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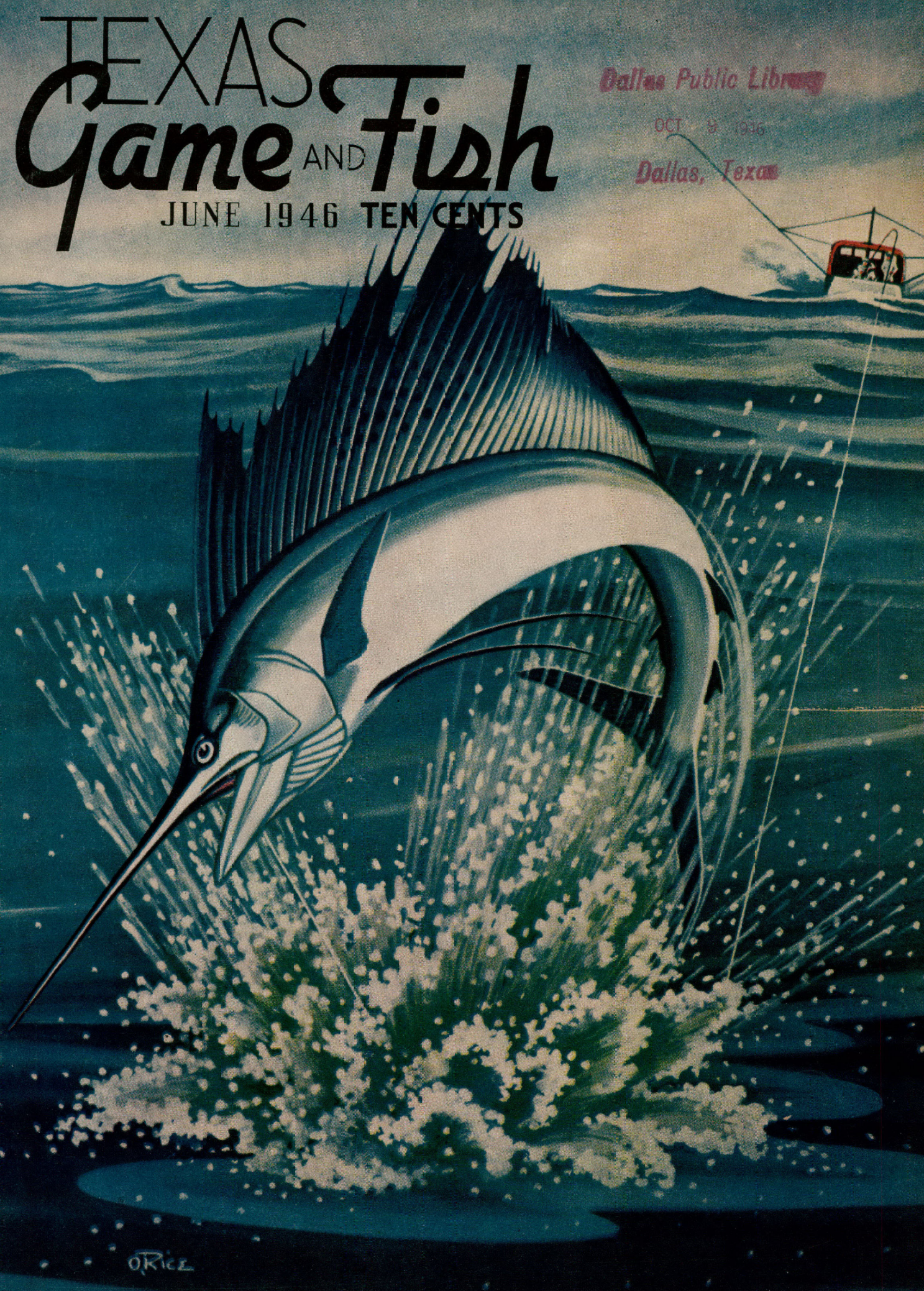

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Walton Building

Austin, Texas

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.

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COVER — By ORVILLE O. RICE

☆ In This Issue ☆

June 1946 · Vol. 4, No. 7

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ROGER M. BUSFIELD
Editor

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Stalking the Destroyer

By J. G. BURR

SINCE the days of David when, as a shepherd lad he slew the lion and the bear which came out after a lamb, man has fought back the hungry destroyer of his herds and flocks. Our facilities for doing this are much better than in the days when David was armed only with the crudest of weapons. It is conceivable that with a repeating rifle he would have cleaned out every lion in that oriental habitat, even at the risk of upsetting the "balance of nature" of that day.

We have heard of bearding the lion in his den but David, in describing how he killed the lion, told King Saul that "I caught him by his beard and smote him and slew him." His statement was to convince Saul that he could slay the giant Goliath who had 'defied the armies of the living God."

A ringside seat at those fights was something to be coveted by any sport fan whether at the slaying of the boastful Philistine or the roaring lion. The absence of a publicity man with the usual bombast attending such events must account for the paucity of details in that most thrilling of lion and giant stories. However, this much is clear. When David *first* smote the lion he liberated the lamb from the lion's mouth. Naturally, the lion was angered and "he arose against me." Then came the second and fateful round when the lion took the count.

Perhaps Bob Snow, who is the official lion hunter for the Game, Fish and Oyster Commission, might throw some light on the theory that the beard of a lion has something to do with his self-control, and that a violent yank at his whiskers might produce the panic or a nerve shock. The question may be too controversial and it might be as well to leave the matter unsettled pending the arrival of a man who is willing to make the test. Such bravery is rare but there is no lack of venturesome people who are ready and anxious to twist the tail of the *British* lion, or of any lion that is safely behind bars.

Guns, traps and the electric shock are the major weapons used in the never ending battle against animals and fish that prey on game species

In Texas the lion is no longer a major threat to sheep and goats because hunters have pushed him back to the remote frontiers. The tiger or jaguar quit Texas more than half a century ago, the last one officially known to have been killed having been brought to bay by hounds near Goldthwaite. His demise was reported in the yearbook of the Game, Fish and Oyster Commission of 1929. These killers have no place in a civilized community and can easily be spared (leaving a few in captivity) just as we are doing without the dinosaur and the dinotherium.

Predators should be controlled, not

Game fish in Medina Lake got a break when these gars were netted by Game Department biologists.

exterminated, is the argument of many naturalists. Just where to draw the line will always be debatable. Most stock men urge the extermination of the lion, the wolf, the coyote and the golden eagle all of which prey on the flocks of sheep and goats. These predators in one form or another occur over most of the earth and will probably continue to survive till the end of time. There is some Scriptural warrant for that belief in view of the long-reach prediction of Isaiah that there will be an era of peace on earth "when the wolf shall dwell with the lamb and the leopard shall lie down with the kid." The lion was to become an amiable fellow and learn to eat straw like an ox. But the beautiful alliteration that the lion and the lamb shall lie down together, as is often quoted, is not to be found in the words of the prophet.

In the preservation of the "balance of nature" the rancher can not be counted on, for his flocks come first. Neither will the sportsman subscribe to that tenet for there is not enough game right now to go around. And yet the writer heard a naturalist say, in defense of the coyote, that the coyote should have some deer meat. Most generous indeed must be the Nimrod who is willing to share his venison with that prairie prowler. Having lived in the brush country and heard his tuneful wailing I concede the picturesqueness of the animal but I can not forget that he is only a wild dog of low degree that once overran western North America.

It would seem that as man takes his share of the game crop there should be no generosity so great as to concede any portion of it to the destroyer of useful game. The same goes for predatory fishes. If the garpike and allied species serve any useful purpose, picturesque or otherwise, it has not been announced. Ranch interests are taking care of the dry land predators but the lake and river predator is virtually uncontrolled.

There are apologists who believe that the gar does but little harm to useful fishes. Stomach contents are cited as proof of this. On the contrary, Jordan, in his book on FISHES says the long-nosed garpike, *Lepisosteus osseus,* "feeds on crayfishes and small fishes to which it is exceedingly destructive, as its bad reputation indicates. Fishermen everywhere destroy it without mercy. Its flesh is rank and tough and unfit even for dogs." Continuing, he says "The great alligator gar, *Lepisosteus tristoechus,* is very destructive to all sorts of food-fishes. Its flesh is worthless and its enameled scales resist a spear or sometimes even a shot. It breathes air to a certain extent by its lungs but soon dies in foul water."

This may be true of the alligator gar but the long-nosed garpike is among the last fishes to be found in a pond that is drying up. In a polluted lake where all edible fishes have died for lack of dissolved oxygen, the garpike survives, taking oxygen from the air.

Some years ago a large lake on Gal-

★ *Continued on page 26*

The coyote is one of the most cunning predators and perhaps the most numerous.

Let's Get Back to the Horse and Buggy Days

By FRED FISHER

Perhaps you have run into the sniper, or the hang-over from the flag pole sitter, or the old rocking chair hunter who have made hunting more dangerous.

NO DOUBT you have noticed a change in big game hunting methods during the past decade. The advent of good roads, spider-webbed in the heart of the big woods, the improved modes of travel, greater comforts added to the old deer camps, have made this change possible. It has created many different types of big game hunters, and has also made big game hunting more dangerous. Let us analyze these new hunting methods and see why they are dangerous.

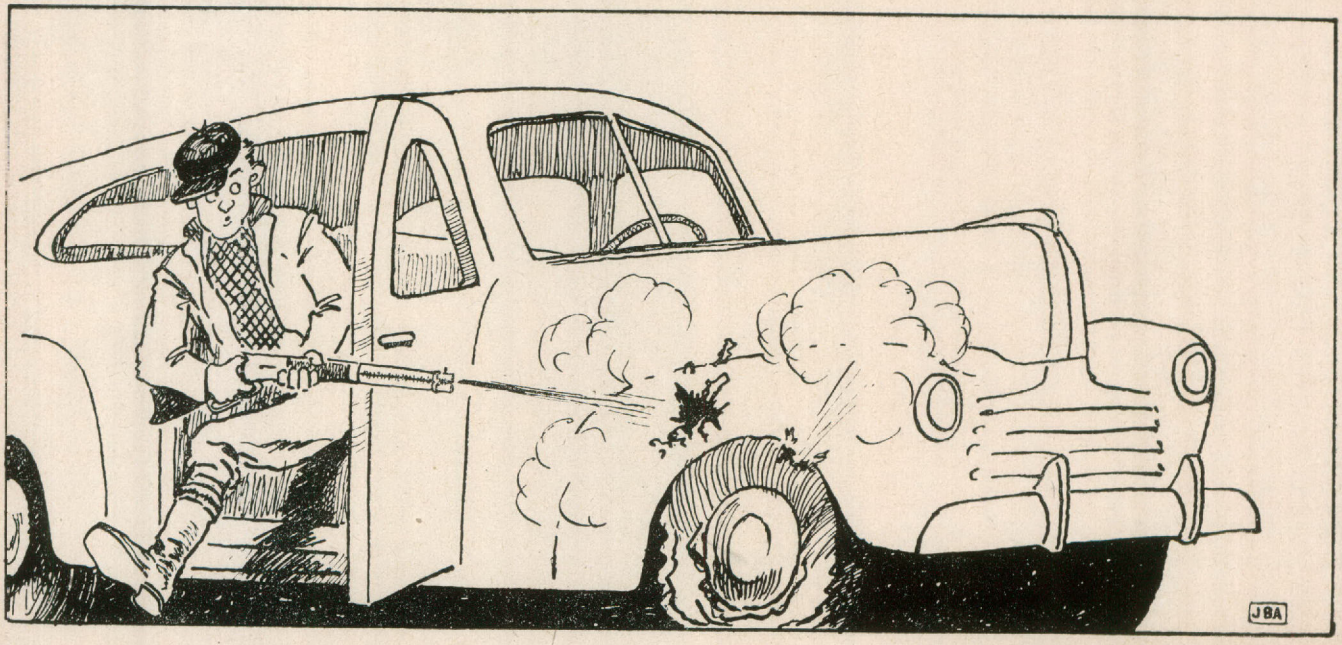
First we have old reliable, the sniper. This fellow lay dormant for the past few years, but since organized drives have come back in full swing, he has again put in his appearance. This is the gent who, upon reaching the deer woods, will listen very intently, hoping to hear the whistles and yelps of an organized deer hunt. After locating the party, he follows along, knowing that sooner or later they are going to rout a deer, and he will probably get some shooting. Why is this type of hunting dangerous? The routed deer could very easily swing in your direction, and you will become a target for a volley of bullets, anywhere from the size of a 250/3000th to a 12 gauge pumpkin ball. Just another way of ringing down the curtain on the last act.

Number two. This gent is probably a hangover from the flag pole sitter. His favorite lookout is generally the top of some high tree. Yes, it's legal, *but dangerous*. In the first place he generally forgets to unload his gun either going up or coming down from his lofty perch. He also must not forget that a stray bullet has clear sailing—no brush, trees or high knolls to veer it from its course. Better stay on the ground, pal. You will feel a lot more comfortable and safe.

Number three is the good old rocking chair hunter. No frost biting his fingers, no brush slapping him in the face, no snow sifting down his back, no heavy rifle or hills to tire him out, no fresh air to dilute his lungs, no new blood coursing through his veins, no appetite gonna worry him. Why? Because this gent is sitting back of a steering wheel, heater turned on, trusty rifle by his side. He tours every road in the deer country, hoping to see one standing. Where? It makes no difference. One fellow bragged when he told me that he drove over 1200 miles one deer season. Legal? Yes. Dangerous? *Yes.* Judge for yourself after reading the following:

One hunter, in his excitement, forgot to draw the brakes after jumping out of the car. Result—one badly demolished car at the bottom of a ravine.

★ *Continued on page 33*



East Texas Fishing Can Be Good

By T. N. WINN

EAST TEXAS has more water, more fishermen and less fish frying in the pan than nearly any other area of its size in the world. There are scores of ways to mismanage fishing waters and, with little exception, those wrong techniques are more complicated and more difficult than the few essential practices which produce good fishing.

In the Neches-Sabine Soil Conservation District, if all the available waters were properly managed and the fish harvested when they become a desirable size, they would furnish an estimated 40 pounds of fresh fish annually for every person living within the district.

There are five simple but very essential things that must be done to have the best fishing in farm ponds. These are within the reach of every pond owner within the Neches-Sabine District and can make the difference in producing 75 to 100 pounds of edible fish per acre per year and 400 to 500 pounds of edible fish per acre per year. Consider these five points one at a time.

1. It is essential to begin with approximately 100 bass and 1,000 bluegills per acre. A few adults won't do, and no other kinds of fish can be managed very successfully according to present experience. The fish should be secured from the Fish Hatchery and not from a creek or another pond. Why stock a good pond with an inferior species of fish from the creek when Fish Hatchery has the most improved and best adapted species available for free distribution? Recently I took a bluegill which under adverse conditions still attained a size nearly five times as great as a native sunperch of the same age taken from the same water at the same time.

2. It is essential to fertilize pond water. The water of any pond is no more productive than the watershed from which it is fed. East Texas land needs fertilizers for profitable crop production and so does East Texas waters. Fertilize each month beginning in April and extending thru October. Apply 100 pounds of 6-8-4 or 8-8-4 per surface acre of water each month. Scatter fertilizer over surface of all water less than five feet deep. The total application will run about 700 pounds of fertilizer per surface acre per year but remember it must be put out each month.

3. It is essential to protect a pond from becoming muddy and also to protect it from excessive water. Silt prevents economic fertilization. Since pond management is chiefly water management, a farmer finds fertilization a hopeless task if the pond continually refills with fresh water and washes out that which has been fertilized. While we do not want muddy water we certainly do not want pure crystal clear water. When properly fertilized, the water in a pond will have a greenish cast due to miscroscopic plant growth stimulated by the fertilizer. To test submerge the arm into the water and if your hand goes out of sight when your elbow comes in contact with the water your water is at the peak for maximum production.

4. It is essential to maintain a pond free from weeds, grass, trees and other debris or obstruction. Fishing is more pleasant and more of the fish will be in usable size. The last two words are important. Our shortage of fish is not in numbers but a shortage of fish of usable size. A minnow seine will yield a bucket full of small fish in almost any pond yet fishing in the pond is poor.

5. It is essential that the pond be fished, removing usable fish by hook and line fishing without regard for spawning season, size, kind, or numbers. The numbers of pounds removed will govern the number of pounds produced as the food, formerly consumed by those caught, becomes available to those remaining. The fish themselves will limit the angler's catch, leaving a big margin of safety in breeding stock.

The scores of ways to mismanage fishing water are much more complicated than the few good ones

Any recommendation, even a fish story, should have some factual backing. Results in the Neches-Sabine District, the Cherokee County District and the Hopkins-Rains-Wood Soil Conservation District the past year is proof that it can be done here. In an eight acre pond properly stocked in the fall of 1944 with fish from the Fish Hatchery and fertilized regularly during 1945, several bass weighing 2½ pounds each were taken by November on the farm of Mr. S. Barron in the Henry's Chapel Conservation Group in the Cherokee County District. Howard Hicks, a cooperator with the Hopkins-Rains-Wood Soil Conservation District, reports bass weighing over 2 pounds caught from his four acre pond one year after receiving fish from the fish hatchery. Mr. Hicks fertilized regularly all summer. C. J. Thacker, Jr., and B. R. Nicholson of the Hepsibah Conservation Group of the Hopkins-Rains-Wood Soil Conservation District both report taking several bass weighing 1½ pounds each from their ponds of about one acre each before the ponds had been stocked one full year. E. T. Arvin, President of the Arp Club Lake, says that even though the proper rate of stocking was impossible to follow since the old lake could not be completely drained, the size and quality of fish taken in their ninety acre lake has materially improved since they began a systematic fertilization program in 1944.

Let's make our fish ponds produce profitable. Let's fill our frying pans regularly with pan size fish instead of filling the air with tales of the golly-whopper that got away.

It's simple, so simple that many readers of this article will lay it aside in unbelief and go crystal gazing for some mystic powers unknown to man or beast which have never existed and never will. Let's stop fish dreaming and do some fish feeding.

A BREAK FOR TEXOMA FISHERMEN

The limit upon white bass caught by fishermen on the Texas side of Lake Texoma, near Denison, has been increased from ten to twenty-five a day by the Game, Fish and Oyster Commission.

There is no limit upon the number of white bass which may be caught upon the Oklahoma side of the lake, and Texas fishermen petitioned the game commission to remove the limit on the Texas side. The commission decided that 25 white bass per day was enough for any fisherman not in the fish business.

Lake Texoma Licenses

Since January 1, 1946, a total of 4,954 Lake Texoma resident fishing licenses have been sold to Texas fishermen. These licenses are good only on Lake Texoma. At the present time more than 13,000 valid Lake Texoma licenses are in use.

