Weight or Tom



the galley, mess hall, wheel house, and crew's quarters forward. The crow's nest is located on top of the mast which extends skyward just forward of the hold. A powerful engine-driven winch is situated just astern of the hold and is used to raise the purse boats in their davits and to raise and lower the brail net.

Each menhaden boat has two purse boats, which carry the purse seine between them. These 32-foot boats are of all-metal construction and are powered by small gasoline engines.

The only other boat carried is the striker boat, a heavy 12-foot wooden boat manned by one man and propelled by oars. The duty of the striker boatman is to keep track of the school of fish while the purse boats are maneuvering into position, and to help support the cork line in case the weight of the fish causes it to sink.

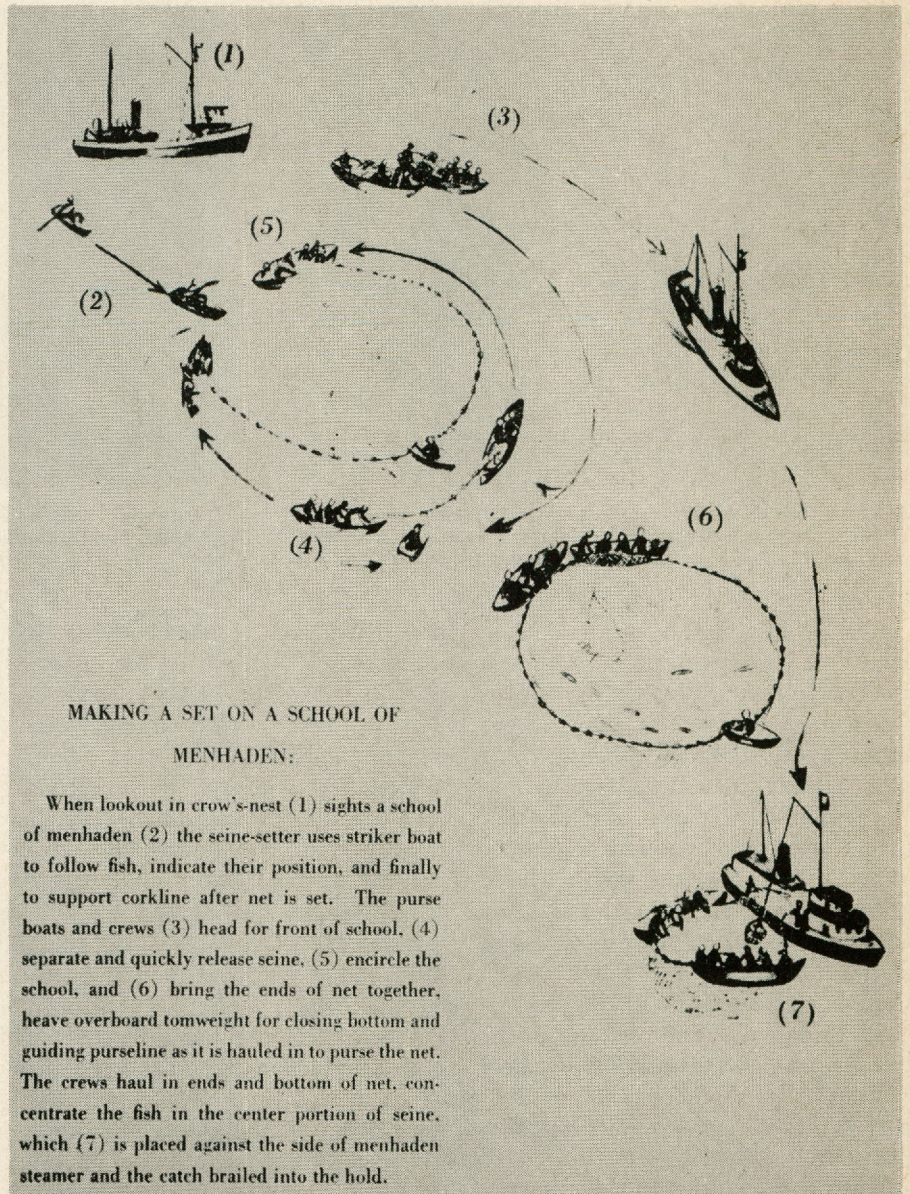
The purse seines now used in the menhaden industry are about 1,125 feet long, 85 feet deep, and of one-inch stretched mesh, although these measurements may vary depending upon the locality in which the seine is used. Some ships carry two purse seines of different depths; one for use in shallow water and the other for more offshore operations. Present indications are that the purse seines will be increased in length to 1500 feet or longer. This will call for purse boats of perhaps 36 feet in length.

A well-balanced and properly constructed purse seine is essential to profitable fishing operations. The net, when purchased from the net manufacturing company, is 16,000 meshes long, 1,000 meshes wide, and is of one-inch stretched mesh. The top 9 meshes and the bottom 9 meshes of the net are of heavier selvage than the rest of the net, to prevent the netting from tearing from the ropes. A cork line is fitted to one side of the net

and a lead line fitted to the other. The cork line is of $\frac{1}{2}$ -inch diameter, and the corks are of $4\frac{1}{2}$ -inch diameter placed in groups of 4, every 4 or 5 inches along the cork line. The two-inch diameter heavy steel rings are suspended down from the lead line every 15 feet, through which the $\frac{1}{2}$ -

inch diameter purse line is threaded. The finished seine takes about 10 days to complete and costs about \$5,000.

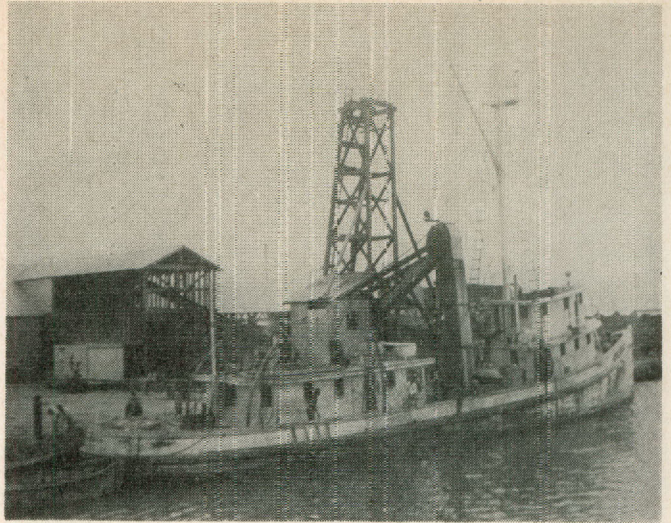
The taking of menhaden by purse seine is undoubtedly the most interesting to watch and the most thrilling of all commercial fishing operations.



