

Texas Game and Fish

20 CENTS

1964

JUNE

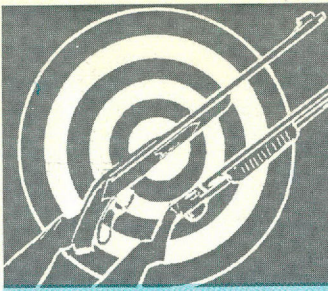
LIBRARY
JUN 9 1965
PAN AMERICAN COLLEGE
EGGENDORF, TEXAS

LIBRARY, SAN ANTONIO COLLEGE
1300 San Pedro Avenue
San Antonio, Texas



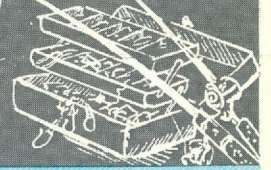


A man has to give it all he's got to reel in these fish. Jeff Jacobs brings in a big fighter. Photo by Ron Perryman.



Long shots

Short casts



SET A PRECEDENT: John James Audubon is thought to have made the earliest attempt to mark birds deliberately for later identification. He placed light silver-wire bracelets on the ankles of young phoebes that nested on his father's property in Pennsylvania to see if they would return to nest in the same area . . . and they did. Today, bird banding is recognized as the most valuable tool in migratory bird research.

PROTEST FOR PREDATORS: The Secretary of the Interior has been told by his Advisory Board on Wildlife Management that predator and rodent control as actually practiced today is considerably in excess of the amount that can be justified in the total public interest. A report of the Board states: "There are situations where control of predators, rodents and even some birds is essential to protect important agricultural and pastoral interests or human health and safety. The problem is to differentiate those local situations where control is justified, from cases where the same species of animals have social values far in excess of the negligible damage they cause. Basic governmental policy should be one of husbandry of all forms of wildlife. Control should be limited strictly to the troublesome species, preferably to the troublesome individuals, and localities where substantial damage or danger occur." Copies of the full report may be had from the Office of Information, U. S. Fish and Wildlife Service, Dept. of the Interior, Washington 25, D.C.

AIR-CONDITIONED ELK: Helicopters have helped reduce an over-population of elk in Yellowstone National Park. Two "whirly-birds" were used in driving elk into live-traps this spring as part of a program aimed at taking 1,100 animals from the wintering herd. Most of these elk were shipped for transplanting in Montana and Wyoming, although zoos and refuges in Arizona, Texas, New Mexico, Minnesota, North Dakota and Pennsylvania also received small numbers of them. A few animals were taken for biological studies being conducted by Montana State College. The program aims to keep Yellowstone's wintering elk herd at about 5,000 animals, the maximum number which the range can support before starvation eliminates the surplus.

PARKS ARE POPULAR: More than 403 million visits were made to state recreation areas during 1962. Compiled from 213 agencies in 50 states, a survey showed the states administer 30,950 public outdoor recreation areas totaling 54 million acres. Although no comparative figures are available to establish the total outdoor recreation picture for previous years, state park attendance statistics give a good indication of the current boom in outdoor recreation demand. Visits to these areas totaled almost 285 million during the fiscal year ending June 30, 1963, as compared with 274 million visits during the previous year.

WHOOPIING IT UP: Rosie, a lonely female whooping crane, left the San Antonio Zoo in April for a blind date with George, in a New Orleans, La. zoo. It is hoped that the two birds will do their part in preventing whoopers from becoming extinct. There are only 39 known whoopers in existence. Five besides Rosie and George are in captivity, all at the Audubon Zoo in New Orleans.

MACKEREL UN-CONVENTION: In early April, mackerel swarmed into the turning basin at Port Aransas. This is something like coyotes or rabbits marching into Houston. Normally, mackerel are offshore fish which sometimes come within surf-casting distance of shore, but not often. The fact that mackerel came into a turning basin proves that the water was extremely clear (mackerel like clear water and refuse anything else) and also that there is no way to forecast fishing! Oldtimers say it's the first time they've ever heard of a concentration of mackerel in inland waters.

CAMPING CANNINESS: You can clean camp dishes, knives and inside frying pans with soft, thick moss which grows at the base of trees and on rocks. It removes the soot excellently from the outside of smoke-blackened pots and pans. Also, when camping out make use of any discarded tomato cans for baking potatoes. Placed in the ashes and hot embers, the can acts as an oven and keeps the potatoes free from ashes and soot.

—Joan Pearsall

Texas Game and Fish

CURTIS CARPENTER Editor
 ANN STREETMAN Assoc. Editor
 NANCY MCGOWAN Art Editor
 JOAN PEARSALL Edit'l Asst.
 ETHEL SPECK Circulation

TEXAS GAME AND FISH is published monthly by the Parks and Wildlife Department. Subscription price \$2 per year, \$3 for 2 years, and \$5 for 5 years. Single copies of current issue 20 cents each.