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Overstocking is now recognized by fish specialists as the most common cause of poor fishing. Almost all old lakes have large numbers of small fish and not enough fish food to grow any of them out.

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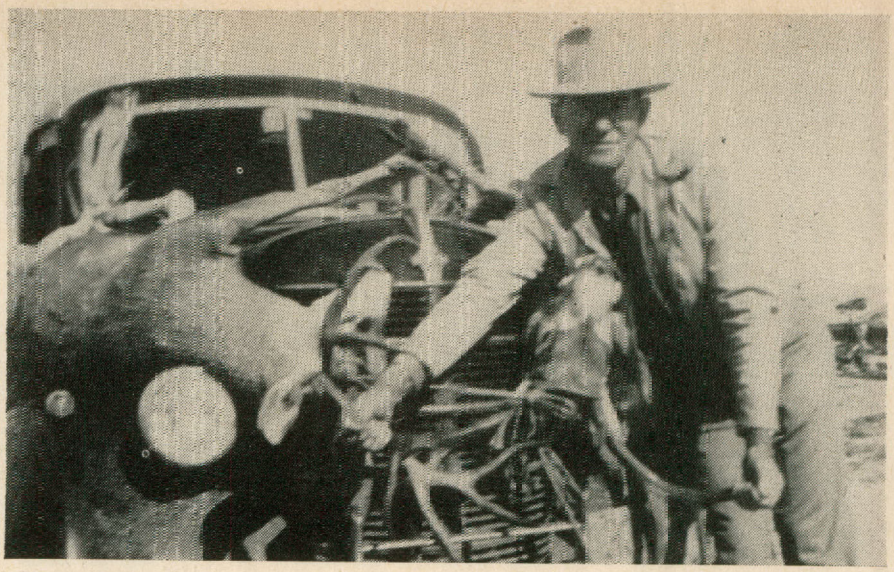
The author and the two of the mule deer which he and his hunting companions brought down in West Texas



5 Hunters 5 Mule Deer

By CEDRIC F. WOOD

FOUR deer one day and one the next day while bringing the fourth deer into camp, but it wasn't quite that easy.

We had been invited to hunt in West Texas by our friend, Vernon Sutphen, more generally called "Sut," who is the banker in that West Texas cattle town where hospitality is as big as the ranches and out there the ranches are not referred to by acres or miles but as "out in my country." I was waiting in the barber shop to get a week's growth scraped off my chin when I overheard a conversation like this:

First Rancher: Well Hank, I leased that little tract of land yesterday that I have been using for a horse trap.

Second Rancher: That so? How much rent, Henry?

First Rancher: 10c an acre, not bad, I got a check for $2600 for the first year.

We were given a whole mountain range in which to hunt, a good adobe house to camp in, complete with a cook and a cowboy. The cowboy was to carry the kill which we anticipated, out of the mountains. We were all familiar with hunting white tail deer in the mesquite of South Texas, where a 100-yard shot is an exception. This West Texas country was quite different and we were a little skeptical at first sight. From the distance, those mountains looked as bare as an egg and apparently there was nothing large enough for a jack rabbit to hide under, not a tree or brush or even a cactus large enough to make shade for a coyote. It looked just like a big barren pile of mountains to us.

The cook, Poncho, rooted us out early on the morning the season opened. The wash pan had ice on it and coffee never smelled better as I took my turn at the wash pan or tasted better when we sat down to breakfast of scrambled eggs and hot cakes. It was still dark as we moved out in the station wagon through the grease wood flats. There was a general round of gripes about getting out so early when we might still be rolled up snug in our bedrolls. Then there was Dr. Blackwell's cheery voice who 'lowed as how he would like to be in the mountains as the day was breaking, which promptly brought a chorus of jibes that he could enjoy in a h—— of a long time this morning. Doc told them if they didn't quit beefing, he would lower a winder on them. That had the desired effect.

When we arrived in the mountains that morning, we found them much different than they looked from a distance. They were full of canyons and huge boulders. The mesas on top were covered with grama grass, rich forage for the deer. We saw and shot at plenty of deer that first day but had no meat in camp that night. Gaynor (Wick) Wickline, who was on his first trip with us, wounded one but lost him after trailing him a considerable distance. Doc crippled one across a canyon and it took thirty minutes to get to the place where he went down. When he got to the deer, it jumped up and started to run. Doc fired his last three shells at him. The deer was running so wobbly that Doc threw down his gun and started after him afoot with his pocket knife. Well, Doc isn't as young as he once was so after the first fifty yards Doc knew he was losing the foot race. Captain Capen, home from a three year stretch in Uncle Sam's Army, spied Doc walking in circles and wondered if he had bumped his head on a rock and gone "loco" but upon investigation found he was only looking for the gun he had discarded when taking off on the foot race.

Shelley Collier, the genial banker from Mercedes, reported seeing several bucks and getting some long shots.

After a second day of this I asked Strip, the puncher from the Oklahoma strip, what was in the mountains south of where we were hunting. He said it was very rough country with deep canyons so the next day I did nothing but walk over this new country. I saw six big bucks that day but all too far off for a shot. One bunch was headed in my direction coming from a far mountain and at first to the naked eye, they looked like mice but my glasses showed up eight or ten does followed by a large buck. I was in a fairly good position for them to come out in front of me but

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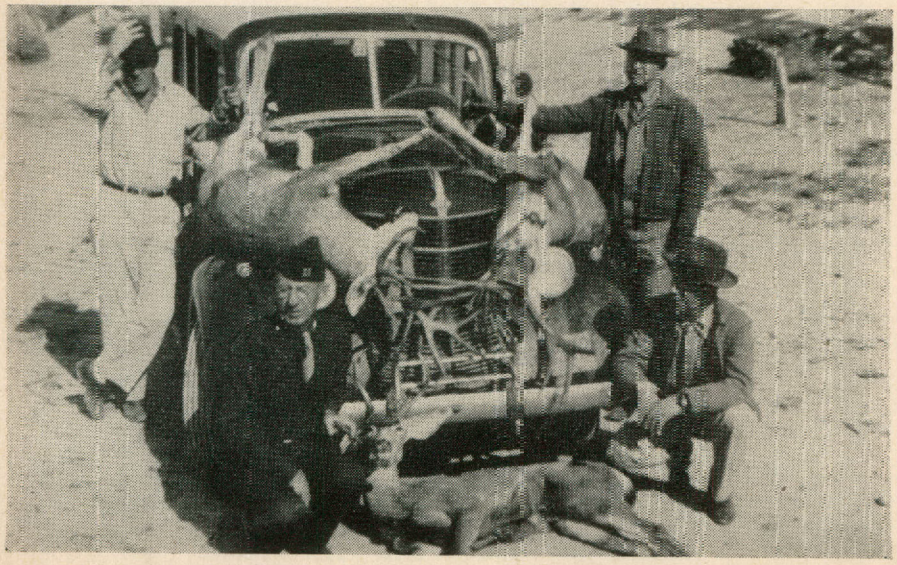

FOUR OF THE HUNTERS and their mule deer. Left to right they are: Gaynor Wickline, Capt. Capen, Shelley Collier, Mercedes banker, and Dr. Blackwell.

Thar She Blows!

First whales were small animals about the size of a fox or dog

By J. L. BAUGHMAN

THE stranding of a small whale, or black fish, on Padre Island this past summer brings to mind the fact that these giant beasts are not common in our part of the Gulf of Mexico. From a series of logs of old whaling ships, Dr. Townsend, former director of the New York aquarium, compiled maps showing the distribution of these animals, and in none of them do they show as occurring much further west in the gulf than about the latitude of New Orleans.

Whales have always attracted much attention.

Everyone remembers Jonah, and the stories of the earlier seafarers are replete with ancedotes of these cetaceans.

John Evelyn, in his famous diary, comments as follows:

"A large whale was taken betwixt my land butting on the Thames and Greenwich, which drew an infinite concourse to see it, by water, horse, coach and on foot, from London and all parts."

Earlier still from the "Chronicle of Fabyan" in 1772, we learn that in the Thames "were taken at Eryth, within XII miles of London iiii wonderful fysshes whereof one was called Mors Marine (orca), the second a Sworde fysshe and the other ii were whales, which after some eposytors were pronostycations of warre and trouble," while Pliny, that ancient Roman, says that, "in the Indian sea the fish called balaena, or whirlpool, is so long and broad as to take up more length and breadth than two acres of ground."

No matter how far back these records may go, they are only a moment in the history of whales and it is to the rocks we must turn to find in imperishable form the story of what the first ones looked like.

Briefly, they were not whales. They were small animals about the size of a fox or a dog, and belonged to the marsupial family—one that is represented in America by the opossum and in Australia by the kangaroo, and all of which have the body pouch in which the immature young are placed until they are able to care for themselves.

These small animals were called hyaenodonts, a group of meat eaters which flourished in Eocene times, a few million years or so ago. Evidentally they were semi-aquatic in their habits and as time went on they became more and more adapted to this way of life. Their tails grew long, thick, and heavy, and developed transverse flukes or paddles. Their hind legs became smaller and smaller and at last disappeared altogether, leaving a small rod-like bone, deeply imbedded in the flesh, to remind us that they once were there. The fore limbs altered also, and the part that corresponds to our hand and forearm broadened into a paddle-like flipper, while the upper arm formed a handle, attaching this flipper to the shoulder blade by a ball and socket joint. The neck bones stiffened, the nostrils moved to the top of the head, and so, bit by bit, a million years at a time, the modern whale was born, a mammal (that is a warm-blooded, milk-giving animal) so huge that it far outclasses any that ever lived in this world.

The nostrils, when they moved to the top of the head, developed a drawstring of muscles by which they could be closed while diving, and the windpipe gradually lengthened until it formed a connection with the inner nose, thus keeping out all water from the mouth and making the whale almost the only animal which must breath through its nose alone.

This lengthened windpipe formed an obstruction in the middle of the throat, forcing the whale to swallow only very small or finely divided food, and in only one species, the sperm, is the gullet large enough to admit the swallowing of a big object. As the windpipe grew and the whale began to exist more and more on small animals which it was not necessary to chew, the teeth of the various species became fewer and fewer and in many instances disappeared altogether, being replaced by a new and wonderful mechanism.

The folds of the membrane covering the roof of the mouth became longer, tougher and horn-like in structure. The outside, next to the lips, was smooth and solid, but the inside next the tongue, was finely divided and hairlike, and this whalebone, or baleen, ultimately developed so far that in some species of whales it reached a length of over 10 feet. It formed an extremely efficient strainer by which food could be obtained, for these species feed by swimming open mouthed into shoals of small fish (capelin) or masses of small crustaceans known as "brit" or "whale feed" to American whalers, and as "krill" by the Norwegians. This process is nowhere better described than in that loved favorite of boyhood, "The Story of Moby Dick," by Hermann Melville. Huge quantities of this food are required and several bushels have been taken from the stomach of a whale by whalemen.

The great size of these beasts has led to the belief that they live to an extreme age. This has not been proven, but we do know that the whale grows very quickly. Remington Kellogg, of the Smithsonian Institute, says that blue whale calves are from 23 to 26 feet long at birth and that by the time they are weened, seven months later, they have attained a length of 52 feet. They attain maturity at from four to six years, reaching a length of 80 to 100 feet and a weight of over 120 tons. They probably do not live beyond 20.

Just when, or how, or where the first

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Is There More Game Than Fish?

Sometimes around the hot stoves considerable argument takes place as to the status of game and fish—which is the more plentiful. That's a toughie to answer. One thing about game, you can see it, but it is difficult to peer beneath the surface of the waters and survey the fish situation.

On good hunting days when the dogs are working well, or there is a migration of ducks on, game may appear to be plentiful. When fish are biting, the lakes and streams seem to be well populated. How about the poor shooting and fishing days?

With no birds in the sky, or in the coverts, disgusted Nimrods are quick to declare that there is no game. Not so with the fisherman. He knows he has caught fish in this lake or stream before, so he goes on the assumption that they are just not biting, and that there is plenty of them to be caught another day.

In reality, excluding the fish of the sea, many biologists believe that the supply of fish is far behind that of game. Pollution, drainage, erosion and the like have made serious inroads on finny game. The fact remains, fish can be more readily brought back by restocking, and by lake and stream improvement, than can the various species of game birds and mammals, by restocking and land improvement.

Anyway you look at it there is a whale of a job to be done in both game and fish restoration. Let us hope activity along these lines does not come too late.

POLLUTION—*or fish*

Deficiency of oxygen probably causes the death of more fish and more often interferes with growth and reproductive functions than any other factor

POLLUTION is the introduction into water of any material which results in injury to aquatic life or jeopardizes the health of consumers of water; and the principal sources of pollution in the streams of Texas are sewage, chemical manufacturers, oil wells and refineries. Damages also result from dye plants, milk processing plants, soil erosion, and all other industries and activities that cause waste to find its way into streams in abnormal quantities.

Oxygen deficiency in our streams probably causes the death of more fish and more often interferes with growth and reproductive functions than any other single factor. The building material for growth, and the energy for activity of all animal life depends on the conversion of solid and liquid food by the digestive system into a form proper to react with the gases supplied by the respiratory system.

The rate of respiration is a good measure of the physiological processes of an organism. For proper respiration, man must have clean air, free from irritating dust and toxic gases, of about 20.9 per cent oxygen; and for supreme health, man must take enough exercise to stimulate adequate respiration.

Fish, like man, require oxygen to carry on their life processes. They pump water through their gills. Oxygen diffuses through the gill membrane into the blood stream and is transported throughout the fish where it is needed. According to the findings of Ellis (U. S. Bureau fo Fisheries Bulletin No. 22) water must contain a minimum of about 5 parts per million (.0005 per cent by weight) of oxygen in order for a mixed fish population to exist in a state of health. Game fish, which are more active and fast moving than others, require more oxygen. For them the more nearly the water reaches oxygen saturation, the better. Catfish, carp, and certain other sluggish fish, which have adapted themselves to the lower stratas of water, can thrive where the oxygen is too low to support game fish in health and vigor. Low oxygen content of water interferes with the growth and reproduction of catfish and serious oxygen depletion causes the death of all types of fish.

Burning, combustion, rotting, and metabolism are similar in that oxygen is used to combine with materials, heat is liberated, and the resulting products are oxides.

The decomposition of a log by rotting over a hundred year period uses the same quantity of oxygen and liberates the same amount of heat as if the log were cut into kindling and burned in one hour. Similarly, the decomposition of particles of wood, or any organic waste in water containing oxygen, uses up the same amount of oxygen as would be used if the material were dried and burned. The decomposition of all organic material in water consumes oxygen if it is present.

What is this organic material which robs the streams of oxygen? It is the bodies of animals and plants or the products of them. Sewage, stillage from distilleries, and droppings from stock seriously deplete streams of oxygen.

Are the effects of organic material all bad? No, the decomposition products of organic material supply the nutrition for water plants and small organisms which are either fish food or support the growth of fish food. Aquatic life could not exist without the products of organic decomposition.

Does a stream have any way of recovering the oxygen lost by decomposing organic material? Yes, oxygen is continually being absorbed from the air. The lower the temperature of the air and water, the faster the rate of absorption. Cold air contains more oxygen per unit volume than warm air, and oxygen is more soluble in cold water than hot. The rate of absorption of a gas by a liquid is proportional to the surface exposed. Waves caused by wind, and turbulence from running over rocks and waterfalls speed up oxygen recovery. If the water of a stream could be sprayed into the air, it would probably be saturated by the time it reached the surface. Water saturated with oxygen at 68 degrees F. contains 9.17 parts per million oxygen.

In sunlight photosynthesis carried on by green pigmented plants such as algae liberate oxygen into the water.

When the rate of absorption from the air is not exceeded by the oxygen consuming rate of the organic matter entering the stream, the oxygen content remains sufficient and fish life benefits from the introduction of organic matter at this rate. In other cases algae may be able to partially make up for the excess of oxygen consumed by organic matter over what can be absorbed from the air.

Erosion of unprotected sloping ground

★ *Continued on page 29*

Things You May Not Know

The mockingbird is often called the "Nightingale of the South."

* * *

The age of a rattlesnake cannot always be determined by the number of rattles on its tail. The age can be determined from the rattles only when the snake still possesses the first rattle, or true button. The true button often is knocked off when the snake strikes its tail against some hard object.

* * *

At the end of summer, a caribou buck has accumulated a maximum quantity of fat which lies on the back and is sometimes 2 or 3 inches thick.

* * *

All true fishes are cold-blooded aquatic animals, breathe by means of gills, and swim with the aid of their fins.

* * *

Of some 150 million pounds of fresh water fish produced in the United States annually, nearly two-thirds come from the American waters of the Great Lakes.

* * *

Diamond-back terrapins do not occur on the Pacific Coast and their introduction there, so far as known, has not been attempted.

* * *

Whale milk is not essentially different from cow's milk.

* * *

One Roman pure-food law prohibited the sale of any fish that had lost its lustre.

* * *

Most living ornithologists have not seen the rare ivory-billed woodpecker in the wild state.

* * *

The woodcock is the only bird in the western hemisphere whose upper bill is movable and the beak can be used like a pair of tweezers to grasp food below the surface of the ground.

* * *

After a short running start a lion can leap as far as 25 feet, but he can hardly jump half that far far without the preliminary run.

* * *

The male cow-bird is the only black bird with a brown head.

* * *

The largest fisherman among animals is the monstrous Alaskan brown or Kodiak bear. He sometimes reaches a weight of 1,500 pounds.

Ailing Pigeons Can Spread Disease

A few years ago an epidemic taught laymen that they could catch a serious disease from parrots. It is called "parrot fever," or psittacosis. Lately it has been found that a similar disease, so far called by the broad name of ornithosis, is carried by pigeons, and there is strong reason to believe it may be responsible for many cases of "atypical" or uncommon pneumonia.

The pigeon was first incriminated in 1941, by Dr. L. K. Meyer of the University of California. From the lung of a patient, who had been exposed to a flock of racing pigeons, he isolated a virus similar to that of parrot fever. In 1941 he reported tracing 10 cases of atypical pneumonia to pigeons.

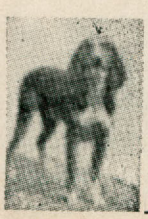
Many other cases have since been found, among them some which had no history of direct contact with pigeons. Three investigators, writing about six cases of atypical pneumonia which were found to be "pigeon fever," make this disturbing comment:

Although in most cases which have been hitherto reported there is usually a history of direct contact with infected birds, it is signficant that infected droppings may be blown about by air currents as dust. In this manner it is possible to produce infection without direct contact and theoretically at sites remote from the home of the infected bird. It is our belief that the latter form of infection . . . may be responsible for some sporadic cases of endemic atypical pneumonia which pass unrecognized. Transmission from one human being to another also has been known to occur.