How a School of Menhaden Is Caught

This series of photos, picturing the crew and purse seine in action, shows how the small boats leave the parent boat, surround the menhaden school with the seine, and then transfer the catch from the net to the hold of the larger boat.

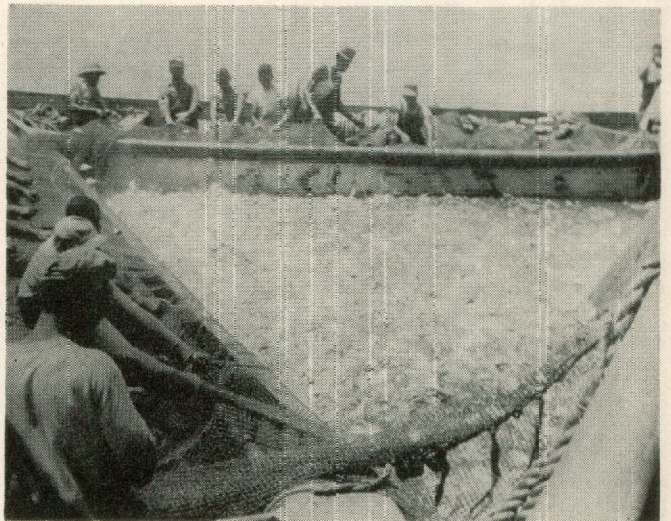
Photos by the author



1. This is a typical menhaden boat, one of the Quinn Menhaden fleet. It is shown here unloading. Processing of the menhaden into oil will begin immediately, since the catch is not refrigerated.



4. The bottom of the purse seine is closed. Then the ends and bottom of the seine are brought quickly into the boats, concentrating the catch into the center portion. The mother ship then moves up alongside.



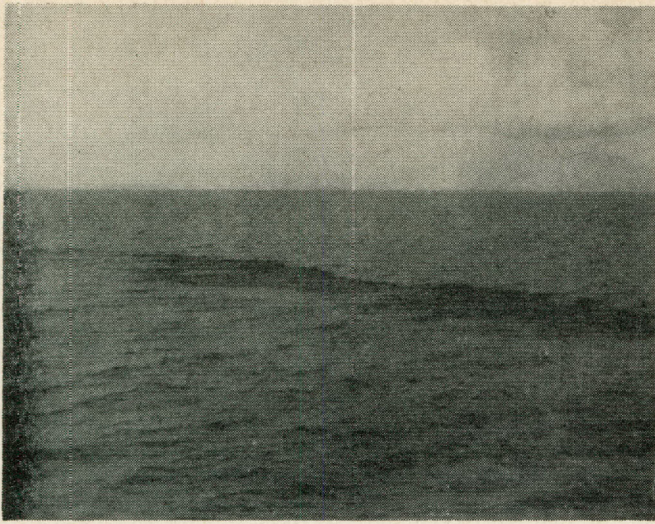
5. Strong backs, working in unison, often to a chant, pull the net tighter, packing the fish. If the school is large, the half-hearted effort of one crewman can lose the catch.

The boats usually leave port long before daybreak in order to reach the fishing grounds by sun-up. Breakfast is served while the boats are en route to the fishing grounds. One man, usually the mate, is stationed in the crow's nest. It is his duty to spot the schools of menhaden. Fish very close to the surface are detected by a tell-tale ripple on the water. Deeper schools may appear as a dark brown or purple cast in the water. When the lookout sights a school of sufficient size to warrant a set, the striker boat is sent out to follow the school and notes its direction and speed of travel. Many times several menhaden boats will sight the same school of fish at the same time. In this case, the

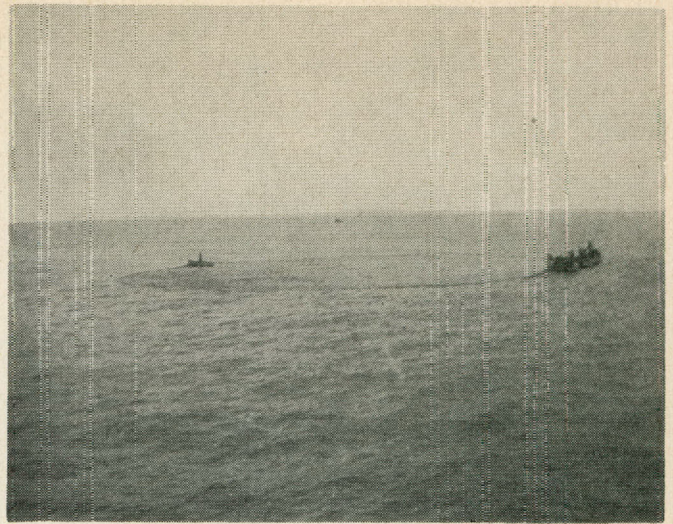
first striker boat to reach the edge of the school is allowed the first chance at the school. The two purse boats are then manned and proceed, tied together, side by side, to a point ahead of the school so that the school lies directly between them and the striker boat. The purse boats then proceed at full speed toward the school and, on nearing the fish, separate and describe a large circle around the school, paying out the purse seine behind them.

When the purse boats meet again behind the school, they are again tied together, this time bow to bow, and the heavy tom weight is lowered to the level of the purse line. This tom weight is a 550 pound lead weight

equipped with two pulleys through which the purse line passes. This forms a complete circular wall around the school extending from the surface to a depth of about 85 feet. The two ends of the purse line are then taken in by means of a winch in one of the purse boats which closes the bottom of the seine. The tom weight, rings, and seine are then taken back into the purse boats until the fish are confined to a small pocket in the seine. The mother boat then pulls alongside the two purse boats forming the other two sides, and the pocket of fish in the middle. The net is then taken in by the crew until the fish are almost solid. The fish are then transferred to



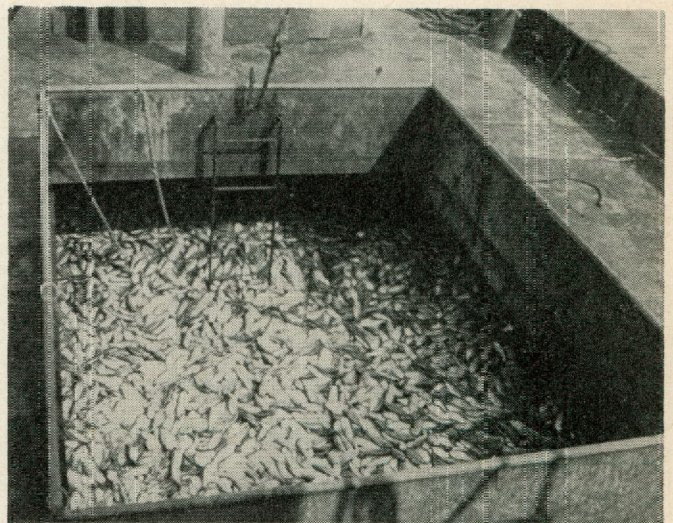
2. First step in making such a catch is to find a school. This unusual photo shows a surfacing school of menhaden as seen from the crow's nest of the boat. The fish usually are more difficult to see.



3. The smaller purse boats are launched. They move in front of the school and separate, then encircle the fish with the purse seine, bringing the ends of the seine together.



6. The menhaden then are transferred from the pocket of the seine to the hold of the mother ship by means of a brail net, which is raised and lowered by a power winch.



7. Finally, a quarter of a million menhaden rest in the hold. Catches range from twice that many to nothing. Menhaden boat captains would be happy with this catch as a daily average.

the hold of the mother ship by means of a brail net. This net is 4½ feet in diameter, about 4 feet deep, and is supported by a long pole. The net is opened and closed by means of a purse line and rings similar to those of the purse seine. The brail net is lowered into the fish, raised by means of a power winch on the deck of the mother boat, swung over the hold, and emptied. This process continues until the purse seine is empty. The purse boats and striker boat are tied to the stern of the mother boat, the lookout takes his post in the crow's nest, and the search for another school begins. The entire operation takes about 1½ hours, although ad-

verse weather conditions can extend the operation by many hours.

When the boats return to the processing plant with their catches at the end of the day, the fish are removed from the hold by a powerful suction pump. The fish are then transferred by conveyor belts to a huge press which separates the liquid and solid fractions. The fish oil is removed from the water by decanting and is then purified by heating and stored for shipment. This oil has many varied uses, from the tempering of gun barrels to the manufacture of lipsticks. The waste water is processed to remove the water soluble amino acids which are used in the medical

treatment of people with protein deficiencies.

The solid fraction is dried thoroughly by heating in a large revolving oven. The resulting dry meal is then sacked and shipped to feed houses to be used as a high protein supplement in hog and chicken feeds.

The purse seine, being a specialized type of seine, has its advantages and disadvantages. It can be used only on fishes which have a natural tendency to travel in schools on or near the surface of the water. Because of the size of the fishing vessels, the use of the purse seine is limited to the more open waters. Since a fully-loaded menhaden boat may draw as much as

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KAMIKAZE STUFF

The Associated Press reported on the same day during the recent hunting season:

From Findlay, Ohio . . . the piece about a college professor proving his presence of mind by seizing the tail feathers of a pheasant that flew straight at him.

From Memphis, Tenn. . . the item about a quail, flushed in a covey, ramming a hunter's gun barrel, breaking its neck.

Before Texas had to muster in its tall tales troops, a match came for the foregoing. It was in the *Denison Herald*—about how Bub Moon threw up an oar when six mallards charged him while he was washing off his boat at Flowing Wells. Two ducks fell, one for keeps, as the others flew away.

So the day was saved for Texas, again.

WILDLIFE PARLEY

The Izaak Walton League of America has invited Texans to attend a "Young Outdoor Americans" conference in Chicago designed to stimulate interest in conservation work. Dates are March 10-12.

RARE DEER KILLED

Conservation Agent Jim Featherstone of the Missouri Conservation Commission Staff recently got a first hand report on a wildlife tragedy—death of an albino buck deer being chased by dogs. He heard the pack after the majestic creature but couldn't intervene because of the wild nature of the country. The next day he found the sordid climax to the chase. The tiring buck had caught its huge antlers in a fence and had broken its neck in a futile bid to escape. Then the hounds had ripped the rare pelt to bits.

WAY WHEN WHEN

F. M. Cowsert, who has moved from the Directorship of Law Enforcement for the Game and Fish Commission to less strenuous duties, dates back to the rugged days of protecting wildlife in Texas. Captain Cowsert began patrolling his wilderness beat horse back. Later, he got a Model T Ford. One of his favorite recollections is about how he used to park his gas buggy on a hillside with the wheels chocked so he could get a running start when and if he flushed any culprits while scouting afoot.

PIKE ALERT

Somebody is going to get a nice letter, mailed first class, when and if they report the actual catching of walleyed pike which were planted in Lake Travis near Austin, and Devil's Lake near Del Rio. Marion Toole, chief aquatic biologist of the Game and Fish Commission, is eager to get definite evidence of the walleyes as to where they were caught, what they bit on and what was their size. Watch out for look alikes—darters or log perch—which resemble walleyes but which have black dots in the middle of the base of their tails.

MAN-MADE CRISIS

Down at Rockport, they tell the story about the motel operator distracted by duck hunters' careless habits. They picked ducks in his cabins; they wiped rusty gun barrels on his bed linen. He finally said "No more hunters." Then he relented. So the first guy he let back in was unloading his shotgun when, BAM!, it went off, boring a very large hole in the nice floor and scaring other guests half out of their wits. So the ban is on again.

SPARE THE PIGEONS

Julian Howard, manager of the Aransas National Wildlife Refuge on the Gulf Coast, found out that other bird species are imperiled in addition to the rare Whooping Cranes which winter on the refuge. While he was in Corpus Christi getting some equipment fixed, one of the men at the Alamo Iron Works told about his own problems. He said hunters were mistaking his racing pigeons for ducks. Howard understood. Because one of the primary dangers faced by the fading Whoopers is from gunfire of hunters, presumably mistaking the giant white birds for legal game. Well, about like mistaking a pigeon for a duck.