Pigeons are tame and friendly birds, familiar in all cities. Their close association with man apparently has its dangers. A new burden is thrown upon the diagnosing physicians, and on medical laboratories, for so far very few are equipped to identify the ornithosis virus. There has been much in medical literature on the subject. The lay press also may well give it attention, to warn pigeon fanciers and others that sick birds may be dangerous to their owners and perhaps to people at a distance.—*Ohio Conservation Bulletin.*

☆

Since the beginning of Federal Aid in Wildlife Restoration in Texas in 1938, 1651 antelope, 7012 deer and 2165 turkeys have been transplanted in Texas.



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DIXIE KENNELS
Herrick, Illinois

THERE ALWAYS WILL BE FISH

WHEN fish are mentioned some of us think of a big flounder broiled head and all on a garnished platter before us. The butter is still smoking, the thing sizzles, and our mouths water as the flounder winks at us. Others of us undoubtedly would reluctantly recall our last dose of Cod Liver Oil—the flounder notwithstanding. Some of the more manly among us would have visions of a glorious day out on the choppy bay or the well-crested Gulf where we caught a seven-foot Tarpon or a fighting Jack.

If the historian could go far enough back of page one in his books he might find that the fishing industry comes very near to being one of the oldest ever engaged in by man or his forbears. Man probably didn't even think of "hooking" his fellows until he learned to hook a fish — if anything as dumb as a fish could be hooked, man should be easy, and he seems to be. Civilization and races have come and gone, and still fishing is regarded as one of the major industries. When drought makes crops wilt and blow away, when the nation's wheat bin turns to a dust bowl, when cattle die of thirst and poor old Fido takes to bread and water, the fish are found in the seas as plentiful as ever. When the farmer finds it hard to crack the earth with his plow, the oyster grower is planting his submerged lands with the seed of a crop that pays more per acre than any agricultural crop—even cotton.

drought, dust storms and poor crop years have no effect on number of fish in the seas

In fisheries science there are many phases of study: life histories, migrations, romances of the fishes and oysters and shrimp, their ways of growing a multitude of young (free of cost), methods of marketing and processing, and the statistical analysis of catch records. These studies involve such things as tidal and current studies, various weather phenomena, and general hydrography.

When one thinks of so many billion pounds of fish being taken from waters, one naturally asks: "Where does this mass of fish get its food?" we all know that "big fish eat little fish," but when this carnivorous stepping down ends then what? The answer to this is the same for the sea that it is for the animal crops on land—plant food. Except in the sea the plant food is not found in the form of grass, but as a great quantity of small one-celled plants that are found in concentrations running into thousand per litre. These little plants are unicellular algae, and diatoms (also single-celled). It is they, with the indispensable air of sunlight, that convert the organically omnipotent Carbon, Oxygen, Nitrogen and Hydrogen into fats, proteins, and starches, which are used by the animals for tissue building and fuel.

The abundance of floating plants depends on three things, chiefly sunlight, dissolved phosphates and dissolved nitrates. In the open oceans of the high latitudes the plants show a great burst of growth in the Spring. This production is due to the increased amount of sunshine and availability of the phosphates and nitrates stored at the bottom of the sea during the winter's dearthness. Also there is a fall wave of production due to the supply of phosphates and nitrates resulting from the disintegration of these diatoms and algae falling to the bottom during the great spring outburst of growth. It has been definitely shown that as these plants increase in numbers during the summer months, the phosphate and nitrate contents of the water fall proportionately.

Back in the days when Harvey made his famous discoveries on the blood circulation of the human being, man began to realize what a perfect machine his body was from the mechanical point of view. Today we know that, as machines go, the human body is nearly 100% efficient. Man has lived for many centuries on plain meat and vegetables without ever a thought for a calory or a vitamin. Thanks to modern advertising genius, even the peanut man shouts calories at you, and such a commonplace thing as canned milk is purported to be vitamin stuffed. Since it is the vogue, let us look into the calory and vitamin content of some of the more common sea foods. The following list represents the number of calories per pound contained by the fish indicated:

Cod	325
Flounder	290
Herring	660
Kingfish	390
Mullet	550
Red Snapper	410
Salmon	1,080
Spanish Mackerel	795
Weakfish	430
Oysters	345
Shrimp	407
Lobster	338

CAT FISHING

If you are a cat fisherman and have come to the conclusion that you have become the expert among experts and that you have gotten the last thrill cat fishing has to offer, then it is time for you to try a little flyrod fishing, according to James G. Manning, Jr., editor of the *Fishburger News.*

If you are fishing from a boat, little trouble will be experienced in getting your hook where you want it, but if you are fishing from the bank and have trouble getting the bait out where the channels are, you must devise some means of casting in order that the bait will not fly off when the line is whipped. Here are two methods that may be used.

If you are using the regulation fly rod casting outfit, the line may be stripped to the length of the desired cast, the rod laid on the ground and line coiled and thrown as a lasso. Any slack line may then be reeled in and the rod handled as a flyrod from then on. If you are using a telescopic rod with reversible handle, the reel, with regular casting line, is seated as on a casting rod, the rod shortened to casting length and the bait cast out. When the line is out at the proper distance, the rod can then be pulled out to flyrod length. In using a flyrod for channels precautions must be taken not to force the fish, but to allow it as much head as possible.

Hooking the fish is sometimes a difficult feat as it is hard to sock the hook into the fish's mouth. When a strike is made, let the fish take the bait out a ways, then set the hook with a jerk of the wrist, rather than a long, hard sweep of the arm.

When landing the cat, play it in close a little longer than seems necessary, and use a landing net to bring it out of the water.

* * *

Keep your hooks needle sharp and covered with bait. A special hook hone or small pocket whetstone carried in your pocket or tackle box and used frequently, will help eliminate the trouble of thinking up excuses for missing that "strike" that felt like a ten-pounder, and an exposed hook, no matter how slight, will spell "DANGER" to a fish.

* * *

Tops of tin cans, hung on your bank lines, or pages from a slick magazine, aid in easy spotting of your lines at night. Swing your flashlight along the shore and the lines will stand out like sore thumbs.

* * *

A swivel snap that is too large is a good way to let Mr. Cat know there is something wrong with the bait, and a gut leader is the best way to convince him you have nothing up your sleeve.

☆

CRICKETS are chosen by many fishermen as their favorite bait for bream during the early spring, summer and late fall. Since they are often scarce and always hard to catch, the fisherman often spends so much time catching crickets that he has little time left for fishing. The wise fisherman, therefore, will save his time and energy by raising his bait at home.

Methods have been developed at the Alabama Agricultural Experiment Station whereby crickets can be successfully raised at home in a garbage can, lard can or similar metal container. The can should be placed in the garage, basement or out-building. It should first be waxed with common floor wax about six inches down from the top on the inside to prevent the crickets from escaping.

A layer of clean sand is then placed in the can to a depth of four to six inches. Since crickets will not lay eggs in dry soil, the sand must be kept moist until the young crickets hatch.

Wood excelsior is then placed on top of the sand to a depth of about five inches. This provides cover for the young crickets.

Poultry laying mash is the most satisfactory food for crickets. A small pan, lid or saucer filled with mash is placed on the sand and the excelsior pulled around it so that all the crickets may easily reach the food.

Water is necessary for crickets. It can be supplied by using a quart fruit jar inverted in a glass saucer—just like the drinking fountain used for chickens. The saucer should be filled with cotton slightly above the water level to prevent the young crickets from drowning while obtaining the needed water.

Each rearing can should be stocked with about 30 adult crickets. The young crickets being wingless, the adults may be easily recognized by the presence of

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long wings covering most of the body. Half of those used in stocking should be females, which may be distinguished from the males by the long tube at the rear end which is used to deposit eggs in the wet sand.

The eggs are laid in the damp sand and hatch in from one to three weeks, depending upon the temperature. When the young crickets are one month old, they are large enough to be used as bait. The crickets do not become full grown until approximately three months of age.

A can measuring 24 inches in diameter can be employed to raise approximately 400 crickets every three months. This will require about eight pounds of laying mash at a cost of approximately four cents per pound.

If the rearing cans are kept in a warm place during the late fall, winter and early spring months, crickets can be raised throughout the year. Heat may be provided during cool weather by suspending a light bulb inside the can.

Additional information on the hatching and care of crickets is given in Leaflet No. 22, which may be obtained without cost from the Alabama Agricultural Experiment Station at Auburn, Ala.—*Alabama Conservation.*

* * *

Although earthworms may be marketed or used freshly dug from the ground, they are much more desirable, will live longer on the hook, and will take more fish if well "scored" before use. This fact is well known to all skilled bait fishermen, and it is probable the knowing ones would be willing to pay a premium for such worms. This scouring process has been known for hundreds of years and was well described by Isaak Walton in 1653. To carry out this "scouring" process a quantity of sphagnum moss such as used by nurserymen in packing plants for shipment is put into a stoneware crock or tight wooden box. This moss, which grows in shady, swampy woods, should be well moistened, but the excess water should be wrung out before the moss is placed

★ *Continued on page 22*

Texas Fox Hounds Vie for Honors

FOX hounds of Central Texas had their first big field day since the war on April 18 at the base of Round Mountain, midway between Sidney and Comanche.

More than 400 of these aristocrats of the canine world forgot the chase long enough for the critical eye of the judge to note their championship points. Competition was keen in all classes.

The bench show, held under lights, climaxed an outing and a barbecue that attracted more than 1500 fox hound enthusiasts to the slopes of the historic landmark, overlooking a beautiful mesquite plain. Judging was done by the nationally known fox hound judge, Johnny Shillings, of Center, Texas.

Flying Steel Buster, owned and handled by J. P. Jones, secretary of the Comanche County Fox Hunters Association, was crowned grand champion. He breezed through some pretty tough competition to win the judge's nod.

Flying Steel Buster is a real champion and his selection as grand champion of the show was enthusiastically hailed by the gallery. Later in the summer Flying Steel Buster will compete in the national meet for fox dogs in Tennessee. He is going to be a hard dog to beat.

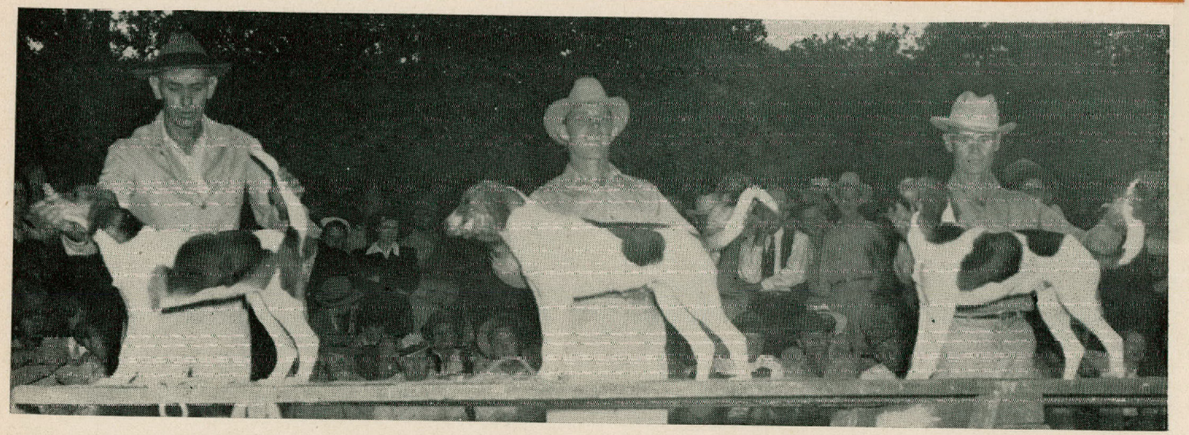
Handlers of the fox hounds also showed good form. Their efforts to pose their charges and to keep them still long enough for the judge to run his eye over them brought more than one chuckle from the crowd. At times the fox hounds seemed to think it was a game. A handler would try to get the proper stance for the tail only to have the tail flop down as soon as he turned his attention to another part of the dog. And there seemed to be just a glint of amusement in the dog's eye when he turned his head to see what all the commotion was about. However, when the chips were finally down, the dogs stood like real veterans.

Competition is keen in bench show held under lights at base of mountain

The gathering of friends and neighbors from all the surrounding counties, and dog fanciers from four different states, was reminiscent of the pioneer days, when travelers trekking westward camped beneath the same gnarled oaks that formed the setting for the bench show. But in place of oxen, wagons, and the cry of the coyote, the sloping hillside was filled with cars and trucks, and the most beautiful sound of all to the hunter's ear, the eager baying of the pack in chase. To the real fox hunter, it was almost heaven in a Texas twilight.

A TRUCK LOAD of Walker hounds arrives for the Round Mountain bench show in charge of Joe Allgood (left) and C. C. Moore (right) of May, Texas.

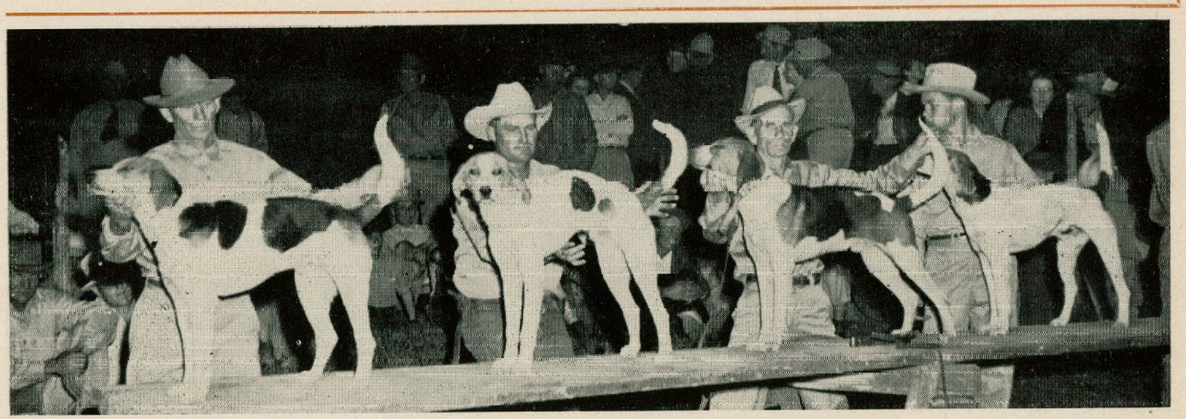
Judging Is Done Under Lights at Sidney Fox Hound Show . . .



DOG PUPS UNDER SIX MONTHS. Competition in this frisky class was keen and the handlers had quite a time getting the peppy youngsters to stand still long enough for the judges to make their selection. From left to right, the winners are: First, Flying Sam, owned by Harvey Johnson, of De Leon, Texas, and handled by J. P. Jones. Second, Ball Eagle, owned and handled by R. W. Reed, of Hasse, Texas. Third, Smokey, owned by W. B. Elliott, of Hasse, Texas, and handled by Andy Scott.

DOG PUPS FROM 6 MONTHS TO ONE YEAR. Handlers really took their work seriously in this group because the pups seemed to be bored with the proceedings. From left to right, the winners are: First, Cisco Bill, handled and owned by C. C. Moore, of May, Texas. Second, Baldy Blaze, handled and owned by C. C. Moore, of May, Texas. Third, Raider Steel, handled and owned by Clint Edgar, of Blanket, Texas. Fourth, Jake Tuffy, handled and owned by C. A. Barham, of Stephenville, Texas.

FEMALE PUPS FROM 6 MONTHS TO ONE YEAR. This was another hotly contested class and the little ladies needed little or no handling to show off their good points. From left to right, the winners are: Fancey Fawn, owned by Harvey Johnson, of De Leon, Texas. Second, Morning Star, handled and owned by J. P. Jones, of Sidney, Texas. Third, Lena Steel, handled and owned by O. D. Clayton, of Comanche, Texas. Fourth, Bugal Ann, handled and owned by C. C. Moore, of May, Texas.

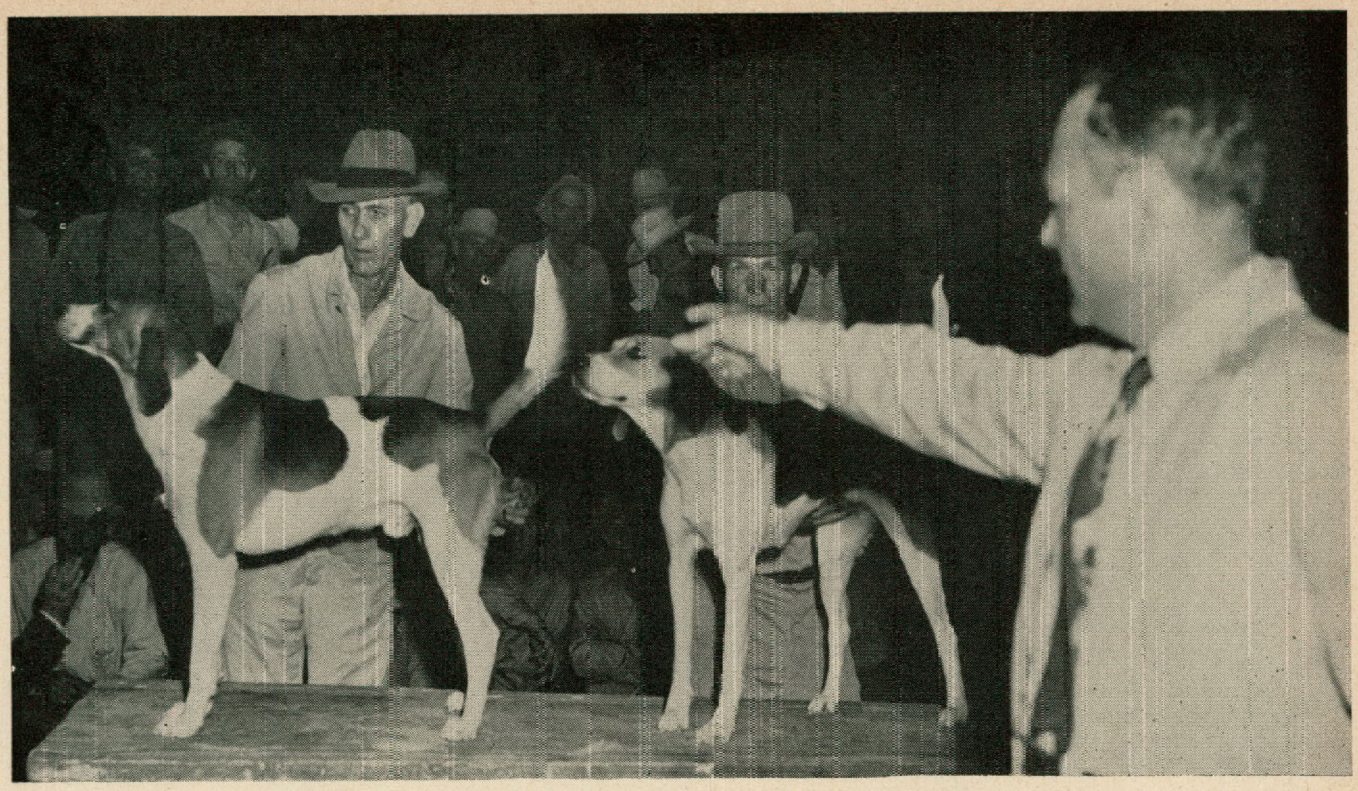


DERBY DOGS. Juding got a bit more difficult when these veterans were benched. From left to right, the winners are: First, Roudy, handled and owned by Bob Smith, of Goldthwaite, Texas. Second, White Ned, handled and owned by Clint Edgar, of Blanket, Texas. Third, Jesse James, handled and owned by R. C. Fulfer, of Cleburne, Texas. Fourth, Commando Raider, handled and owned by James E. Carter, of Stephenville, Texas.