SUCH AUDACITY

Ranch Foreman John Emmel wondered what became of a she wolf he shot and wounded. Later, he wondered what was becoming of chickens in the barn yard. Finally, he got the answer to both. His dog spotted a wolf under the ranch house. Emmel made his shot good this time. The beast had taken refuge under the house and was getting its food by sneaking out and into the chicken yard at night. Game Warden Tom Waddell relayed the details.

POLECAT PERSUADER

The *Abilene Reporter News* carried a Hartford, Conn., item quoting a local Humane Society agent, with a record for successfully suppressing skunks, as saying: "I just talk to it and start to move closer. When you see that tail coming up, you just stop and talk some more. There are frequent stops, but I finally pick it up and put it into a box."

Press Views

Game Notes

JIMMY'S NEW JOY

Remember Jimmy Burrows, the Kountze lad who saved some of the little broadwing hawks blasted by gunfire last fall? Well, Jimmy's a new man—that is a new boy (age 15). A local man fenced off fifty acres of pine-studded wilderness within walking distance of Jimmy's home and has given him exclusive rights to the area. Besides, the young naturalist has conquered a physical condition dating back to rheumatic fever as an infant and has been playing football.

PLEASE REPORT TAGS

The Marine Laboratory of the Game and Fish Commission at Rockport will appreciate receiving tags fishermen find on fish caught in coastal waters. These tags are needed to determine the life history, migration habits, etc., of the trout, redfish, drum, flounder and the like. The research is designed to help make fishing even better than it is.

DEEP SEA JACKPOT

Shades of the Texas Gulf Coast! A New Hampshire fisherman caught a three and one half foot sand shark which subsequently gave birth to nine baby sharks, each one eight inches long. The United Press, reporting the event, added that the man cleaned up in a deep-sea contest.

ARCHERY HAZARD

Watch those loaded weapons, even beyond firearms! Warden Supervisor Ernest Wehmeyer of Palacios reports the case of the local archer. The man let fly with a split arrow. One part went where it was supposed to. The other part splintered low through the man's hand.

WAD HAPPENED?

Double impact came in Pennsylvania recently when a man shot an albino raccoon. Approaching the rare specimen, he noticed bits of \$20 bills scattered around the place. It turned out that his son had hidden nine bills in the gun barrel.

WHITE BASS REPORT

Bill Thompson of the *Paris News*, reports that Lake Crook's newly installed white bass are thriving. One of those netted by biologists had tripled its length in three months.

HERD BALANCE

The Arkansas Game and Fish Commission is considering following the suit of Texas, and other states, in experimental doe harvests as a means of stabilizing the deer herds.

IT FORGOT TO DUCK

The Amarillo *Daily News* carried a Kalamazoo, Mich., dispatch headlined: "Boy, 14, Bags Wild Duck, 16." The duck bore a leg band dated 1936.

WAY BACK WHEN

Frontier Diary in the *Denison Herald*, quoting news item October 23, 1876: "Game was never so plentiful and cheap as now. Wild ducks and turkeys are killed almost within the city limits. A drove of seven deer crossed Main street Sunday evening near Captain Poff's residence. They were pursued into the woods and a fine doe slain."

SATISFIED CUSTOMER

A. C. Becker, Jr., sports editor of the *Galveston News*, submits this fine testimonial on the success of the cardboard decoys described by T. D. Carroll in *TEXAS GAME AND FISH* magazine. Becker said the ones he made were so good that they not only attracted snow geese but also brought them right down to the ground. "Lighted in the decoys and had to shoo them away so we could shoot," said Becker.

A WOMAN'S PREROGATIVE

Modern women are ambitious to do about everything men do. So Mary Frances Bell of the Marine Laboratory staff of the Game and Fish Commission decided if Marine Biologist Howard Lee could have an indigo snake for a pet, so could she. And she got Aquatic Biologist Alvin Flury of Mathis to catch her a nice four footer. But Mary Frances will have to restrict her mascot's operations to her office on the water front because her mother made the Bell household "out of bounds" for the reptile. All the explanations by her daughter about the snake being harmless and being wonderful to catch rodents were to no avail. Now, Mary Frances does just like the men do. That is, she catches her own frogs and whatever it is that the indigo eats. But unlike the men she has to keep her poor little slithering pet in a dark old office.

THAT TIME OF YEAR

The fall ugly period for "tame" deer, particularly bucks, was pointed up in Minnesota recently. A buck came at a stranger with its head down. Ordinarily, the folks playfully wrestled the deer to the ground. This time the newcomer grabbed the rack and hollered for his wife. She got an axe. The steaks and chops were sold at the state dispensary.

SAVING SEED STOCK

Game Warden Supervisor Herbert Ward of Catarina reports that H. H. Coffield, owner of the Diamond H Ranch in Dimmitt County, is among those banning quail hunting on his land until the birds recover from the drought.

BIG CAT ROUTS INTRUDERS

The *Houston Post* carried a Waller, Texas, news story describing a bloody fight after a female timber cat returned to its cave den while a pack of nine hounds was killing her six kittens. The enraged beast killed five of the dogs, maimed two others, and charged both hunters, knocking one down, and drove off the raiders.

Duck Hunting

• Continued from page 15

you will need the larger 4's. Goose shooting requires 4's or 2's.

As to the action, the top three are the pump, semi-automatic, and the bolt action. I prefer the semi-automatic because it shoots faster with less recoil than the other two. The bolt action is popular because of its low price. There are also quite a few doubles used.

The gauge you get is up to you. The .410 and 28 gauge are pretty much outclassed as duck guns.

The duck gun should have a barrel bored modified choke. The modified gives a larger pattern than the full choke.

In all my duck hunting my longest shot was around fifty yards. Most of your shots over decoys will be from thirty to forty yards, the ideal range for the modified choke. The full has too tight a pattern for this range. For goose hunting the gun should be full choke and 12 gauge. Those geese are hard to kill.

Now we come to the last but not least part of our equipment—the choice and layout of your decoys. First, how many? The more the better. Start out with a dozen mallards. Then get another dozen later on of pintails and so on until you have a well-mixed set.

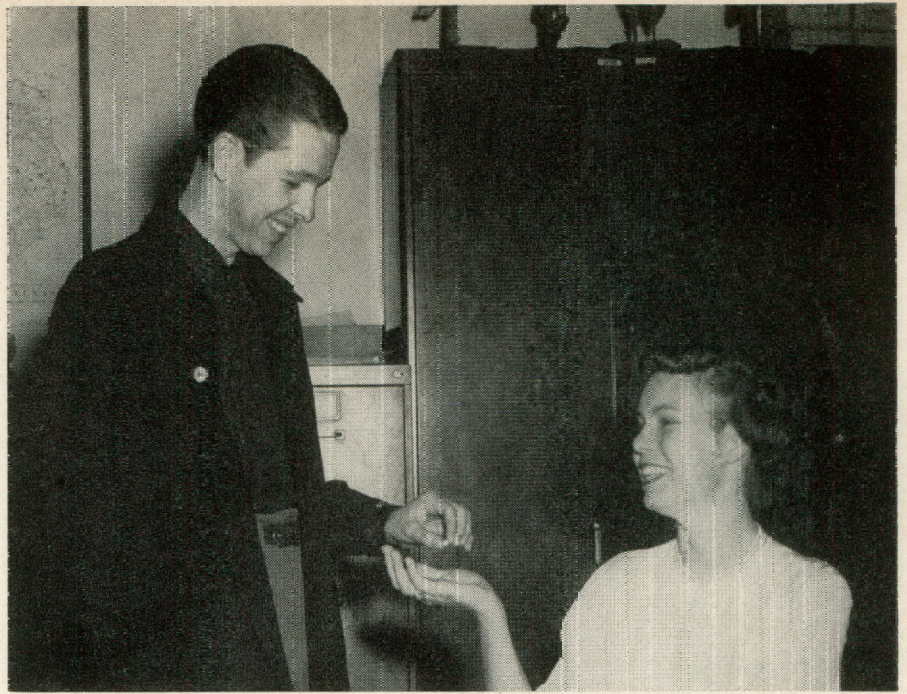
The rubber decoys that inflate when dropped on the water are pretty good. You can carry them in your game bag. Also there is little upkeep. They have one disadvantage, though,

Should've Stayed at Home!

At least three deer hunters' wives, left at home during the shooting season, have given their hubbies reason to think carefully before wandering again into the hinterlands in quest of a buck.

Last year a Marble Falls woman each week end watched her husband head for his faraway lease and return empty handed. Toward the end of the season, she picked up a rifle and walked down into the home pasture. Fifteen minutes later she had a fine buck—the first she had ever killed. Hubby went scoreless for the year.

This November an Austin woman



BAND BUSINESS . . . John Bustin, amusements editor of the Austin American-Statesman who does most of his shooting with a typewriter, is shown here delivering a dove band with a story behind it. The recipient is Lisa Engeling of the Commission's Wildlife Restoration staff. The story is that it was Bustin's first dove hunting trip. One shot, one dove . . . and banded, too.

and that is that when a strong wind comes up they will blow over. The only way I can think of to remedy that is to put them in the lee of a weed bed or a bank where the wind cannot get to them.

The solid decoys, made of fiber, plastic, or wood, are very good. They will act natural in all kinds of weather, good or bad. They have one

disadvantage, too, in that they take up a lot of space. I have both kinds and am well satisfied with them.

The layout or setting of your decoys is very important. Do not just throw them out or set them in a "V" formation. I am speaking of the puddle ducks. For diving ducks this formation is OK. But for puddle ducks I find the "O" or circle formation works best. Other good layouts are the oval and "U" They are both variations of the "O." Always leave an open space in the center for the ducks to land in. Space them from four to eight feet apart. Never bunch your decoys close together. This indicates that the ducks are scared.

Write to me (Box 121, Groom, Texas) and tell me the conditions in which the decoys will be used, and I will try to tell you a special layout.

If you have decoys you should have a duck call. I would advise sending to Herters Inc., Waseca, Minnesota, for their catalog. I think their decoys and calls are the best made.

From this article you should get a general idea of what to have to get the ducks and how to be comfortable while getting them.

GUNS

and

SHOOTING

By JOHN A. MASTERS

Last month we discussed the selection of a rifle for small game, varmints, or deer or a combination. To continue the discussion, we proposed to talk this month how shooting conditions fit into the picture. We pointed out that at short distances in heavy brush, a heavier, slower moving bullet is better, while at long distances, a fast bullet with flat trajectory is the thing.

Three factors, all interrelated, have to do with the selection of a game rifle and its adequacy for the job it is supposed to do. These factors limit a gun's performance and its desirability. The factors are velocity, trajectory, and muzzle energy or striking power.

Velocity is simply the speed at which the bullet travels.

Trajectory is the path the bullet takes when it travels in air. Usually, this path can be thought of as the arc of a circle, although this is not quite true.

Muzzle energy is the energy the bullet is capable of delivering as it leaves the muzzle. Naturally, this energy decreases as the distance from the muzzle increases. The energy that is left as the bullet strikes its objective is the striking power, and is really the important part of the energy developed by the bullet.

All of these things are important and closely related. If one has a given rifle which develops high velocity, it will have good trajectory—that is, its bullet will tend to travel more nearly level, or in a gun bug's language, shoot "flat." A high velocity rifle will likewise have high muzzle energy. It may or may not have good striking power. Let us see why this is true.

Take the case of the 220 Swift. This is the fastest loaded commercial

cartridge. Its 48 grain bullet has a velocity of 4100 feet per second. This results in very flat trajectory. A Swift sighted in to strike 3 inches high at 100 yards will be on at 300 yards. In other words, if you were shooting at a crow 300 yards away, you wouldn't have to hold over. At the muzzle, the Swift develops 1800 pounds of energy. At 100 yards, however, this has decreased to 1300 foot pounds. This is just barely enough energy to be a good deer killer. At 200 yards, the energy has decreased to 900 foot pounds. Thus we see that the Swift falls short of being a deer killer beyond 100 yards. Another reason that the Swift is not a good deer rifle is that a small bullet moving fast tends to explode upon contact. This prevents penetration and a resulting fatal wound. Although at 100 yards the Swift and the 30-30 have about the same amount of remaining energy, the 30-30 will kill better because its heavy slower bullet will penetrate better, causing a fatal wound.

What has been said of the Swift is true of all the high speed .22 center fire rifles. Any fast moving .22 caliber bullet tends to break up on contact with an animal such as a deer. On thin skinned varmints, these bullets perform well. It must be said in all fairness, however, that if one succeeds in getting a fast moving .22 bullet to penetrate, a small explosion will occur inside the animal, and he will be instantly killed. This accounts for the fact that many stories of the killing prowess of the hot .22's can be heard.