DERBY BITCHES. The handlers really went to work on this class as the expression of their faces will show. Winners in this class were well received by the crowd. From left to right, the winners are: First, Landy B. owned by L. A. Sayer, of Mullin, Texas, and handled by Aubrey Reed. Second, Maudine, handled and owned by H. A. Russell, of Fife, Texas. Third, Penny Ann, owned by Marshall Crume, of May, Texas, and handled by James Phillips. Fourth, Clerer, handled and owned by C. Ezra, of May, Texas.

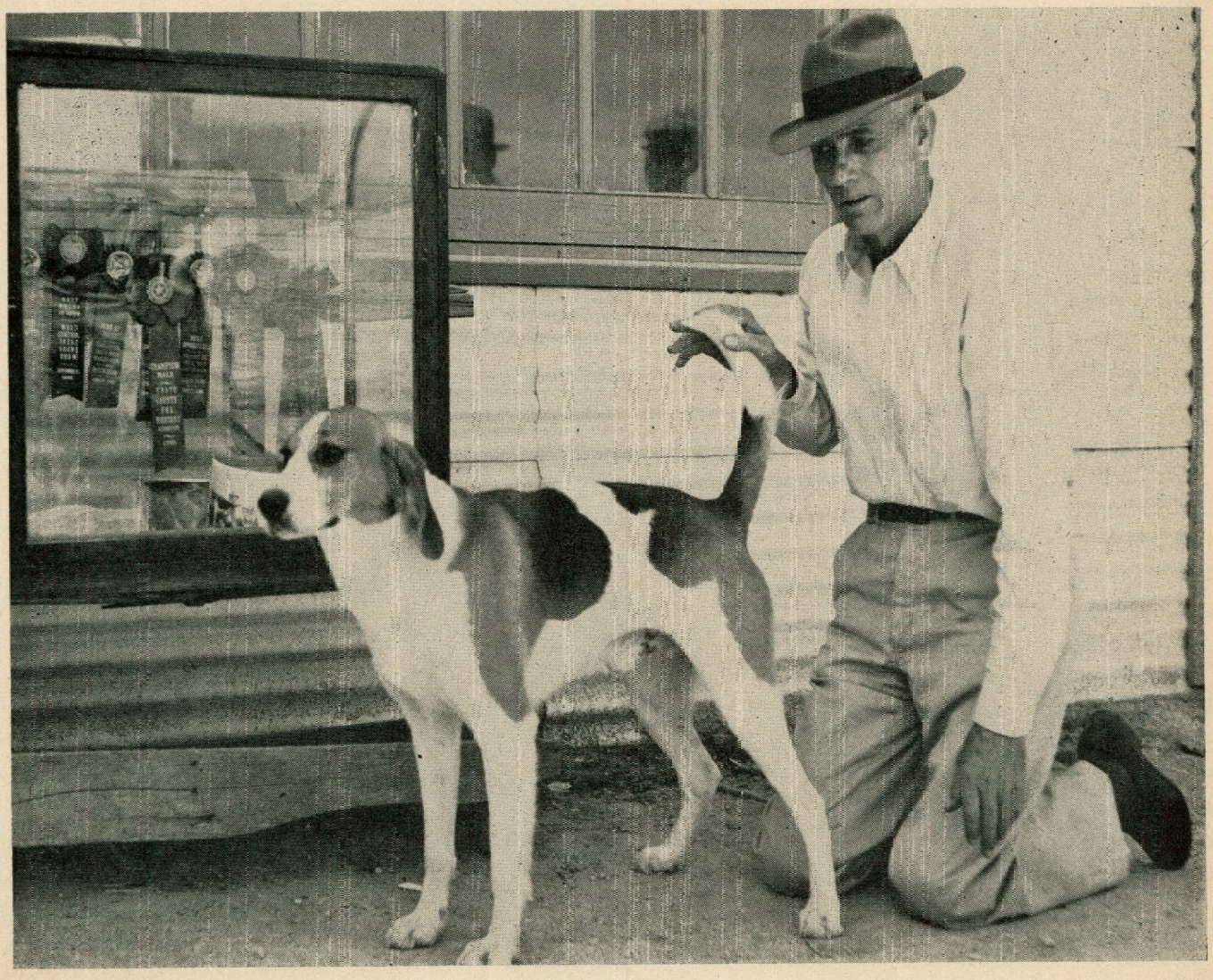
ALL AGE BITCHES. The nod in this class went to Mink K, (left) handled and owned by L. P. Jones, of Sidney, Texas. Mink K showed plenty of class when the chips were down for the final judging. Second place was taken by Dips Doodle, handled and owned by James Phillips, of Byrds, Texas. Nelly Wings, third from left, finished third. She was handled by the owner, J. P. Jones, of Sidney, Texas. Lady June, handled by Neil Davis and owned by L. A. Sayer, of Mullin, Texas, finished fourth.

WHEN FOX HOUND FANCIERS get together for a bench show you can always count on a big crowd, plenty of barbecue, a good show, and a good time. In the upper photo, a speaker is prescribing for some of the world's ills while others sit around and munch on juicy barbecue. The lower photo shows a part of the crowd of 1500 that turned out for the fox hound bench show at the base of Round Mountain, located between Sidney and Comanche, Texas.



THE WINNER—AND GRAND CHAMPION! It was a dramatic moment when Johnny Shillings, of Center, Texas, nationally known judge of fox hounds, pointed to Flying Steel Buster and cried: "The winnah, and grand champion of the show!" Flying Steel Buster is handled and owned by J. P. Jones, of Sidney, Texas.

In the lower photo, Flying Steel Buster is showing the form that has filled the trophy case with first place ribbons. Looking at Flying Steel Buster with a critical eye is J. P. Jones, himself.



CARP

After catching, bleed and gut the fish, but don't wash. When home from fishing trip, skin carp and cut into cooking size, then place in crock without washing. Put a layer of salt on the bottom of the crock, then place a layer of fish, then cover with salt, then a layer of fish, and so on. Leave set overnight. You will note a slight film of water on top. Remove slabs of fish and wash thoroughly in cold water. Roll in meal and fry in plenty of piping hot lard. Good? Man, you'll be surprised.

BARBECUED FISH

As a variation on customary methods on preparing fish, outdoors cooks should be interested in trying the following recipe for barbecued fish, for which any fair-sized scale fish may be used.

The fish should not be scaled, but slit down the backbone so that each side will lay flat. Place the fish on a hot grill, meat side down, until it has started to cook, and then turn and place scale side down. Salt to taste. With an ordinary small paint brush or other flat object, paint barbecue sauce on the meat side of the fish. Partially cook strips of bacon on the grill, and place on top of fish, and continue, at intervals, to paint barbecue sauce on fish and bacon until well done. Fish prepared in this manner may be eaten with a fork from the skin and scales in very much the same way as one would eat cantaloupe from the rind. The secret of delicious barbecued fish is in having a slow, steady fire over which the fish will cook well without burning or allowing the sauce to burn.

For the barbecue sauce the following ingredients may be used:

½ cup butter
1 cup vinegar
1 teaspoon salt
3 teaspoons prepared mustard
1 bottle (two cupfuls) catsup
4 teaspoons Worcestershire sauce
1 teaspoon tobasco sauce (optional)
Juice of one lemon.

Cook the entire mixture until thick and well-blended.

* * *

Of methods of cooking fish after they are caught there is no end, this recipe is a little different.

It uses a species of fish on which there is no statewide closed season, and those who try this recipe will find that the lowly catfish can indeed be appetizing when properly prepared. Incidentally, the same methods can be used for pike or pickerel, being sure to cook fish thoroughly to soften the many small bones.

FISH FINGERS

Select large size catfish, and remove backbone, fins and other bones as completely as possible. Cut the meat in narrow strips about finger size. Season with salt and pepper to taste. Dip the strips in beaten egg, and then in cracker meal and fry in deep, hot fat in which one whole onion and one clove of garlic has previously been fried. Drain and serve.

* * *

Here is an effective method of securing boiled fish fit for a king.

BOILING

3 lbs. fillets or 4½ lbs. dressed fish.
3 tbsp. salt and 6 tbsp. vinegar in 2 qts. boiling water.

Place the fish in the boiling water and cook for 8 to 12 minutes until tender; remove and drain. The fish may be handled more easily if wrapped and tied in cheese-cloth. Serve with a white sauce prepared as follows: Heat ¼ cup butter (or cooking oil), then stir in 4 tbsp. flour, ½ tsp. salt, and ¼ tsp. pepper until the whole is smooth; then stir in gradually, 1 pt. warm milk, continuing the stirring until the sauce is smooth. Chopped hard boiled eggs, grated cheese, finely chopped onion, etc., may be added as desired.

JUGGED RACCOON

2 to 3 pounds raccoon
1½ to 2 teaspoons salt
¼ teaspoon pepper
½ cup flour
½ to ⅔ cup fat
½ cup chopped celery tops
¼ cup chopped parsley
½ cup rice
2 to 3 cups water
4 to 6 whole cloves
2 to 3 medium onions
½ teaspoon thyme
½ bay leaf
2 tablespoons ketchup
½ lemon
2 tablespoons butter

1. Disjoint cleaned raccoon carcass and cut in pieces for serving; use legs and thighs and other meaty pieces.

2. Dredge in seasoned flour. Fry in hot fat for 10 to 15 minutes, turning to brown both sides. Remove meat to large bean jug or casserole.

3. Saute parsley, celery and rice in drippings, stirring to brown rice evenly. Add 2 cups water, bring to a boil and boil 10 minutes; pour over meat in jug. Stick 2 cloves in each onion; place in jug; add remaining seasonings, sliced lemon and water to cover, if necessary; cover tightly.

4. Bake in slow oven (275° to 300° F.) about three hours or until meat is very tender, adding hot water as needed. Thicken with roux of butter and remaining flour, or 2 tablespoons flour; season to taste. Makes 6 portions.

Recipe of the Month

FISHHEAD CHEESE

In ordinary fish cookery there is some waste, especially of the head, and of bones too, if the fish is filleted. There is a way to utilize fish so that nothing is lost except the scales and the hook. It also results in a worthwhile side dish which is not ordinarily obtained from fish. Here's the process:

The head (heads alone may be used) and the backbone, including the tail, are put in a pot of water and boiled until the bones fall apart. Then the bones are picked out. All of the meat of the head and gelatin from the bones are thereby saved. If it is thought that not enough meat is present, more may be shredded into the remaining mixture. Seasonings of any kind may be added and the mixture is boiled down to a consistency which the housewife can judge for herself. It is then placed in an icebox and cooled, where it hardens into a jelly-like mass very similar to hogshead cheese. It can then be sliced into thin layers and served with crackers or bread, or as a salad in various ways. Chili powder and various seasonings, to suit the taste of the consumers, may be used. The use of vinegar and other materials will make the taste of this dish very similar to that of hogshead cheese. The best name for it is probably fishhead cheese. Besides being an edible dish it has the advantage of conserving and utilizing everything of food value from the fish, whereas, ordinarily the material used in preparing it is wasted.

How Long Do Ducks Live?

It is difficult to determine how long wild ducks live. There is no way to measure their years even by banding unless the bird is captured when a juvenile and is finally recovered after death due to old age. It is rare however that ducks die of natural causes. If they do there is little record of it.

Of note was the banded greater scaup duck taken recently in New York state by John O'Malley. According to the U. S. Fish and Wildlife Service records it had carried its aluminum bracelet for over 11 years. The age of the bird was unknown when it was banded.

A mallard banded on Sheboygan Marsh, Wisconsin, July 18, 1933, was shot last fall by Richard Nelson, Rockland, Idaho. This bird evaded shotguns and predators for over 12 years. It is problematical how much longer the mallard might have lived, and also how old it was when banded.

Birds raised in captivity are no sure criterion to how long they might live in the wild. Presumably a soft life with food and protection assured might prolong their existence. But will it? Maybe following the flyways North to South, and return each year, furnishes necessary stimuli for hard muscles, good digestion, and long life.

Fishing Trip Lasted too Long

Here's an Associated Press story of a Californian—Durward L. Frazier of San Jose—who sought annulment of his marriage on the gounds that his bride was gone when he returned from a fishing trip to Alaska.

"How long were you gone?" asked Superior Judge John D. Foley.

"Two years," Frazier replied.

The annulment was denied!

☆

The kangaroo is a broad jumper par excellence, but when it comes to high jumping he's not so hot. He can broad jump over 30 feet but has difficulty clearing a four foot fence.

☆

The only animals known to have black tongues are polar bears and chow dogs.

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"GOT A LITTLE HOOK, MISTER?"

By EDWARD R. JOHNSON

HE'S just a little fellow, this boy. And you know him pretty well, too, if you are a fisherman. He's an average boy who lives in the country, the small town, the city. Most likely you were that boy yourself, back when.

Take the boy who has grown up near a creek, who knows the thrill of a fat chub or "cat" yanking on a willow pole. You nearly always run on to him when you are out fishing. Almost suddenly he will appear along the bank and timidly ask, "Ketchin' anything, mister?"

Usually you say, "No, not doing much good. Where's the best place to fish, sonny?" He's always got an answer.

The boy slides along the bank, following you for a way. Almost without exception there's a dog with the boy that whisks around, sniffing for a rabbit. This procession has not gone far when the youngster asks, now almost fraternally, "Got a little hook, mister? I want to ketch some minners up the crick."

The lowly "minner" has its place in planting the seed of sportsmanship in a boy.

And you hunt him out some hooks and maybe throw in that old line. With a hurried "thanks" he beats it.

But there must be "minners" for that boy to "ketch," for the boy who gets out from the town and the city. Yes, the lowly minnow may be the means that will begin a sportsman in a boy. A person wrote, with a great deal of truth, "Few sportsmen have gone to prison." All of us know that Mother Nature has carefully guarded tht character of her children.

It is common knowledge that the minnows are rapidly vanishing. The usual droughts, snakes, turtles, crawfish, and the heavy demands of fishermen are making a losing battle for the minnow.

A lifeless creek is like a burned forest, a loss to nature and man, and both preventable. A teeming stream is the right arm of the outdoors, one of the real inducements that turns a boy in the path of a sportsman.

Restocking and propagation are too obvious to discuss here. But we, just average sportsmen, can do something about conservation by merely spreading the gospel of sportsmanship.

We are familiar with some of the occasional fishermen who neither know the meaning of nor care about conservation. They are the fellows who seine up more bait than they intend to use, in spite of the law and fundamentals of sportsmaship. These vandals make minnow seining a sadistic orgy, ransacking every hole, and dump the small ones on the bank without bothering to return them to the water.

Often, with tubfuls of minnows, the fish-at-any-price fishermen will drape several trotlines with minnows in clear water. Of course, the gars, turtles, crawfish and waterdogs have a banquet, with few worthwhile fish being caught. A high price to pay for a few fish.

I believe, with ordinary, sensible conservation our present minnow population can hold on and maintain itself. Obviously, the heavily seined streams need restocking. And it will take concerted action now by the various sports groups, sportsmen and lovers of the outdoors.

The cold fact remains—our minnows are vanishing. It is more than just a source of live bait becoming extinct, too; it is a sociological problem, for you, your boy and mine, and your neighbor's boy.

The plight of the minnow is a problem for considered thought—and action—for those who are interested in the outdoors and the little fellows who might become fishermen, sportsmen, and men.

The place that sets a boy's heart a-thumpin'—where you don't find "juvenile delinquency"—is just any ol' creek, any ol' size . . . a pothole here and there . . . a school of shiners in the shallow water, slickhead chubs, sunfish, "red-eyes," suckers and "cats" in the hole around the roots of a sycamore . . . the bank sort of worn slick, a tomato can of worms . . .

"Got a little hook mister?"—*West Virginia Conservation.*

Your DOG

By R.D. Turk, D.V.M.

TICKS

EVERY year at the approach of warm weather the tick again appears in sufficient numbers to be a source of annoyance and worry to animals and man alike. In addition to the actual damage done by the tick's blood sucking activities, various species of ticks have been proven to be transmitters of disease, not only from animal to animal but also from animal to man.

For purposes of discussion ticks that occur on dogs may be divided into two groups, the brown dog tick which has the ability to live in houses, kennels or other places inhabited by dogs and the wood ticks which require a vegetative environment and various wild animals as hosts to complete their development. About eight different species are included in the group commonly referred to wood-ticks and many are so similar in appearance that few persons not entomologists can tell them apart. All have similar stages of development so only the stages and development of one species, the American dog tick (Dermacentor variabilis) will be described.

The American dog tick and related species pass through four stages: the egg, the seed tick or larva, the nymph and the adult. An engorged, gravid female drops off the dog and lays eggs in a dense mass in some protected place on the ground. In 30 to 60 days, depending on the temperature, the eggs hatch producing seed ticks. These tiny 6-legged ticks can live for several months unfed but attach themselves to a suitable host at the earliest possible opportunity. Usually this host is a small rodent such as meadow mice. Ticks fill up with blood, drop off and after 6 days to 6 months, depending on the temperature they shed their skin and are now larger and have 8 legs. This stage, known as a nymph, also attach to small animals and suck blood (if no animals are readily available the ticks may remain active for a year unfed). Again the tick fills up with blood, drops off, again sheds its skin this time producing an adult tick. The time necessary for transition from nymph to adult is from 17 days to 10 months, depending upon the temperature. The adult ticks attach to a suitable host, usually in this instance a dog, and engorge with blood. The engorged female drops off and in a few days egg laying begins. A female may lay from 3,000 to 6,000 eggs depending on the particular species of tick concerned.

Many dog ailments can be traced to the presence of one of the numerous ticks that infest dogs

The young ticks feed upon wild rodents but the adults prefer dogs and various wild animals such as raccoons, opossums and coyotes. They also are found on horses, cattle, hogs and other animals, including man. Man is not a preferred host.

Control of ticks is unsatisfactory at best due to the facts mentioned above. There are two methods of approach, control of ticks on the animal concerned and control on the premises.

The following recommendations are taken from United States Department of Agriculture, Bureau of Entomology and Plant Quarantine, mimeographed release number E-454, February, 1946.

Methods of control applicable to many of the conditions under which this tick occurs have not been developed. Several things may be done, however, to reduce the number of wood ticks, especially around habitations.

(1.) Since the dog is the principal host upon which the adult ticks feed, an effort should be made to prevent the ticks from engorging thereon. Each female tick engorged on a dog is capable of producing from 3,000 to 6,000 young. Therefore, dogs should be kept away from tick-infested areas, the ticks hand-picked daily, or better, a derris dip applied to the dogs regularly every 4 days. If but few ticks are present and hand picking is employed, it is best to use tweezers or forceps rather than to pick them off with the fingers. If the fingers are used, the hands should immediately be carefully washed to reduce the danger of acquiring infection from the ticks. Rubbing the eyes or nose while the hands may be contaminated should be avoided.

Rotenone-bearing material, such as derris and cube, are effective in killing the tick on dogs when applied as a dip or dust. The dip is made by mixing 2 ounces of fine derris or cube powder, 1 ounce of neutral soap, and 1 gallon of tepid water. The powder should contain at least 3 percent of rotenone. The dog may be put in a tub containing the dip, or it may be applied thoroughly with a brush, sponge, or dipper. The dip is allowed to dry on, if necessary. The surplus liquid may be removed with a towel. The dip can be kept for at least a week without deterioration. If the dip cannot be used conveniently, derris powder may be applied to the skin on all infested parts. To prevent ticks from engorging, the powder must be applied every other day. The persistence of either the dip or the dust depends on the type of dog, and the interval between treatments can be determined best by experience. The powder or dip should not be permitted to get into the eyes.

(2.) Near habitations, parks, etc., rodents, especially meadow mice and rats should be destroyed by trapping or poisoning. Poisoning operations should be carried on only under the directions of competent authorities.

(3.) Underbrush, grass, and weeds around dwellings, schools, parks, and other places frequented by the public should be kept closely cut. This practice tends to drive out rodents and removes protection favorable to the ticks.

(4.) Close grazing of brushy and weedy areas with sheep will do much to reduce tick abundance. If sheep with fine wool are used, relatively few ticks become engorged on them and many ticks are killed by the wool grease.

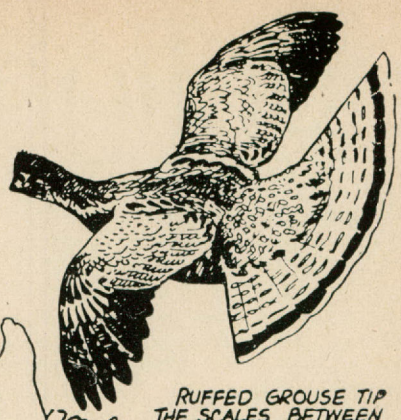
(5.) Clearing and burning over vacant overgrown lots in towns and cities reduces the tick hazard.

(6.) Many of the ticks in an infested area can be killed by applying spray or dust to the ground and vegetation. The most satisfactory material to use for this purpose is DDT, as it provides a high initial kill and a lasting residual action. It may be applied as a spray or as a dust, whichever is more convenient. By either method from 2 to 3 pounds of DDT per acre should be applied. A convenient dust to use is one containing 10 percent DDT in pyrophyllite. At this concentration form 20 to 30 pounds of dust per acre would be used, which is sufficient to assure adequate coverage.

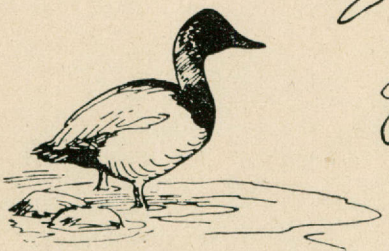
Sprays containing DDT in various formulations with different solvents and emulsifiers have been found satisfactory and it seems probable that any water-miscible preparation will be effective. The following preparations when used in 100 gallons of water per acre have

★ Continued on page 34

FROM THE STANDPOINT OF AVOIRDUPOIS·

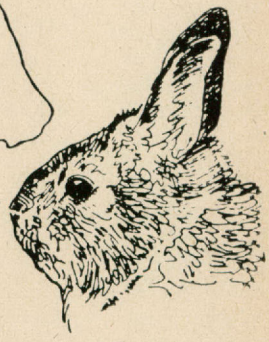


RUFFED GROUSE TIP THE SCALES BETWEEN 25oz-30oz. MAXIMUM RECORDED WAS 2#-3oz

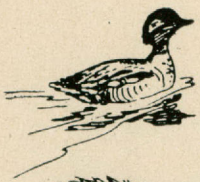


CANVASBACKS AVERAGE 3# IN WEIGHT ~ LARGE INDIVIDUALS HAVE GONE AS HIGH AS 3# 8oz.

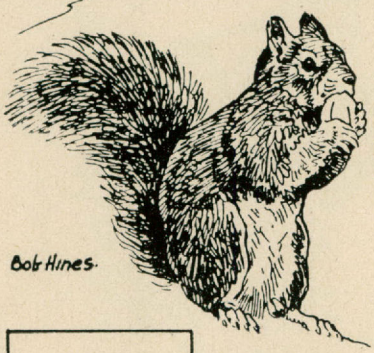
THIS REMARKABLE SET OF ANTLERS ON A WHITE-TAIL DEER FOUND DEAD AT WINDHAM OHIO IS PROBABLY THE STATE RECORD FOR POINTS ~ THERE ARE 57. HEAVIEST DEER WEIGHED AT THE ROOSEVELT PARK CHECKING STATION WEIGHED 225#



BRIER-LOVING COTTONTAILS RUN BETWEEN 2½# ~ 3#

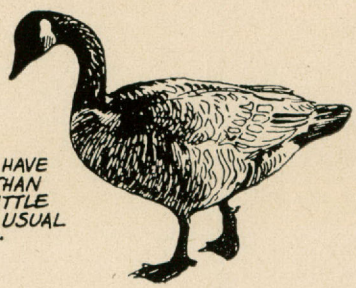


A 14oz GREEN-WING TEAL IS CONSIDERED BIG ~ MOST OF THEM WEIGH ONLY 12oz.



GRAY SQUIRRELS AVERAGE 1# BUT MAY REACH 1½# FOX SQUIRRELS USUALLY WEIGH 2¼# AND HAVE REACHED 3#

Bob Hines.



CANADA GEESE HAVE REACHED MORE THAN 13# ~ BUT A LITTLE OVER 9# IS THE USUAL FIGURE.

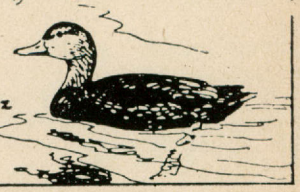
ADULT RED FOXES HAVE BEEN WEIGHED AT 14# ~ BUT AVERAGE BETWEEN 10# AND 12#

ADULT 'COONS RUN AROUND 18# ~ 20# ABNORMALLY BIG ONES REACH 40#

THE HEAVIEST RINGNECK RECORDED WEIGHED 4# 7oz THIS WAS AFTER HUNTING SEASON ~ WHEN THE BIRDS ARE HEAVIER. DURING SEASON ~ 2# 9oz IS AVERAGE ~ 3# 6oz PROBABLY THE MAXIMUM. IN WINTER ~ THE AVERAGE INCREASES TO 2# 12oz.

HEAVIEST OF OUR DUCKS IS THE AMERICAN MERGANSER. TOP RECORD IS ONE OF 4# 2oz ~ THE AVERAGE IS 3# 7oz

WILD MALLARDS REACH 3# 9 oz WHILE THE USUAL WEIGHT IS AROUND 2# 11oz



A HUGE BLACK DUCK MAY WEIGH 3# 13oz THE AVERAGE WEIGHT IS 2# 12oz

Sidelights... on the Pronghorn Antelope

By ARCHIE PENDERGRAFT

THE pronghorn antelope brings to the eye a picture of speed. The usual running gait looks fast, and is probably equal to 25 or 30 miles an hour. But the antelope seems to have several gears, and when crowded shifts into high, and reaches a speed which has been variously clocked at from 40 to 50 miles. Running his best, he seems to skim along close to the ground, and uphill or down makes no difference in the rate of speed. No other four footed animal can overtake him, unless it is an exceptionally fast greyhound.

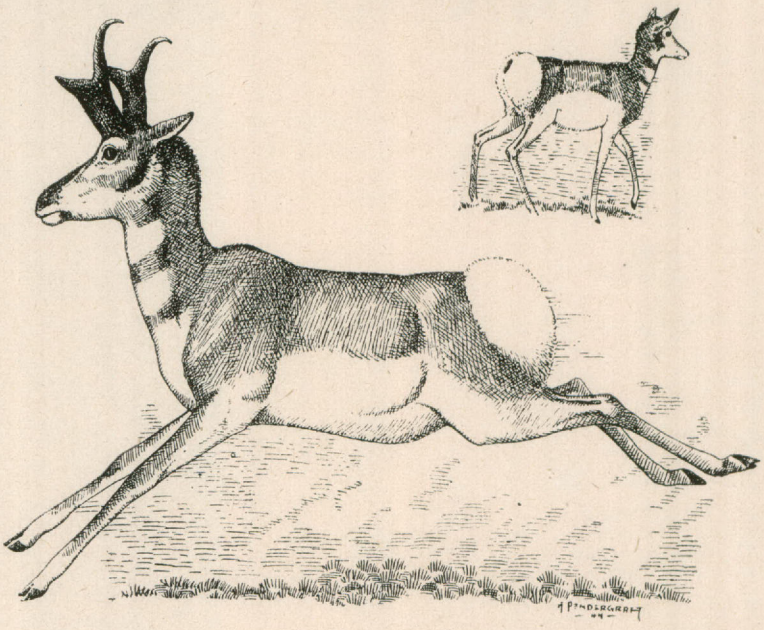
Antelope trot more often than deer, moving gracefully at this gait. The usual method of locomotion is a rapid walk resembling the movement of domestic sheep. A curious, stiff-legged walk is employed at times, usually in approaching an object for observation. At this time the snorting bleat is often heard, accompanied by a stamping forefoot.

A member of the U. S. Fish and Wildlife Service recently offered an interesting item on the habits of the pronghorn. He states that the doe usually gives birth to twin fawns, but hides each of them in a different place—sometimes a hundred yards or more apart. Predators, particularly coyotes, thus have easy prey in one of the young, since the mother is unable to protect both at the same time. This may account for the circumstances that seldom does one see older sets of twins with the doe.

High-jumping is not usually considered one of the abilities of the antelope. A fence is always crawled through or under; bucks often get their horns caught in the wire. But old-timers who have seen antelope kill rattlesnakes state that the procedure includes much high-jumping, coming down with feet bunched and legs stiff, the sharp hooves cutting the snake to ribbons.

The buck antelope is a more jealous guardian of his herd than the male of any other game animal. In flight, the buck always runs behind the herd, hurrying it along. During the mating season, he keeps his harem close herded, and immediately puts a straying doe back in the bunch. Fighting among the males at this time is common, and at least one such fight is known to have resulted in death for both bucks.

—Wyoming Wildlife



Hints

★ Continued from page 13

in the container. The worms should be placed in the moss for at least two days, and preferably three or four, and kept in a cool place. At the end of this period, they should be almost transparent, tough and lively.

* * *

Many minnows are lost each season by improper methods of taking, handling and holding. When minnows are taken in seines or traps, the ones to be kept should be placed in water of the same temperature from which they are taken, and the ones to be returned should be handled with great care and placed in water of sufficient depth and not in the shallow water or in dense vegetation.

If ice is used in transporting minnows to the holding tank, the temperature of the water should be equalized.

When minnows are dipped from a tank, a small net should be used, handling only a few at a time. A great deal of harm is done when too many minnows are caught at one time in large dip nets. Fungus develops readily during warm summer months when the slime is removed due to handling and results in a great loss.

The water in holding tanks should be free from chlorine or other chemicals that might be used in treating drinking water, and also well aerated. The water can be aerated by running it over a rough surface or fine screen, and also by spraying through the air. If city water that is treated is used, it should be filtered through a container or a regulation filter for this particular purpose.

A good filter can be made for using a container about the size of a thirty gallon barrel, filled with one third gravel in the bottom, and one-third sand and one-third fine charcoal on the top. A screen should be placed over the inside of the outlet at the bottom. It is better if the water is sprayed into the top of the barrel.

Good and Bad News For Duck Hunters

The latest issue of *The Duckological*, published by Ducks Unlimited, Canada, contains both bad and good news for duck hunters. On the debit side is a compilation of reports from game officials and other observers in the United States which reveals that there were fewer ducks and poorer duck shooting in this country in 1945. On the credit side is the information that more snow fell last winter than for many years in the Canadian breeding areas, resulting in much surface water. So far, according to the report, 1946 conditions are excellent for nesting ducks.

Returns from 859 reports of American observers of the fall duck situation to D.U. are said to reveal the following:

Ducks—more	239
Ducks—less	553
Ducks—same	61
Hunting—better	236
Hunting—worse	585
Hunting—same	33

By States

Ducks—more in	11
Ducks—less in	25
Ducks—same in	8
Hunting—better in	10
Hunting—worse in	25
Hunting—same in	9

Insufficient returns from 4 states for conclusions.

The reports emphasized increases in goose flights over most of the U. S., exceptions including Maine, North and South Carolina, Alabama, Oregon and Washington. Increases covered all species, but those of blue and snow geese were most pronounced. No mention was made of geese in reports from Rhode Island, Arizona, New Mexico, Arkansas and Mississippi.

The Duckological also refers to Fish and Wildlife Service reports of a very heavy kill of ducks and geese during the past season, and a 20% increase in Duck Stamps sold. It concurs in the recently expressed opinion of Albert M. Day, new director of the U. S. Fish and Wildlife Service, that there will be a further large increase in duck hunters next fall.

"Every possible effort should be made during the next five years," *The Duckological* comments, "to increase the duck population and other useful wildlife. It is desirable that more of our citizens become sportsmen. But we can only hunt and fish on a crop basis; otherwise our wildlife will disappear."

My First Deer

By JAMES GORDON WOOD

S 1/c U. S. N.

THE mountains of Old Mexico loomed up into the skies, for it was a clear day. If we looked sharply, the outlines of Old Saddle Mountain could be seen. Behind this lies Saltillo, some two hundred miles from McAllen, by way of Monterrey. It was getting late and the sun swung low over the mountains and the quiet brush land started to go to sleep.

Ninety miles from Mission, we turned North toward the camp house. The road was bumpy and full of little gullies. We crossed an old iron bridge, then continued down the road for six miles of bumping and swaying. Glittering eyes of all description were detected along the road side. We were in real hunting territory. Here dwelt the deer, fastest and quietest of all animals. We crossed a lake where flocks of ducks had settled down for the night. In the gathering dusk, a gas well whistled out from a distance.

The author and his first deer

Just when the riding had become almost unbearable, there before us was the light of the camp house. As we pulled up, a man came out to help us unload. When they took in the one-hundred pounds of ice, I was still wondering what it was for.

I thought we were to camp out doors, sleeping under the stars but not for the men of this club. There are about eighteen members in all and they like comfort. Upon arriving at the camp, I heard a motor running, so loud that I thought it would scare all the deer for miles. The small cabin, 15 x 30, was wired completely for a delco system. A radio inside was blaring out the latest news.

After the guns were put in the rack for the night, we went inside. The night air was cool so a roaring fire in the wood stove in the center of the room felt mighty good. At the end of the house stood a table for eight, beyond that next to the wall were two gasoline stoves. Pots, pans, kettles and all necessary utensils were hanging neatly in place. In a corner stood an icebox higher than my head. That was where the ice went. On top of it were many cans of food in case no meat was bagged. Nearby hung a complete first aid kit. At the other end of the room were 14 bunks stacked three high, all with mattresses. I chose one of them and spread my bed roll on it.

The cook began to prepare supper as we gathered around the fire to chat and discuss the prospects of getting a deer. After a mulligan stew and more talking, we went to bed early for the morrow would be a hard day. Sometimes a man would walk ten or twenty miles on a day's hunt. Even sitting on a mesquite limb for four hours is not easy.

We were up at 5:30 the next morning and the smell of breakfast made

★ Continued on page 25

ARMS AND AMMUNITION

Edited by ADAM WILSON III

Pistol Shooting Increases

THE sport of pistol shooting is destined for an unprecedented growth within the next few years.

During the war years, the young men and women of this country engaged in pistol shooting more than at any similar period of time in history. Pistol practice during those days was grim and serious business, but soon what started out to be the drudgery of training developed into a pleasure eagerly anticipated. Many of those veterans want to continue their pistol shooting and when conditions return to normal you'll hear the crackle of pistol fire in many, many sections for the first time. There is plenty of pistol smoke looming on the near horizon.

For those who would engage in pistol shooting instruction for the benefit of their fellow sportsmen, R. H. Simons, a former FBI agent now with the Remington Arms Company, has outlined a number of pointers which could well be embodied in a simple course of instruction. Says Simons:

"Before any shooting instruction begins, the rudiments of safe handling of firearms should be given. This should include the safe handling of an unloaded firearm, and immediately procedures can be set down for the rules to be followed while receiving instructions.

"The revolver should be carried with the cylinder open, unless it is in the holster. The slide on an automatic pistol should be locked back and the clip removed. It is usually a good rule to collect all live ammunition at the range so that no one can inadvertently leave his gun loaded or reload his gun believing he is going to leave and then resume dry practice with a loaded weapon. No gun should be pointed or the trigger snapped at anyone or anything except on instructions. Accidents have happened in this way.

"Safety talks should be interspersed throughout the training as the safe handling of firearms is of first importance. In fact, if no other point than safe handling is achieved in the course, most of the training effort will have been worthwhile.

"Usually the course of actual instruction proceeds with an explanation of the mechanical functions of the gun. The instructor should briefly explain to the students the nomenclature of the revolver, pointing out the front sight, rear sight, muzzle, cylinder, grip, back strap, hammer, trigger, trigger guard, cylinder lock or latch and extractor rod.

"On automatic pistols, the functions of the magazine, slide, slide stop, thumb safety and grip safety are also given.

"This phase of training can be detailed as necessary to suit the occasion. Usually, however, where time is limited, an explanation of this limited number of parts is easier for the shooter to remember and fits in better with an average training program.

"Field stripping of revolvers is not recommended by the manufacturers. Field stripping of automatic pistols, where they are used is necessary for cleaning purposes and should be included in the instructions. Naturally, where automatic pistols are a regular part of the equipment issued, the nomenclature coverage will be more detailed.

"The cleaning and correct maintenance of firearms equipment is important and if understood, is a simple matter.