What one needs to look for is a rifle with enough velocity to give good trajectory. This makes scoring hits easier because it removes the necessity for estimating range. The rifle should also have enough muzzle energy and striking power to do the job at the maximum range one expects

to shoot.

These things are easy to determine. An evening spent with a set of tables giving velocity, trajectory and energy will enable one to select a rifle that will do the job he intends. Such tables are available free from any of the various loading companies, such as Winchester or Remington.

I personally do not believe that any rifle delivering less than 1500 foot pounds of energy at 100 yards should be used on deer. Most experienced hunters agree.

A number of rifles qualify, giving the prospective buyer a wide choice, and there are calibers that fill the bill that are available at very reasonable prices. I for one will speak out against the use of underpowered rifles. I take no stock in the often repeated cliché that "hunting is a rich man's game," since any man can own a good rifle for less than he spends on cigarettes in a year.

As I have shown earlier, proper selection of a rifle will enable one to make a single rifle do the work of many, and will consequently reduce the cost of providing oneself with the proper weapon for the job. And I feel very strongly that we should incorporate into our game laws clauses that define adequate firearms for particular animals, just as numerous states have already done.

I have only touched the subject of rifles here. I am sure that I will meet with some opposition to some of the ideas I propose, but that will be welcomed. There never is and never will be a *single* correct idea about a subject as complex as the study of firearms. I also hope to stir up a bit of curiosity about guns in the minds of people who have never before been curious.

If I can succeed in these things, my time will have been well spent.

Menhaden

• Continued from page 19

12 feet of water, purse seine operations are restricted to waters of a depth greater than this. In the case of rock or shell bottoms, the lower edge of the purse seine cannot come in contact with the bottom, or the seine will be badly torn. However, mud or sand bottom does not harm the seine nor seriously interfere with the pursing action. Purse seines with a depth of 85 feet have been set in 9 feet of water and have functioned perfectly, since the bottom was sand. The only difficulty encountered was in bringing the mother boat with a draft of 10 feet close enough to load the fish. Due to the necessarily large sized seines, a large crew is required to carry out the fishing operations. Present-day menhaden boats normally carry a crew of 21 men.

But despite the many disadvantages of the purse seine, it is responsible for the capture of a large percentage of our marine fishes, (menhaden, shad, sardines, and anchovies) and is probably the most effective method of fish capture, for the purpose intended, known to man.

The majority of fishes other than



This is fun! Have them take off again!

menhaden caught in the purse seines are either fishes which feed on the menhaden or fishes which normally travel in company with the menhaden. Spanish mackerel, bluefish, sand sharks, common jacks, and tarpon are often found feeding among a school of menhaden, and occasionally some of these fishes are taken in normal purse seine operations. Such fishes as bumper and thread herring are closely related to the menhaden and usually travel with the school. All other fishes caught, such as

speckled trout, redfish, flounder, sand trout, croaker, and all other miscellaneous fish are taken only because they just happen to be present in the area enclosed by the purse seine.

On the Gulf Coast, the percentage of food and game fish taken in the normal purse seine operations for menhaden is extremely small. From June 6, 1949 to September 9, 1949, the writer accompanied the *E. Alfred Davies, Jr.*, of Quinn Menhaden Fisheries, Inc., of Port Arthur, Texas, on each day of fishing in the Gulf off West Louisiana. During this period, 5,326,000 menhaden were taken by the *Davies*. The food and game fishes taken were 205 Spanish mackerel, 1 king mackerel, 304 bluefish, 3 speckled trout, 242 sand trout, 8 whiting, 103 croakers, 9 pompanos, 5 flounder, 36 gafftop no sail catfish, 13 tarpon, and 91 common jacks. Also taken were 191 shrimp and 75 crabs.

The percentage of all food and game fish including shrimp and crabs came to .024%, or one in 4,490 menhaden.

At the present time, very little is known of the life cycle and migrations of the menhaden in the Gulf of Mexico although menhaden fishermen have long known that good fishing depends on the tides, currents, winds, and the phases of the moon. Knowl-

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edge of the migration of menhaden would not only aid the menhaden industry, but would also prove valuable to any future industry for bluefish, Spanish mackerel, or sharks on the Texas Coast since it is natural for these fish to follow their food supply.

To obtain this information, a tagging program could be established for menhaden similar to that program in use for sardines on the Pacific Coast. Satisfactory returns were reported on the Pacific Coast, and since sardines and menhaden both exhibit schooling properties and are both caught by purse seine, the method could perhaps be adapted to menhaden research.

The fish are caught, a numbered metal tag is inserted into the body cavity, and the fish is released. When the tagged fish are caught by the commercial fishermen, they are separated from the other fish at the factory by a magnet which pulls the tagged fish from the conveyor belt. Knowing the date and place the fish are tagged and the date and place they are again caught, the path of migration may be charted, providing returns are sufficient. This method is costly and time-consuming, but at present is the only satisfactory method of accurately charting the movements of open sea fishes of commercial value.

This method could not be used on the Texas Coast at the present time, since the menhaden industry is not sufficiently developed to bring about satisfactory returns of tagged fish.

It is interesting to note that some of the food and game fish taken in purse seines are more prevalent during one month than in another. The *Davies*, in 1949 for example, took 91 common jacks during the month of June and the first week in July, but in the succeeding 8 weeks, not a single jack was taken. The size of the menhaden in the schools vary from time to time, which leads the writer to believe a menhaden migration does not exist. Another interesting observation is that the bluefish seems to prefer to travel with schools of larger menhaden, while the Spanish mackerel is more likely to be found among the schools of smaller size menhaden. The reasons for these happenings may become known with an increase in the knowledge of the life history of the menhaden.

Common Infectious Diseases

• Continued from page 11

have been bitten or exposed to a suspected rabid animal. It is fortunate that we have such an effective human preventive treatment, but it is a disgrace that so many of our citizens are exposed to this terrible disease year after year. Rabies is a disease that can be controlled and eventually eradicated.

Vaccines used to immunize dogs are potent and will protect most dogs for at least one year if such vaccines have been properly stored and administered. It is advisable to have young dogs vaccinated at four months of age and to repeat the vaccination in six months because young dogs do not respond as well to immunizing agents as older dogs.

When you have your dog immunized against rabies, you are protecting yourself, your family, your neighbor, and the health of your dog.