"Where possible, the gun should be cleaned from the breech. Nitro-solvent may be applied to the bore with a cleaning rod and patches. Then several dry patches are run through the bore and if they show no stain, the bore is clean.

"The working mechanisms of the bolt or breech block or any other action parts should be cleaned with some solvent on a patch, then wiped dry and rewiped with an oily patch. The barrel and other metal surfaces should be wiped with an oily cloth, followed by a dry cloth.

"Where brass brushes are used, the only caution is that the brush should be of the appropriate caliber and should be passed entirely through the bore and out before reversing the direction. Reversing the direction of the brush while in the bore will damage the brass brush. No solvent or oil should be applied to the brass brush.

"Revolvers are cleaned from the muzzle, while automatic pistols should be disassembled to clean. Caution should be taken not to over-oil any gun after cleaning, especially if it is an emergency weapon. The chambers should be perfectly dry.

"Before the beginning of instructions in dry firing, it is well to place emphasis on the safety precautions again and to now get tough about it. The following points should be repeated until each shooter lives the rules as a solemn, unvariable ritual:

"Be alert in practice and in action.

"Unload before going on the range.

"Keep the cylinder open or the maga-

★ Continued on page 29

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My First Deer

★ Continued from page 23

us hurry into our clothes. Breakfast included eggs, any style, with ham, toast and coffee. We put on plenty of clothes that morning, because it frosted during the night and the temperature was still nippy. During breakfast, the men decided where to go. I noticed most of them went north along the fence rows, cinderos and ponds. To the north were ridges and not such good prospects. However, many deer have been killed north of the house, so my father decided to try that since more tracks had been seen in that direction. At about 7:30 we loaded the guns, it was still dark and the coyotes were howling all around the twenty-four mile lease. I loaded my 22 hornet to the gills and put plenty of shell in my pocket, hoping to need them. Daddy had his 348, which has killed more game than I ever hope to see.

I scraped the ice off the windshield as the car ground to a start. We rolled down hill, over a cattle guard and a winding road until we finally came to straight stretch, but still bumpy as a washboard. After several miles of this, I saw the dawn creeping over the horizon as we turned down the Truax Cindera. This cindera had been named for a Mr. Truax, who with John Cutts, had worked four days cutting a road through the brush and thicket so a car could take them another two miles into deer country. We stopped on top of a knoll in front of a tree to keep the car from rolling, and walked on down the hillside. Not knowing the country and with no compass my father decided on tree sitting for the first morning. We picked out a good one with a board, which some previous hunter had thoughtfully nailed across two limbs for comfort. One can spot many of these boards in trees from the road where hunters have sought to be at ease. There had been two deer killed from this tree before so my hopes were running high. It seemed like I sat there for hours. My feet were like ice and my hands were still colder. The day had dawned clear, with no wind. I waited, looked, listened, waited, looked and listened but there was nothing, only the brush birds. I was tempted many times to get down and walk about to get warm but I knew as surely as I did, that would be the time a deer would come by, hear me and run away so I stuck it out four hours before going to the car.

At the car, I waited till my father came up and we went back to the cabin with nothing to show for the morning's hunt. We were the last ones in. Dinner was on the stove and none had any better luck than we did so there were no tales that noon.

It had gotten warmer and after dinner it seemed to be the general rule for every one to take a siesta till around 3 o'clock. I was restless and anxious to get back to hunting but still that bed felt mighty good. A person needs plenty

★ Continued on page 28

The Goldthwaite Jaguar

By ARTHUR F. HALLORAN

AROUND a campfire, high in the rugged Sierra Agua Dulce of southwestern Arizona, the conversation turned to tales of Texas. My companions were border men and the eldest, Jim, was a Texas cattleman of the old school. Our conversation drifted through rattlesnake, wolf, and lion stories until finally Jim told us how his kinfolks had killed the daddy of them all, the now famous Goldthwaite jaguar, that had invaded the shinnery breaks of Mills County.

On Thursday night, September 3, 1903, Homer Brown, Henry Morris, and Johnnie Walton went hunting. These men had heard that a "large cat" had been killing goats and they were out to find the varmint. Three miles southwest of Center City they started a jaguar, just at dark. After the hounds had chased him for three miles, the big spotted cat treed. Homer Brown shot him in the body with a "45" and when the beast fell out of the tree the dogs chased him for another mile and a half before he turned. Henry Morris who had left the chase to secure some help returned with the reinforcements. All in all nine men took part in the final "fight." Bill Morris rode in through the shinnery too close and the powerful cat ripped his horse open. The faithful pony died a few days later from his gaping wound. Brown commenced the fight with ten hounds. When the long-tailed cat was finally killed at midnight three dogs were still with him. During the chase the jaguar had killed one of the hounds and wounded several.

Jim later presented me with a copy of an old family photograph showing the jaguar, Homer Brown, the dogs, horses, and others that took part in this "battle." The jaguar measured six and a half feet in length, 36 inches around the chest, 21 inches around the forearm, and weighed 140 pounds.

The famous Texas naturalist H. P. Attwater secured the skull and hide and sent it to the National Museum as recorded by Vernon Bailey who wrote a complete account of this true tale of Texas high adventure in his valuable paper, "Biological Survey of Texas." Some readers will remember the picture of Homer Brown and the jaguar in front of the Goldthwaite courthouse, published in 1932, by the Texas Game, Fish, and Oyster Commission. The recent (March, 1946) story by Charles G. Jones in TEXAS GAME AND FISH of an even bigger jaguar suggests that the "good old days" of Texas big game hunting are not entirely in the distant past.

THE GOLDTHWAITE JAUGAR and some of the participants in the "fight." Reproduced from an old photograph through the courtesy of James T. Havins.

***LOCAL SPORTSMEN** always are ready and eager to help Game Department biologists seine gars from the Navasota river.*

Stalking

★ Continued from page 5

veston Island went completely dry. When it still had a depth of about one foot it was found to contain a squirming mass of gars, estimated at one thousand or more. The writhing desperation of the garpike had roiled the water into a muddy consistency that must have completely clogged the gills of other fishes, while the gars continued to gulp air at the surface.

Fearful that it might rain before the lake could dry up it was decided by fishermen and others to wade into it and destroy the gars. Armed with gigs, spears, pitchforks and rakes the fight was on. It was a muddy battle and those who participated were bespattered from head to foot. A large gar dashed between the legs of Warden McClosky with such violence as to knock him down in the mud. Bumping into the besiegers they blindly fled from one danger to another. When at last their numbers had been thinned out, the dead ones were piled on the shore, saturated with kerosene and burned, so far as cremation was possible. The writer was not there in time for the fight but was present for the funeral rites.

The few gars that remained in the lake were finally liquidated by the continued drouth, and in due course it rained and filled the lake again. Within two years gars were abundant in the lake, which was filled solely by surface drainage. How did the gars get in there? Supposition was that the gar eggs had been carried on the feet of birds or had been swallowed by birds which flew to the lake where they died of alkaloid poisoning.

Domestic fowls have been victims of such poisoning, according to reliable evidence. Mr. L. E. Merryman, who lived on Olmito Lake near Brownsville, fed his chickens gar eggs, which had been boiled, and lost 100 of them. He said when they began falling over he saved some by squeezing the eggs out of the craws. Other cases have been reported and a government bulletin has declared the gar egg to be poisonous. However, a Mr. Clark who lived on Olmito Lake, when told the chicken story, declared that he had eaten gar eggs fried without being harmed; but from here on, said he, no more gar eggs for me. Lard is an antidote for strychnine, an alkaloid poison, and frying the eggs in lard had probably counteracted the poison.

It is altogether evident that nature did not intend gar eggs to be used as

FOUR hefty alligator gars that no longer will prey upon game fish

food by fish, fowl or man. The gar has no nest and its eggs are dropped or strewn broadcast on the water, unprotected by anything but the poison. The eggs are fertilized by the male and on such occasions gars are sometimes concentrated in great numbers. At such spawning times if one can be on hand with hoop nets the gars will crowd into the nets under the excitement of the fertilizing processes. A good catch can often be made below a dam where currents and eddies abound. In still lakes the writer has never witnessed any such spawning concentrations. Spawning usually begins early in April.

"The balance of nature" is of little concern to most people when they see a stream woefully unbalanced by the presence of gars and a scarcity of edible fishes. In the Navasota River just above its confluence with the Brazos an extermination program was once carried out by Warden Sam Cavitt, aided by volunteer workers equipped with drag seines. The seines were made of heavy cord more like small ropes that could not be broken by the largest alligator gars that plunged against them. Several miles of the river were seined and many of the monsters, as well as those of the smaller varieties, were hauled out; but few of the useful kinds of fish were found.

Some readers may wonder how the big and dangerous types were handled by men in the water. Entangled in the seine, the gar was hoisted to the surface and shot through the head by Mr. Cavitt or some member of the crew with a .22 rifle. The shot was delivered from a skiff standing nearby, ready to receive the cargo to be dumped on the shore.

We have very little information as to what the workers thought of the gar as food. While the young and tender gar is said to be quite edible, its unpopularity is due in part to the tough hide which is difficult to remove, and to its reptilian appearance. It is certain that the seining was not followed by the festivities of an old fashioned fish fry. Cooking utensils were not easily carried along and most of the feasting, if it could be called that, was confined to bread, pickles and coffee.

Getting rid of gars has always been a problem among fishermen. It will probably continue to be such until a satisfactory solution is reached. Alert to any scheme that might prove useful, the writer came upon a short news item from Germany in which it was alleged that carp farmers removed their fish from ponds by means of an electric current of about 150 volts alternating current, which temporarily stunned the fish. One wire was zigzagged across the bottom of the pond, and a surface wire was drawn across the surface of the water.

If carp could thus be removed it occurred to the writer that gars also might be removed. Accordingly, back in 1928 he began a series of experiments on electrification of fish which resulted in the creation of a floating device equipped with a motor and generator with which he stunned and destroyed many gars during the course of a series of experiments.

Laboratory demonstrations, and those of electric wires strung in the open waters of rivers first pointed the way, and then a preliminary test with a floating outfit was made at Sugarland. Later, a more adequate device was set up in Caddo Lake, the largest natural body of fresh water in Texas.

Small nets with electrodes in the front of the moving barge picked up the gars. Operation was possible only at night with a flood-light which blinded the gars, and strangely enough other fishes, more alert to danger, were not caught in the net. About one third of the gars in the path of the barge fell into the net, which is explained in this way: When the gar encountered the electric field he moved with a bound in the direction his nose was pointed. If headed toward the barge, at a distance of not more than fifteen feet, he plunged into the net where he was killed in four or five minutes by the electric current. If headed away from the barge, he escaped, floundering on the surface of the water until beyond the reach of the current.

About 150 volts, alternating current, was used; and the number of amperes was approximately fifteen, depending on the number of wire electrodes, which were placed two feet apart, in the nets which covered a distance of twelve feet. The volume of the electric current, as shown by amperes, depended also on the amount of chloride in the water; chief carrier of the current, which was usually less than thirty parts per million. Where there was much lime or calcium carbonate in the water, as in the San Marcos River, it was found necessary to clean the electrodes with nitric acid and dip them in bichloride of mercury to prevent corrosion. This was not required in Caddo Lake, which has little or no lime. A corroded line does not carry much current.

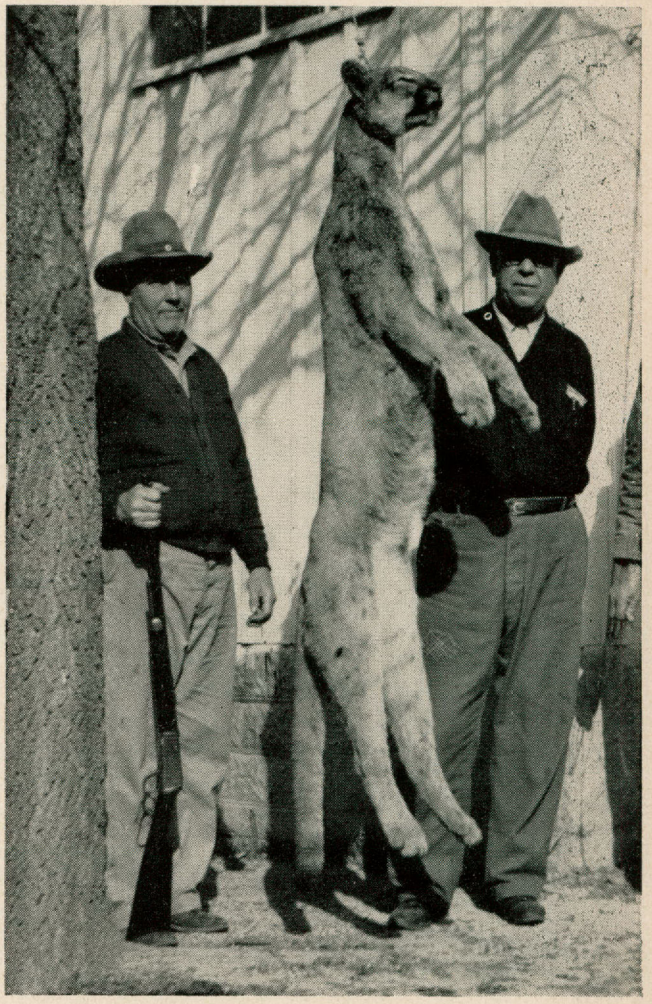
The barge was twenty feet long and ten feet wide with a V front which streamlined, to an extent, its movement through the water. The number of gars taken was always in the ratio of their abundance. In some stretches of water none would be found. The ideal depth for operation was in ten or fifteen feet of water. They did not rise to the surface from a greater depth in time to fall into the moving net. The greatest number taken in a single run was 21 long-nosed gars in a distance of approximately three and a half miles. Their average length was about two feet and some were five feet long.

It would be possible in a small lake to clean the gars out in a short time.

☆

A mountain lion whose days of depredation were ended with a well placed bullet.

☆



but in a lake of 50,000 acres such as Caddo, the population was too thin for economical operation. Also, the expense made it a luxury beyond the reach of most fishermen.

The question naturally arises as to why gars were so easily taken while other species escaped. The gar has few enemies and is not so alert to danger. Also, it was proved that the gar is ten times as vulnerable to the electric current as other fishes. This may be explained partly by the long bony snout which is a better conductor of electricity than other parts of the gar. It is a kind of lightning rod that attracts the fiery bolt. For proof that teeth and bones of a gar are good conductors, visit your dentist. If he wishes to learn whether the nerve of a tooth is dead he sends an electric current through the tooth. If it strikes a live nerve the patient will groan. His mouth is too full of gadgets to be able to speak. The gar has a mouth full of perfectly good teeth with connecting nerves. The teeth serve as antennae to pick up the current. With his snout on fire he dashes to the surface, trying to leap out of the water and waltzes around on his tail. Other fishes do not leap out of the water but they swim swiftly away when hit by the current.

The swim bladder of the gar serves partly as a lung and when the current strikes, the gar belches air from the lung, bubbles rising to the surface, and he is apt to sink. If the shock is sufficient he will die in a short while. If not, he may escape, or he may lie on the bottom as long as forty-five minutes before recovering enough to make a dash to the surface where he will immediately gulp air.

Anticipating such temporary knockouts, an additional set of electrodes was placed ten feet in advance of the barge which carried just enough current to sting the gar. This caused him to bound along the surface of the water until he fell into the advancing net where a strong current immediately made the gar helpless. No one should fall into the error of supposing that gars could be taken in a propelled net without the aid of the current. It was found that they would quickly back out and escape.

A high frequency laboratory test showed that fish receive the greatest shock from a 350 cycle 200 volt current. It required three times longer for a fish to recover from such a shock than it did with the 60 cycle current. Above the 350 cycles the force of the current decreased until at 600 cycles the current would not turn the fish over, although all movement was halted. However, no such generator was procurable, and what it would do in the open waters must await the findings of future investigators.

In rounding out the various phases of electrical performances it seemed opportune to ascertain what the current would do to gar eggs. At an April spawning in the lake at a point where the water eddied from a recent rise, hundreds of gars were concentrated spraying their eggs on the surface of the water. Two hoop nets set in the midst of the spawning party caught more than 400 gars in 24 hours and then the party was broken up apparently by a hard rain which followed the catch. The gars were counted and photographed on the court house square at Marshall.

The gar machine was then moved into the area of the egg depositary. The reader is perhaps ready with the question—why the machine was not used on the gars instead of using nets. Two good reasons. The area was full of logs and limbs which would have made navigation impossible if the nets on the barge were let down. The other reason was that gars must be picked up when the barge is moving.

The eggs, about the size of an okra seed, were sticking to every stone or fallen branch or log in an area of some sixty feet square. The area was given a thorough electrification for several minutes. However, before this was done a jar of eggs was set aside for a control, and other eggs were wrapped in cloth and hung between the electrodes in the water and given the electric treatment for two minutes. These, together with the control eggs, were placed in separate jars with perforated lids so there would be good circulation. The jars were then submerged in the lake to await results.

In five or six days the eggs in the control jar had begun to hatch. Within seven days nearly 80% had hatched and the young were swimming lustily. In three jars which contained the electrified eggs only two eggs had hatched in eight days. Examination of the embryos of the unhatched eggs indicated that only a small start was made in the incubation process. As to the fate of the eggs in the spawning bed, they simply rotted and no young were found. To find them in the clear water would have been easy. The gar egg is covered with a glutinous substance which causes it to stick firmly to any hard surface. When the embryo emerges from the egg it remains attached to the hard surface, feeding on the yolk for several days, fanning the water with its tail.

One more question: Did the current penetrate the egg or was its effect only on the surface? Eggs for a laboratory test were placed in a wide jar with electrodes. The conductivity of the eggs was found to be so poor that the small current transmitted was apparently through the mineral of the moisture surrounding the egg. The conclusion was that the current traveled only over the surface of the eggs, paralyzing the respiratory action of the pores of the membrane, thus inhibiting the anabolism of the embryo.

"Why kill the rattlesnake, didn't God put him here?" was a question asked by R. D. Camp, naturalist and conservationist of the lower Rio Grande. If they are useful for their poison perhaps a synthetic poison could be concocted. If the predatory animal serves a useful purpose we still wonder just how useful, and this question also is passed up to the synthesist.

My First Deer

★ *Continued from page 25*

of sleep if he hunts in this man's country. By four o'clock, we were out again, this time between an arroya and the Ebony Ridge. I was instructed to zigzag between the arroya and a path about 70 yards away and to continue northward for about a mile until I reached a fence. I had covered about four hundred yards when I heard a chattering such as I had never heard before. Advancing in that direction, I saw a tree, limp with coal black vultures. I sneaked forward as quietly as possible, and if anyone thinks that is easy, try it. Every limb is full of thorns that seem to reach out to catch one's coat and snap off thereby warning the prey. I had gotten to within 15 yards of the tree when I was detected and some 40 to 60 birds flew into the air at one time. I meandered over to have a better look at the carcass of a cow when, suddenly, there in front of me a coyote gazing at me from the brush. I fired as soon as I could but never saw him again. Soon I arrived at my designated place and found dad waiting for me. He said four coyotes had come out of the brush just ahead of me and gone down the road but that he was too far away to fire at them.