Vaccination is an important phase of adequate rabies control, but the stray dog must also be eliminated. The stray dog is largely responsible for the spread of rabies and in addition

destroys livestock and an enormous amount of game. If your community has adequate stray dog control, support it; if not, help to get a program started in your county. Remember that dog vaccination and the control of stray dogs means the control of rabies and a healthier community in which to live.—From *Wildlife* in North Carolina.

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Tornado Wrecks Deer Traps

A frisky tornado three miles northwest of New Braunfels recently left in its wake not only a trail of leveled trees, but the remains of two large metal deer traps. Pictured upside down, the above trap was found thrown against a clump of trees; the other was so completely

demolished, there were no pieces left to photograph!

The storm literally "picked up" the boxes from the scene of deer-trapping operations and slung them against the trees, with resulting torn limbs and flying bark. Deer caught by the Game and Fish Commission in this overpopulated area are being used to restock areas which, in the past, have been unsuitable for deer because of the manner in which the land was being used for agricultural purposes, but which since have become suitable again.

—(Staff photo by Clyde Graham.)

The Ring-Tailed Cat

• Continued from page 13

rats, and cottontails. As to insects, any and every species present in ring-tail range seem to be on its menu at all seasons of the year.

E. A. Walker, a biologist with the Game and Fish Commission, reports the following observation on ringtail feeding activities.

"It appears that there are those among our wild neighbors who have become accustomed to man and his ways, and have even taken advantage of some of man's work in their search for food. This seems to have been the case of three ringtails observed one August night, in San Saba County.

"The ringtails were discovered when their eyes were seen from an automobile. The car was allowed to roll to within twenty feet of where the eyes had been observed. Boulders, which had been removed from the road at the time of construction, were piled along barbed wire fences on each side of the road.

"When the spotlight was played on these rocks, nothing was seen for almost a minute. Then the ringtail's head appeared. The animal hesitated for a fraction of a minute and then bravely walked out into the full glare of the light. Directly behind this animal came two more. They were able to look directly at the bright light without any signs of the light blinding them.

"After all three had emerged into the light, the leader climbed a fence post, caught a grasshopper from near the top and devoured it on the spot. The other two ringtails went up the same post and one of them caught another 'hopper. With apparent unconcern, one animal walked the top wire of the fence to the next post, using his tail as a balancing organ. He did not make a single misstep. The other two walked the wires below the top and also went on with the very important business of catching a good meal of grasshoppers off the fence posts.

"The spot light was full upon these animals all the time, and not once in the ten minutes which they were observed did any of them show the least sign of blindness or fear, and all the while our automobile was within twenty feet of them."

While the ringtails will tolerate life in captivity, they are somewhat hazardous "house guests." They can climb any surface affording a light toe-hold and seem to find window drapes quite attractive for such purposes. Further, their nervous temperament causes them to be wary of strangers; even different members of one family may be "strangers" to them.

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BOOKS



THE ROD AND GUN CLUB OF THE AIR SCRAPBOOK by Ray Nelson. 64 pages illustrated with line drawings. Published 1953 by Greenburg; Publisher, 201 East 57th Street, New York 22, N. Y. \$1.

This fascinating book was compiled by Ray Nelson, producer of the national network program, from the thousands of letters sent in by readers.

The book is made up of shorts. Some are tips; for instance a use is found for the "hotfoot" when rawhide laces are slightly burned at the ends to make them lace more easily. Some are oddities; for instance the fact that the blood hound is the only animal whose testimony is acceptable in court. And the entire book is shot through with humor.

There are facts, tips on hunting and fishing, tall tales, true antidotes, and hundreds of highly interesting subjects. It's a natural for browsing—anytime.

IOWA FISH AND FISHING by James R. Harlan and Everett B. Speaker with contributions by others. 237 plus VI pages, illustrated with 24 full-color paintings by Maynard Reece and many black and white drawings. Second printing published 1953 by Iowa Conservation Commission, East 7th and Court Ave., Des Moines 9, Iowa. \$2.

This is one of the finest books for the average fisherman to come off the presses in many a year and one worth many times the low price of \$2. Although written for Iowa, it should rank among the top three volumes on the shelves of any Texas angler.

In the first place, the full-color illustrations of fish, most of which also are present in Texas, have been acclaimed as among the finest ever published. They would be excellent for framing.

Some of the text is devoted to places to fish in Iowa, but the balance would be of value to any fisherman. There is a discussion and description of most of the fish in Texas waters, together with suggestions by fishing experts on how best to catch them.

A superb bargain in every way.

FISHERY SCIENCE: ITS METHODS AND APPLICATIONS by George A. Rounsefell and W. Harry Everhart. 444 plus XII pages well illustrated with numerous photographs, charts, black and white drawings, and two color plates. Published 1953 by John Wiley and Sons, Inc., 440 Fourth Ave., New York 16, N. Y. \$7.50.

This book is designed for the serious

student of fishery management for use as a text or reference book and is one of the best in print today.

The authors, both veterans in the young science of fisheries management, have gathered together material from many sources and combined it with their own vast experience to form as near complete a picture of the field as possible.

There is a valuable emphasis on research methods and a good coverage of nets, traps, and other equipment. This practical book also includes references at chapter ends, a glossary, and lists of fishery journals.

HALLOWED YEARS by Nash Buckingham. 209 pages. Published 1953 by The Stackpole Co., Telegraph Press Building, Harrisburg, Pa. \$3.50.

To those acquainted with Nash Buckingham's outdoor writing, his name alone is assurance that this book is one of hunting stories told at their very best. To those (if any) who have never read this veteran writer, the book offers a chance to meet him in a congenial setting.

This is a collection of hunting stories. Some are selected from tales published in various magazines, some are new, all are complete in one chapter, making the book ideal for picking up for moments of leisure on winter evenings. Buckingham tells the kind of hunting yarns you, yourself, would like most to experience, and

he is the kind of hunting companion you would choose first to share your adventures. The book provides that chance.

The author is chairman of the National Waterfowl Committee and a judge of the National Field trials. More important to Texans, most of his stories are about Southern game and hunting told in a language a Texan can understand.

FISH AND BE DAMNED by Lawrence Lariar. 128 pages illustrated with over 200 drawings by the author. Published 1953 by Prentice-Hall, Inc., 70 Fifth Ave., New York 11, N. Y. \$2.95.

"After years of exhaustive research and painstaking labor, Lawrence Lariar has produced what is probably the most useless book in the vast library of fishing literature. This amazing guide to civilization's most ancient sport contains no facts, no information, and makes absolutely no sense." That's the way the publisher describes this delightful volume of cartoons and fishing humor.

The author of "Bed and Bored" and a long list of novels and cartooned books turns the talent of his pen and typewriter to fishing here, and if anyone ever managed to poke more fun at fishermen and their sport, we haven't seen it.

If chapter headings like "How to be Happy Though Fishing in Salt Water" or "How to Go Fishing Though Married" intrigue you, you'll understand why this book, with quality in its binding as well as content, already is in the second printing.

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The author, Mr. Frank T. Knapp, was formerly Assistant Professor of Fisheries at Texas A & M College, and a recognized authority in his field.

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to Texas Game and Fish

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Compiled by Townsend Miller, Editor

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 and Sidney A. Wooldridge

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 February: Mountain Lion (Wooldridge).
 March: Red-Tailed Hawk (Wooldridge).
 April: Cardinal (Rice).
 May: Largemouth Black Bass (Rice).
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 September: Broad-Banded Copperhead (Rice).
 October: Wood Duck (Wooldridge).
 November: Redhead Duck (Rice).

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 By Sidney A. Wooldridge

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 January: The Prairie Chicken.
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 August: Wood Rat.
 September: The Eagles.
 October: Texas Rabbits.
 November: Scissor-Tailed Flycatcher.

ARE YOU CHANGING YOUR ADDRESS?

Then please fill out the following form and send to TEXAS GAME AND FISH, Waltcn Bldg., Austin, Texas, so that you will continue to receive your copies of the magazine. The magazine is sent second class mail and can not be forwarded by the post office nor remailed from this office. Allow six weeks for processing.

Name.....

 Old Address.....

 City....., State.....
 New Address.....

 City....., State.....

10 Commandments of Hunting

1. Thou shalt not employ others to kill thy game for thee, or count game killed by others.

2. Thou shalt speak to the farm owner of land in a gentle grace and kindly entreat him to let thee hunt on his premises, lest he boot thy north end from his domain.

3. Point not thy gun toward any living thing that thou dost not wish to kill. Lo, there are fools and idiots wandering to and fro on the earth, but he who fails to observe this rule is verily the King Imbecile.

4. Shoot not thy gun toward any cattle, swine, or farm livestock within one-fourth mile of thee. If thou shalt disobey this, the farmer will jab thy pants with his pitchfork till thou roarest for help and thereafter must eat thy meals standing.

5. Unload thy gun before thou enterest an automobile. Then may thy days be long and thy funeral postponed.

6. Take not thy gun by the muzzle to draw it toward thee. Verily, some foolish human may love thee, and why shouldst thou die?

7. Look not into the muzzle of thy gun whether it be loaded or empty. Verily, an empty gun shooteth out an inquiring eye, and the undertaker groweth rich thereby.

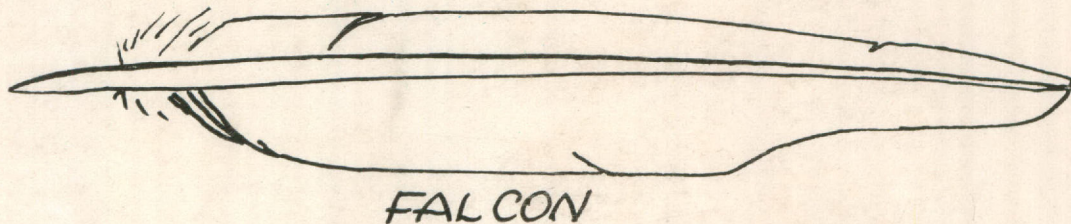
8. Thou shalt not carry thy gun cocked. Verily thou art a mighty hunter, but the hides of thy friends will not turn shot.

9. Climb not fences with thy gun in thy hands. Put thy gun through first with the muzzle pointing away from thee and all living things. Better to miss a chance at one crow than to return to thy house with guilt in thy heart and thy friend's hind leg in a basket.

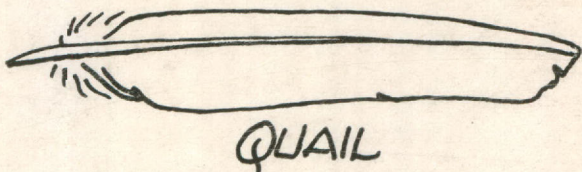
10. All these rules thou shalt obey and live past three score and ten. If thou failest, thou shalt sleep in thy nice new coffin or in the prison cell while the mourners go about the street.

Many "10 Commandments" for hunting have been written. The original source of this one is unknown, but this particular copy appeared in the Livingston (Tenn.) WEEKLY ENTERPRISE. It was given to Pilot-Warden Frank Hamer, Jr., Alpine, by Judge Raymond Garnett, Alpine.—ED.

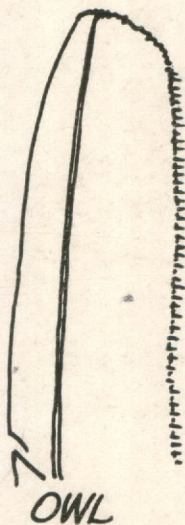
FEATHERS FOR SURVIVAL



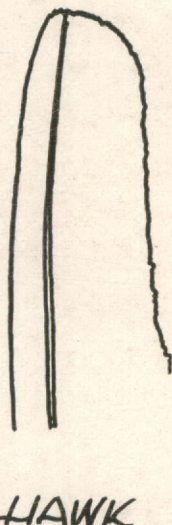
FALCON



QUAIL



OWL



HAWK

BIRDS HAVE DIFFERENT FEATHER TYPES TO BETTER EQUIP THEM FOR SURVIVAL. QUAIL NEED TO ATTAIN ALMOST AN INSTANT MAXIMUM SPEED TO ALLOW THEM TO REACH THEIR PROTECTIVE COVER FIRST. BIRDS OF PREY DO NOT NEED TAKE-OFF SPEED BUT SPEED IN FLIGHT TO OVERTAKE THEIR PREY OWLS HUNT AT NIGHT AND DEPEND UPON SILENT FLIGHT TO EAT, WHICH IS ATTAINED BY FRINGED FEATHERS. THE WHISTLE OF A FALCON'S WING INDUCES FRIGHT.

WOOLDRIDGE

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