I turned to retrace my steps. When I came to the carcass of the cow, I laid down behind a tree and waited until it was getting quite late and back of me, I heard a lone coyote's shrill howl. I shivered a little but got up to stalk my lonesome friend. It was getting darker and stalking made me feel very lonely as the coyote began to whine and bark. I was sure he was just around a clump of cactus. Just as I crept around that corner to take a look the loud report of a nearby gun nearly knocked me off my feet. I decided that was unhealthy territory and went on to the meeting place where my father told me he had shot at a coyote. We found it about 100 yards away with a shot right through its middle. So ended my first day of hunting.

That evening four more men arrived in camp. We had supper and cleared away the dishes. Then every one sat around the fire and told of their experiences of the day and interesting stories of other occasions. Some of us retired rather early while a few got a good poker game started. It seems every one lost for the winner never talks around camp.

The second day, which dawned clear and cold, found me standing on a road, twisting my head first one way and then the other, back and forth hoping to see something. Around 9:30, I ambled up the road to the edge of the arroya and crept through the thicket hoping to get another chance at that coyote. As I got close to the carcass which I had seen the previous day, I could hear him gnawing on the bones and through the

brush I could see fur bobbing back and forth. I settled the dot in my scope, fired but missed. The coyote darted out of the brush like lightning and went by me at about 60 M.P.M. I fired again and still again but still he did not stop. My action on that bolt was plenty fast but my aim was at zero and I began to wonder if I could hit a deer if I was lucky enough to see one. Some time later, I heard five shots and wondered if everyone was getting a deer but me. When I got back to camp, I found others had shot at some coyotes and also missed.

Everyone was in camp but Bill Lemon, who is the "Papasita" out at this camp. When he came in, he asked about the five shots and when no one answered, this is what he related, "I was creeping through the brush at one M.P.H. trying to get a deer when I heard these shots echoing through the hills like cannon, scaring off everything within 20 miles. I said to myself, now if that's that man Wood (referring to my father) shooting at those damn coyotes again, I'll run him out of Zapata County." Evidently he had not heard my three shots from the light 22 hornet and I was glad.

One of the boys reported seeing a big buck and since no one else had even seen one, we had hopes again, knowing there was at least one buck in the country.

Following dinner, there was much talk of a drive. I didn't know just what this was but I was soon initiated. There were two large thickets west and north of the camp house. Two men started through the thicket on the north and the rest stationed themselves around it so nothing could come out without someone seeing it. For an hour the two men crawled and dragged themselves through the dense mesquite, yowling and tromping as they went but nothing came out but two wild boars. The man close to where they came out thought they were tame and never fired a shot. Dad and I went back to the house. There was just this afternoon and one more day to hunt, since it was the end of the season. I didn't want to waste any time taking a siesta so wandered off by myself. By this time in the day, even though the morning was plenty cool, the old South Texas sun was beating down. I found a road which was bordered on one side by a fenced goat pasture and open brush on the other. I saw some fresh tracks and found a place to stand watch. I looked till my eyes burned and the fence blurred before my eyes and every leaf and cactus looked like a deer. In this Southwest Texas country, waiting is one of the best weapons to use in killing a deer. Late in the afternoon it turned cloudy and a cold wind blew up and soon I was shivering. I would kneel and stand alternately until my bones ached but kept my gun at ready all the time, when, there! What was that? A deer, what luck! Then disappointment for it was a doe but I knew a buck might follow so I waited, shaking like a leaf, and my heart in my throat, but no buck showed up. As it was growing quite dark, I headed for camp and so ended my second day.

Then my last day dawned and I was out at the tree which I had occupied on the first day before daylight, but with a large cardboard box to use as a back rest. I had a clear view in three directions and my hopes began to dwindle as the hours passed and a light rain started and trickled down my face. Then suddenly out of the clear there was the deer which I had been hoping for, walking slowly through a small opening. I could see him plainly and I counted, one, two, three—an eight-point buck. As he passed behind a huisache, I raised my gun and when he appeared in the sight, I fired. He faltered and sank to his knees as I shot again. When I went to him, he leaped and I fired again—a wild shot which I might have saved. He sank down again and once more tried to get up. My first shot had entered his lungs, we found upon examination and the second one had broken his shoulder. In the meantime dad had come up and we dragged it across a ravine so we could drive the car up to it. Was I happy! And, back at camp, I was the champion. I was so proud, I could hardly talk so dad told them about it, and I think they were as proud as I was. Of the 13 men in camp, I killed the only deer and on my first hunting trip at the age of 16.

Pollution

★ *Continued from page 10*

becomes serious when large quantities of rain fall in a short time. The abnormal introduction into streams of soil particles, the leachings of organic materials, and parts of plant and animal bodies take their toll of oxygen and deposit blankets of silt and sludge which often continue to have an oxygen demand for years. Contour farming of slopes, keeping a cover crop on cultivated fields in the winter and more attention to forestry will greatly alleviate erosion. Top soil is the most fertile, and since it is the portion commonly lost because of erosion, the loss to farmers from erosion is even greater than its damage to streams.

Unfortunately, too often in Texas organic matter is introduced into streams in such quantities that absorption from the air and liberation of oxygen by algae cannot equal the oxygen consuming rate of the organic matter, and the oxygen content of the water becomes too low to support fish life.

Organic decomposition in water increases acidity mainly by increasing carbon dioxide. Fish are seldom killed from this cause, although a change in acidity may modify the types of available food and interfere with fish life in this way. In regard to mining and industrial waste the problem is more serious; acidity often does become great enough to kill fish. Also, copperas (ferrous sulfate) in waters from coal mines is very damaging to fish. Water containing the carbonates of calcium and magnesium resists the effects of either acids or alkalies. Water running over limestone rock always contains an abundance of protective carbonates.

Excess quantities of acids or alkalies in water kill fish. The acids damage mostly by precipitation of mucus on the gills which prevents oxygen from passing into the blood stream, thus suffocating the fish.

Acids and alkalies in chemical equivalent amounts neutralize each other; therefore, the introduction of an alkali into an acid polluted stream, or the converse, reduces the original pollution.

The intensity of acidity or its opposite alkalinity is defined by the term pH. Pure distilled water has a pH of 7, which is the reference point neutrality. A pH above 7 denotes alkalinity and a pH below 7 denotes acidity. The highest possible acidity is zero pH, and the highest possible alkalinity has a pH of 14. A pH range from 6.7 to 8.6 is considered most favorable for fish; while a pH below 4 (Arch E. Cole, The Effects of Pollutional Wastes on Fish Life) or above 9.6 is often deadly to fish.

The substances and principles previously mentioned are injurious when certain maximum amounts are exceeded, but are not toxic in small amounts. Other substances such as lead, copper, arsenic, phenol, and certain by-products of gas plants and oil refineries are specifically toxic to fish, and produce great injury or death in even extremely small amounts.

Pollution from sewage can be largely reduced by the proper operation of sewage disposal plants, and the utilization of the by-product sludge in agriculture where it benefits the fertility of land instead of damaging streams. Acid waste can be rendered harmless by adequate contact with limestone rock. Most damaging waste materials now entering our streams can be pre-treated in a way that will greatly reduce harm.

Arms

★ *Continued from page 24*

zine out and slide locked back on automatics.

"Check your gun to make sure it is unloaded, has no mechanical defects and no barrel obstructions.

"Do not snap trigger behind the line.

"Do not handle or point gun.

"Always bench with muzzle down range.

"Obey commands.

"Bench weapon before turning around.

"On any malfunction count fifteen before lowering or opening gun. You may have a hangfire.

"Remember that horseplay is always a menace to safety."

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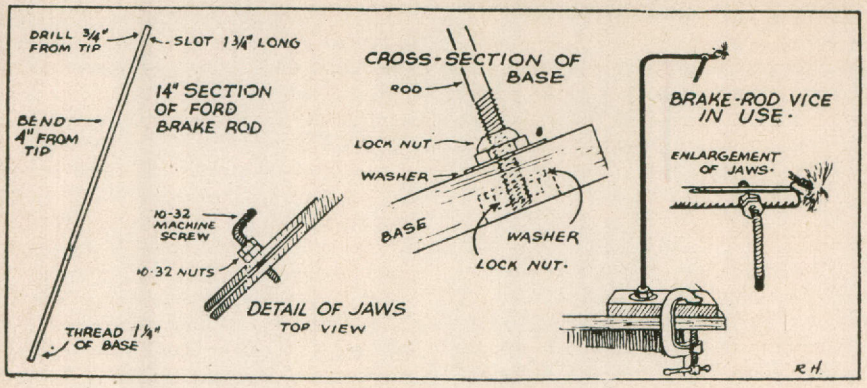
Make Your Own Fly-Tying Device



OBTAIN a 14-inch length of brake-rod from a Model A Ford. Square the ends with a file and with a hack-saw cut a 1¾-inch slot exactly in the center of rod on one end. This is the hardest to do and most important part of the job, so be careful to get your slot straight.

After slot is sawed use an ignition point file, to file the outer half inch of slot smooth. This, too, is important as this is the part that holds the shank of the hook firmly. Now put a thin piece of metal in the slot to hold the slotted parts in the original position, measure back from slotted end ¾ of an inch and center punch using a No. 21 drill; drill hole all the way through the rod. Now be careful again and using a No. 13 drill, drill through just one part of your slotted end, using the thin metal strip as a check and you won't have any trouble.

Now use a 10/32 tap and thread the small hole for your vise handle. Get a 10/32 machine screw 2½ inches long (iron) from any hardware store. The type of head means nothing as it will be cut off; also get a couple of extra 10/32 nuts. Now take the screw and make a right angle bend ¾-inch from the threaded end, taking care not to damage threads. Now cut off head of bolt and round cut end with file; run the two nuts on bolt about ½ inch and jam tightly. Screw this in the threaded hole and you have your vise handle. Now measure four inches from the slotted end of rod and mark place in vise and bend to a right angle, making sure that the slot will be in perfect line with the rest of the rod and that the vise handle will be on right side.

Now cut a 5/16 inch thread 1¼ inches long on solid end of rod and get two 5/16 in. nuts and washers. Obtain a hardwood block 1½ in. wide, 4½ in. long and ¾ in. thick. One inch from end of block on center line drill a ¾ in. hole ½ in. deep. Drill the rest of the way through the block with a 5/16 in. drill. Using washers and nuts mount vise on block and with the addition of a ten cent C clamp from the dime store your vise is ready for table edge mounting.

While not to be compared to a high grade manufactured vise it does a good job for the average fly-tyer or beginner, and is especially good for tying the rubber spiders or crickets so popular now.—*Courtesy of Ohio Conservationist.*

Federal Aid

The wide state support of the Federal Aid Wildlife Restoration Act is demonstrated by the fact that every state except Nevada has adopted legislation assenting to the provisions of the act and is now participating, according to Dr. Ira N. Gabrielson, Director, U. S. Fish and Wildlife Service.

During the past fiscal year 168 Federal Aid projects obligating $1,040,000 were approved. These consisted of 48 research projects, obligating $312,859; 55 development projects at $342,452; 49 land projects at $307,050; and 16 coordination projects at $77,679.

During 1945 the states emphasize the purchase of lands of no particular agricultural value so as to accumulate a backlog of development opportunities for treatment during the postwar period. Of the 49 land projects approved, 44 involved the direct purchase of 39,456.53 acres in 17 states. Big-game winter ranger and marsh areas to be developed as waterfowl refuges and public shooting grounds comprised the principal part of the acreage approved for purchase.

Under the Federal Aid in Wildlife Restoration Act, which is commonly called the Pittman-Robertson Act and was approved by Congress in 1937, each participating state pays 25 percent of the cost of a project and the Federal Government 75 percent. For this purpose Congress each year can appropriate a sum not to exceed the total income derived from the 11 percent excise tax on sporting arms and ammunition.

No State Aid For Upstream Trip

There is no legislative authority for issuance of a permit by any state agency for removal of obstructions in public streams to permit fish to pass up the channel, according to a recent ruling by the attorney general.

The opinion was requested by the Game Department after the Game Department had been asked for such permits by residents on the Colorado river near Marble Falls, and on the Pedernales river about 200 miles from Lake Travis.

In both cases, residents of the two areas contended that obstructions in the stream beds blocked the passage of fish upstream, and they sought permission to remove the barriers. At Marble Falls, the obstruction is the remnant of an old dam which at low water impedes passage of fish upstream into a small lake. On the Pedernales, the obstruction is a natural falls.

DUCKS were late in leaving Buffalo lake, 9 miles east of Lubbock, as this picture, taken on February 15, by Chas. Lackey, Lubbock city detective, and sent in by Luke Bundrant, Lubbock, shows.

Letters

Dear Editor: In the last issue of your magazine I noticed a caption "Fox vs Quail" and you said that Fox did not bother quail or words to that effect. I want to say for argument's sake that they do and I would like for you to go into detail in some issue stating why they do not.

Reading in the American Field Magazine some months ago an article by Dr. Longsdorf of New Jersey he stated that the commission of which he is chairman of the State of New Jersey that they had hired a trapper for the sole purpose of doing away with Fox for they definitely knew that they were in a way the cause of the shortage of quail in their community. From October to April of the following year that they had caught some five hundred Fox and they examined the stomachs of lots of them and invariably they would show signs of birds. On the strength of what I read in the Field we are now sponsoring a trapper in Lamar County. Of course he does not try to trap fox but he does get lots of them and I was talking to him only yesterday and he stated to me that the fox was the worst enemy of the quail. He said they were four times faster than a cat, had a better nose and they would not only kill all the birds they could get to but the rabbits, too. We examined the stools of some fox and found all of them just full of rabbit fur and also bird feathers. Captain of Game Wardens was in to see me not long ago, and he said last year they trapped 32 fox in the southern part of the state and examined 30 stomachs and every one showed signs of birds. I mentioned the fact to the man that is here that I did not get over a dozen stands of my dogs on birds this year and asked him why. He told me that the fox would stalk the birds and a quail did not know the difference between a fox and a dog and they would not stand for a dog. I have seen the dogs pointing and looked running through the woods the birds were leaving it with them what I mean they were really traveling. Again the birds will get up some twenty to fifty yards ahead of the dogs.

I feel just like the boys in Georgia and I surely am going to have to be showed, as the nigger says, to make me believe they are not about the worst enemy we have. The president of the First National Bank here said he had 200 chickens and they got them all. I mentioned the fact to the trapper and he set six getters out there and that night got two fox; others are bothered just as badly and we are going to wipe them out or know that we have been found trying.

But for argument's sake I would like for you to discuss this in some issue for we have been finding our birds in the woods for a number of years and I don't think they are in their but for one reason and that is the cover.—Warren L. Goodman, Paris, Texas.

☆

We appreciate your letter of March 19 in which you discuss a news item, Fox vs. Quail, from our March issue of Texas Game and Fish.

Before taking up the situation in Texas, let's go back a bit and see what the article in reference really does say. And see what basis for argument we do have. So quoting—

"Two Georgia sportsmen recently concluded that because foxes are abundant and quail scarce in that state this year, the foxes must have eaten the birds!"

Then the article goes on to say that the two sportsmen "did not think any further than their noses" because, and while not denying that fox eat quail in Georgia, as the observer points out, there are other important factors involved in the scarcity of birds on the shooting grounds. He enumerates success of breeding and the effects of food and cover distribution and abundance as being important, also, in the local quail picture.

With that substance of the article in mind, I'm wondering now just what is the basis for your offense. Do you agree with the two Georgia sportsmen to the extent that you believe the fox and the fox alone were responsible for the shortage of quail on the shooting grounds. Even in spite of the fact that perhaps 90% of spring nests were drowned out by rains? And in spite of the fact that a failure of food supply in one area and an excellent success in another may have caused available birds to drift into non-huntable woodland areas? Is it the foxes fault that man has misused his fields and marginal woodland to the extent of eradicating all the quail foods?

Would you say that the Allies or the U. S. A. won World War II because we had the bravest men? It's a pleasant thought, surely, but you cannot deny that the excellence and abundance of our equipment and supplies and many other factors, even including the weather, were partly responsible for our victory. And though the analogy may be far-fetched, the outcome of the battle of the quail and fox in Georgia or in Texas is also dependent on numerous factors. Equipment and supplies and the weather, if you please, and not alone on the comparative ferocity of the fox.

That's about all there is to the argument, if there is such.

I know of an area where an excessive amount of water taken out of the ground by artesian wells brought about near extermination of a quail population that for many years had supplied hundreds of hunters with good hunting. There are enumerable instances where overgrazing was the primary factor in reduction of game populations. Clean farming taken too literally is a ban to quail existence.

Several years ago we were doing some research on quail on an area in the Panhandle. We had nine sections of privately owned land under close observation of two biologists. When the work was first initiated, we had only a modest population of birds on the area. During two subsequent seasons, however, the weather was ideal and grazing by cattle was not excessive so that the birds increased greatly. It was truly a quail paradise, and hawks, owls and coyotes were also present in abundance.

Then, the price of beef went up and the weather turned bad.

Within the period that followed from one January to another after the rise in beef price, cattle were poured into the area and the luxuriant growth of grass, weeds and shrubs was reduced to stubble. No young birds were raised that summer; there was no nesting cover. But the grown birds still survived. I saw them myself in December with snow covering the bare ground and literally thousands of quail hovering in coveys at the base of leafless mesquite trees.

We knew that a catastrophe was in the making but there was no indication of the direction from which it would come. A few birds had been found dead of what appeared to be starvation. The circumstances were perfect for a disease plague. Predators were abundant, but in spite of good opportunity over several months they had taken few birds.

Then during the first week in January, quite suddenly, as if some referee had said "go," the hawks set in. At the end of two more weeks there were few quail left. Some had escaped to good cover in a nearby river bottom. Some survived on the study area. But approximately two birds per acre were killed on a 1,000-acre block that was carefully checked!

Now, knowing such things, can we conclude that hawks should be killed off because they are limiting the quail in the Texas Panhandle. Absolutely not! Instead, indict the landowners involved for so misusing their lands as to cause such an ugly revulsion in nature. And instead, give the hawk due credit for controlling the hordes of insects and rodents that preyed on the vegetation which provided the initial requirements for the quail population. And though we cannot be sure, we should acknowledge too that in this instance, at least, the hawk also served to alleviate a condition which could easily have bred a plague disease of much more devastating proportions.

Many studies have been made of fox food habits by counting, weighing and measuring what's found in fox stomachs. The inescapable conclusion, nevertheless, is that mice and rats and rabbits

***ON ONE TROT LINE.** These three catfish were caught at Possum Kingdom on March 24 by O. V. Hall and J. W. Graham, of Pampa, Texas. From left to right the cats weigh 22 pounds, 18 pounds and 20 pounds. Large river minnows were used for bait.*

make up the bulk of his diet. Birds, including quail, are supplemental items that vary in indirect proportion to the number of birds and fox on a given range.

Quail put in a wire cage with foxes have no chance of survival. Quail on poor quality range with an overpopulation of fox have little chance of adequate survival. While, on the other hand, quail on good quail range not only survive but do well in spite of foxes.

Good quail range, then, is our prescription for good quail hunting. And as the range varies toward inferior quality, it becomes necessary to exercise closer control over such factors as predation.

It cannot be denied that there are areas in Texas where the fox and other predators are excessively abundant. Such areas should be thoroughly investigated and corrective measures should be taken. Facilities for such work will become available in time. But for the present, let's not confuse the issue by being too much like the two Georgia sportsmen.

It has long been popular to cry "WOLF" or "LION" or "FOX" when anything went wrong. There were even some who, feeling regretful over the eradication of the wild buffalo, had the nerve to say that the wolves killed them off, after man in his blundering way had stolen the buffalo range, dried up their water holes, and killed 10 million head for their hides and a few choice steaks! Maybe the wolves did kill them off cause I wasn't there to see. But about 70 years from now when I'm a hundred years old and the *last* bobwhite quail gasps his *last* breath in Texas, I'm going to be about the "orrerist" old cuss you ever saw if I hear of someone saying "the fox done it!"

Let's recognize what the quail need for an abundant existence in all parts of the state, and then alter our land use programs so as to provide those requirements. When it is economically impractical to do so from the owner's point of view, we must admit that, too, as a temporary restraint, but even more so as a challenge to us for the development of such a higher level of values in man as will permit the existence of nature in more of its desirable forms.—E. G. MARSH, JR., Ass't Director, Division of Wildlife Restoration.

☆

Dear Editor: Enclosed please find check for $2.00 for which kindly extend my subscription for a year, and also that of my brother. Needless to say, we enjoy your publication very much and look forward to the arrival of each issue. Keep that "Texas Touch;" give us more recipes for preparing fish and game. Some of these have been hard to take, while others I have tried have been truly delectable. Incidentally, a good stunt for camping out along the coast is to carry a few cans of condensed gumbo soup along. Using this as a base, oysters, shrimp or fish can be added to make a tempting and delicious meal with very little time or effort. I can't understand why more advertisers don't take advantage of your publication as a means of getting their products before the public. Everyone I know that takes "Game and Fish" reads it from cover to cover and would certainly be susceptible and receptive to the right kind of advertising. Anyway, you are doing a swell job!—HADLEY SMITH, San Benito, Texas.

☆

Dear Editor: Enclosed is money order for one dollar to cover subscription for Texas Game and Fish to begin with your next issue. I just saw your last issue and immediately placed it on my "must get" list. You certainly do justice to Texas game and gather much valuable information for Texas sportsmen.—A. W. MITCHELL, North Uvalde, Texas.

☆

Dear Editor: Recently had the pleasure of reading a copy of Texas Game and Fish. It is something we have needed in Texas for a long time.—E. L. DEMING, San Marcos, Texas.

***TWO BUCKS WITH ONE SHOT.** The chances are about a million or more to one that you can get your limit of two bucks with one shot but G. W. Schlesselman, head of the geography department at Texas A & M did just that on Dec. 22, 1945, while hunting on the Homer Martin ranch in Mason county. The two bucks were in the approximate position that they are in the photo when Mr. Schlesselman saw the first buck and fired at a distance of about 100 yards. He didn't see the second buck. But the single bullet got both bucks. Hunting with Mr. Schlesselman at the time were R. L. Elkins, professor of economics at Texas A & M, Guy Smith, manager of the Eastwood Airport, and Homer Martin, owner of the ranch on which the two bucks were killed.*

5 Hunters

★ *Continued from page 8*

foolish-like, I decided I could better my position so stood up by a Spanish dagger. They had spotted me instantly and took off across the valley and up another mountain. I think those mountain mule deer have eyes like a 10X telescope. At another time I was watching a herd grazing on the side of a mountain about a half mile away and I waved my cap to see what they would do. At once, every head and ear was turned in my direction. I doubt if these brush whitetail can see that well.

When I arrived back at camp that night, well after dark, I reported what I had seen and everyone was in favor of the new country. We planned our strategy. The next morning, we started

Uncle Billy Sez:

SPRING fever an' fishin' goes hand in hand in hand. Sure is tough on kids that's tryin' to graduate from school, and it ain't so easy on fellers that's tryin' to get their gardens made with all them big fishworms bein' turned up.

from five different points to head for the center like a hub. Strip got a shot about daybreak and the deer went down but when he approached him, the deer jumped and ran. Strip was being over conservative with his shells and waited a little too long to fire again so the deer got away. As Wick and I were headed for our appointed starting places, I looked up and saw the familiar sight of the big mule deer against the skyline, I said, "Wick, do you see that doe up there?" He replied, "doe, nothing that's a big buck." We held a hasty conference, separated and came up on both sides of him. I had only gone a short distance when I heard Wick shoot and a few minutes later a big buck bounded over the mountain above me too fast for even a snapshot. I moved on over to my sector and on another ridge. As I looked out over the valley where I had seen deer the day before, there coming quartering toward me was a fine big buck following the backbone of a rocky ridge. At about 250 yards I pulled the trigger but knew I had missed when I saw a puff of dust where the bullet hit the rock just over his back. He heard the smack of the bullet against the rock before he heard the report of my rifle so jumped away from it toward me. I missed the second shot as he ran down the slope toward me and disappeared under a ledge. I waited at ready for what seemed like five minutes, for him to come out and when he did, what a picture he made, with those big spreading antlers. It looked like a dead tree moving off. When his shoulders appeared, I drilled him through the top of the right shoulder and he crumpled. The old reliable had come through again. When I got him into town, the sheriff 'lowed he was about as big as they come in them parts and guessed his weight, dressed out at 250 to 265 pounds. I know the horn spread was 30½ inches.

My kill seemed to start the ball rolling for it wasn't long till I heard a shot coming from Doc's direction. He had been resting on the side of the mountain when he noticed a movement across the canyon and heard rock rolling. It was a big buck sneaking off. He killed him at 300 yards and he was nearly as large as mine. Doc said he wasn't afraid of the coyotes bothering it because it was so steep they couldn't get to him, and he was about right. It took the five of us to get him up to where Strip had the horse.

Next was Shelley. He had about decided it wasn't his day since it was getting around 5 o'clock, when suddenly he jumped three bucks and he started working his 30/06 and luckily Wick came along about that time so only one of the bucks got away. Well that made a buck each for the four of us.

We had three of them out of the mountains by 2 o'clock the next day and was coming out with the fourth when the Captain hollered to us that he had killed one on top. He, like Shelley, had decided it just wasn't his lucky day so had started a fire and was sitting there getting warm and enjoying a good cigar, when there just back of him was a buck. He grabbed his old trusty 30-30 and when the smoke cleared away there was a dead deer. That made it a grand slam and the hunt was over. One long to be remembered thanks to our good friend Sut and his Western hospitality. When we got those five mule deer spread over the old station wagon, it was something to stop and look at. We wouldn't have been more chesty had we gotten Hitler.

Let's Get Back

★ Continued from page 6

Another fellow tried to set a record in loading a gun, which resulted in one 30/60 through the motor.

Another driver slid off an icy trail, damaging his car and landing himself in the hospital.

These are just a few samples of what happened to rocking chair hunters. Oh, I know you will say they were just careless, but just a minute, pal. The sudden appearance of a big buck, and all caution goes out the window.

And then there is hunter number four. Let's just call this character Whimpy, The Meat Hog. He delights in polishing off a deer after it has been mortally wounded and is unable to get up. Then he tells the world what a swell shot he made at 300 yards with the deer in full flight. This character also enjoys relieving some teen-age hunters of their trophies and, as a last resort, doesn't mind taking one away from a camp on a dark night. Dangerous? Ask some of those who got caught.

There are more of them, but this is enough to give you a stream-lined version of some of the present day big game hunters.

It is a far cry from the good old days in the big game woods. Probably a lot of you can remember how anxious you were for December 1 and the opening of big game season, how you prepared two weeks in advance, what a thrill you got when loading your camping equipment on a two-horse wagon and what a ride you took over the bumpy trails to your camp for a 15 day stay.

Little hunting incidents, tales that flew thick and fast around the old fireplace in the evening will never be forgotten. You had the appetite of a horse, slept like a baby, and I dare say never felt better in your life. The only sad event of the trip was when you had to pack up and leave.

You have often heard it said, "We never want to go back to the horse and buggy days. We should forge ahead, keep up with the times." This is very true. But the sooner we get back to the horse and buggy days in the great sport of hunting, the safer it is going to be for all of us.

Here's a bit of advice to you hunters who will invade the big woods for the first time next fall. Get on a roster with a party of good hunters, and you will find the best known method yet to enjoy big game hunting and feel safe.—*Pennsylvania Game News.*

Thar She Blows!

★ Continued from page 9

man hunted the first whale we do not know. Probably Ab, the cave man, fought for a place at the carcass of a stranded whale. Whale's bones (not baleen) were used by shore dwelling people in the construction of shelters and houses, and even today, the Eskimos, where they have not come in contact with civilization, still use these bones for the rafters of their summer houses and in the construction of their dog sleds.

By far the most valuable products, however, have been the oil, whalebone (baleen) and meat, and it is for these that whales have been relentlessly hunted. In the heyday of the American sperm whale fishery, 126,000 barrels of oil were landed in one year, but with the discovery of petroleum a steady decline set in, until at the end of the nineteenth century only 500 barrels a year were being taken.

The hunt for whalebone still continued as late as 1902, for one whale would often produce from $15,000 to $20,000 worth of this material alone. However, steel replaced this in many of its uses and the value of whales dropped to where it was not profitable to fish for them under the old methods.

The advent of the modern floating whale factories changed all this, and the slaughter of whales began anew, reaching unheard of heights. During the period 1919 to 1929, inclusive, 197,863 whales were killed throughout the world while the present production is about 30,000 per year.

Originally the whale was hunted for its oil and meat, and in the sixteenth century whale meat was sold in the markets at Biarritz, Bayonne and Ciboure in southern France. The blubber was salted and sold inland, while the tongue was much esteemed and brought a high price. Few but the priests had any opportunity of tasting it, for it was generally presented to the church as a thank-offering.

With the great rise of the industry, however, little attention was paid to anything but the oil. Today it is a different story. Every part of the whale is utilized, down to the last barnacle on the hide, and from the floating factories come whale oil, fertilizer, baleen, whale meat and minor products such as leather

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and glue. Occasionally when a sperm whale is taken, the factories obtain the three products which this species alone produces, i.e., sperm oil spermaceti and ambergris.

Sperm oil differs from fish, fish liver and other whale oils in being composed of waxes, rather than fats, and it absorbs little oxygen from the atmosphere, nor is its viscosity affected by variations of temperature as is the case with fatty oils. It is extremely valuable for some types of lubrication. Ambergris, as everyone knows, is produced only by sick whales, and because of its rarity and the use to which it is put, brings an extremely high price, 44 pounds taken from one whale being sold for $11,000. It is used as the base for many fine perfumes.

Not all of the whale goes into oil and guano. Out of 37 floating factories and 30 land stations operating at one time, 13 were equipped for the canning of whale meat, the lead being taken by New Zealand and Japan.

The meat is not unlike beef in appearance. Darker and with a somewhat sweeter flavor, it has been compared with venison. In an effort to popularize this marine addition to our menu, the Bureau of Fisheries has published a set of recipes for the preparation of whale for the table. A humpback, which is supposed to be the best eating, yields about six tons of steaks which can be cooked in the same way as beef.

No part of the whale is lost in the modern plant, but this industry bids fair to outdo the Chicago packers, who use every bit of a pig but its squeal, and then sell that to the modern swing orchestra. In the case of the whalers, they are reaching the state where they do not need the whale, but can still market its products, for if recent experiments prove feasible, the oil will be manufactured directly from the "brit," or whale food, itself.

Your Dog

★ *Continued from page 20*

given excellent results: (1.) 2½ pounds of technical DDT dissolved in 12½ pints of soluble pine oil; (2.) 2½ pounds of technical DDT dissolved in 6¼ pints of xylene and 1½ pints of Triton X-100 (an aralkyl polyether alcohol). The amount of spray needed to secure adequate coverage varies with the type of vegetation. If 100 gallons per acre is not convenient, the quantity of water used may be increased or decreased, but the amount of DDT used should remain between 2 and 3 pounds per acre. At this rate DDT will not injure vegetation, and most of the solvents and emulsifiers used in water-miscible commercial preparations will also be harmless, but no assurance can be given that this will be true in every case. At this dosage an initial reduction in tick abundance of better than 90 percent may be expected, and the treated area should remain practically free of ticks for a month or more.

CAUTION: DDT is poisonous if taken by mouth, and to a lesser extent by contact. Oil solutions of DDT, particularly the more concentrated ones, should not be allowed to remain on the skin.

The reduction of the number of ticks in a given area by the methods described lessens the danger of attack, but the following precautions against being bitten, or otherwise infected, should be taken when one is in a tick-infested area:

(1.) Wear high-top shoes over the bottoms of the trousers, or, if such shoes are not at hand, wear the socks over the bottoms of the trousers. Most ticks crawl up from the ground or low vegetation, and this arrangement keeps them from crawling beneath the clothing.

(2.) Train yourself to feel the ticks when they start to crawl on the neck or body, and remove them.

(3.) Occasionally glance over the clothing, especially when two people are together, to detect the presence of ticks before they reach the neck or get into the clothing. Light-colored clothing aids in this.

(4.) After walking in ticky areas examine the outer clothing and look underneath the collar before entering an automobile or house.

(5.) If ticks are abundant, it is well to remove all clothing upon coming in from the field. Drop the garments loosely into a large metal container, such as a 25-pound lard can, pour 2 teaspoons of carbon tetrachloride on top of the clothing or in a saucer set on the clothing, and put the lid on over a sheet of wrapping paper or seal it with adhesive tape. This will kill all ticks in 8 hours. Carbon disulfide may be used in the same way but, being inflammable, it is more dangerous. If this fumigation cannot be carried out, examine the clothing carefully for ticks, including folds and seams.

(6.) Never sleep in clothing worn during the day, as ticks sometimes hide in the folds and attack at night.

(7.) Do not lay field clothing on the bed.

(8.) Examine the body thoroughly upon arising, again at noon, and upon retiring. Individuals should examine each other, and a long mirror is an aid. Pay particular attention to the hairy part, especially the back of the head. Ticks often lie very close to the skin when first attacked and are easily overlooked. Combing the hair upward with a moderately fine-toothed comb helps reveal the presence of ticks.

(9.) If a tick is found attached, remove it at once by grasping it with the fingers or tweezers and pulling steadily. Ticks should not be left attached any longer than can be helped. Infected ticks are not likely to produce the disease unless they have been allowed to feed for several hours, usually 6 to 8.

(10.) Cauterize the point of attachment with a solution of carbolic acid or of silver nitrate. This can be done best by dipping the point of a round wooden toothpick in the solution and then drilling it lightly into the skin at the exact point of attachment. Iodine may be used if the other materials are not at hand.

(11.) The blood from crushed ticks may be a source of infection if it gets into the eye or into a skin abrasion. Therefore, the use of insecticides on dogs is advised, rather than hand picking. If the ticks are picked, remove them carefully with small forceps and drop them at once into kerosene or boiling water. Do not rub the eyes. Wash the hands *thoroughly* when the job is finished.

(12.) Do not allow ticks that have been removed from animals to escape, because they may attach to man, and the infected ones are capable of conveying the disease very soon after attachment.

(13.) If Rocky Mountain spotted fever or other tick borne infection is suspected, all unnecessary physical exertion should be avoided, a competent physician should be consulted and prompt hospitalization is desirable. The incubation period of spotted fever in man is 2 to 12 days.

(14.) A preventive vaccine for spotted fever has been developed by the United States Public Health Service, but the production is limited and the material is used in special cases only.

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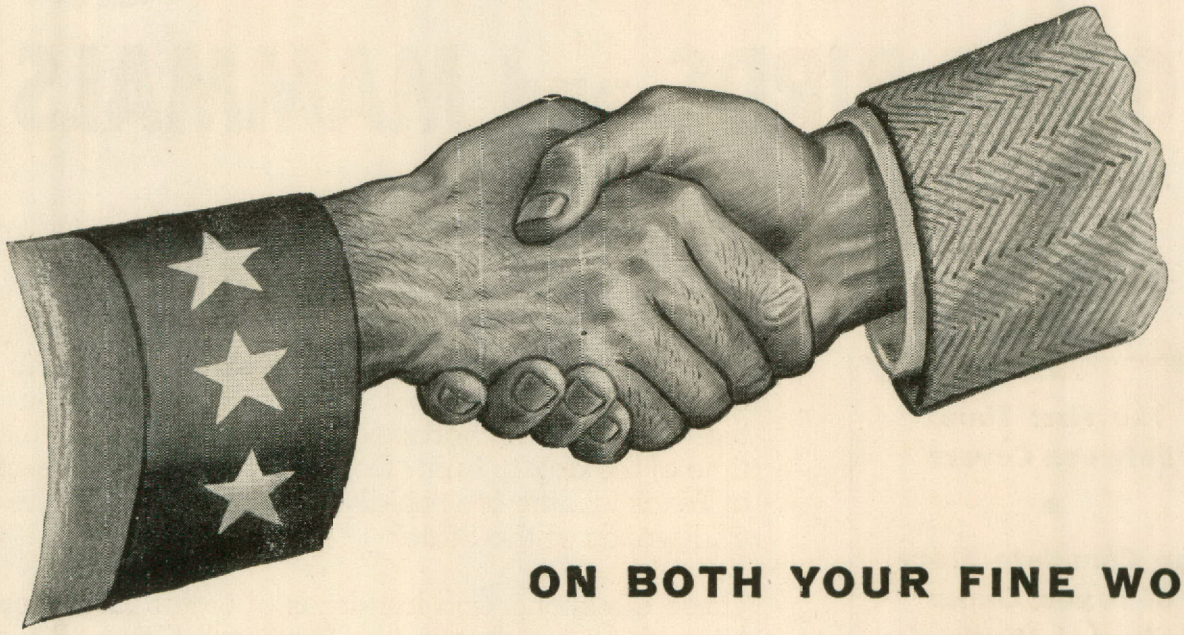

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