Subscriptions to TEXAS GAME AND FISH are available from the Austin offices, and branch offices. Checks and money orders should be made payable to PARKS AND WILDLIFE DEPARTMENT, Editorial and Advertising Offices, Reagan Building, Austin, Texas. Second class postage paid at Austin, Texas.

Postmaster: If undeliverable, please notify TEXAS GAME AND FISH on form 3579 at the Reagan Bldg., Austin, Texas.

TEXAS GAME AND FISH invites republication of material provided proper credit is given, since the articles and other data comprise factual reports on wildlife and other phases of conservation.

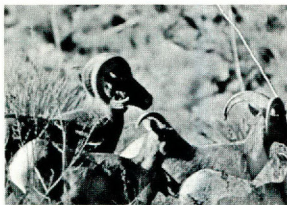
The inclusion of advertising in TEXAS GAME AND FISH is considered a service to our subscribers and does not necessarily constitute an endorsement of the products advertised nor concurrence with the statements made by the advertisers.

Produced by

INFORMATION AND EDUCATION BRANCH

T. D. CARROLL Coordinator
 TOM DILTZ Audio-Visual Chief
 JAY VESSELS Journalist
 ARVID LARSON Photographer
 RONALD PERRYMAN Photographer
 PAUL HOPE Photographer
 ADELINE JOHNSON Darkroom Tech
 LOUISE KREIDEL Business Assistant

The Cover



Under the watchful eye of the patriarch, this group of desert bighorns presents a united front. The pioneer stock from Arizona seems to have taken firm root on Texas soil, and is now becoming the pride of the Black Gap. See related article in this issue.

Photo by Tommy Hailey

OFFICIAL PUBLICATION OF THE PARKS AND WILDLIFE DEPARTMENT, DEDICATED TO PROTECTING AND CONSERVING NATURAL RESOURCES; TO PROVIDING AND MAINTAINING AN EXCELLENT PARK SYSTEM; AND TO IMPROVING HUNTING AND FISHING IN TEXAS.

JUNE, 1964

Vol. XXII, No. 6

★ In This Issue ★

Spreading the Word	3
Big Hopes for Bighorns	4
by TOMMY HAILEY	
The status of the desert bighorn sheep restoration is encouraging.	
Creek Magic	6
by STAFF	
A boy, bait and creek make a magic mixture.	
Try the Night Shift	9
by ROY SWANN	
Night fishing along the Texas coast pays off.	
Buggin' the Frogs	10
by L. A. WILKE	
You can take them on a fly rod.	
Courtship Among the Insects	12
by MAX EASTMAN	
A naturalist and author relates the amorous activities of insects.	
Creatures of the Beach	15
by CASH ASHER	
At surf's edge and in tide pools a host of creatures roam.	
Dove Tally	20
by TED L. CLARK	
The decision on a whitewing season is based on careful research.	
Marks in the Parks	22
by JAY VESSELS	
Park signs are strategically placed for benefit of visitors.	
Consider the Earthworm	23
by PAUL F. LONG	
Earthworms are good for more than fish bait.	
A Kid and His Pole	Inside Front Cover
Long Shots	1
New Marine Lab	24
Chowder Recipe	25
Guns	26
What Others Are Doing	28
Junior Sportsmen	Inside Back Cover
Bringing Home the Bacon (ants and grasshopper)	Back Cover
Tackle Talk	29
Books	31
Parks Facilities	31
Correction	31
Letters	32

JOHN CONNALLY, GOVERNOR OF TEXAS

PARKS AND WILDLIFE COMMISSION

Will E. Odom, Chairman

A. W. Moursund, Johnson City

James M. Dellinger, Corpus Christi

PARKS AND WILDLIFE DEPARTMENT

J. Weldon Watson, Executive Director

DIVISION DIRECTORS

Howard T. Lee, Field Operations

Eugene A. Walker, Wildlife

W. J. Cutbirth, Jr.,

Administrative Service

William M. Gosdin, Parks

COORDINATORS

T. D. Carroll, Info-Ed.

A. J. Springs, Wildlife

J. B. Phillips, Law Enforcement

Joe Marks, Engineering

Terrance Leary, Coastal Fisheries

Marion Toole, Inland Fisheries

C. L. Friou, Fiscal

James Archer, Personnel

Bill M. Collins, Parks

REGIONAL DIRECTORS, WILDLIFE

Henry Burkett, Region 1;

San Angelo Area

A. W. Lewis, Region 2;

Waco Area

John M. Carlisle, Region 3;

Tyler Area

J. R. Singleton, Region 4;

Houston Area

R. G. Mauermann, Region 5; Rockport Area

REGIONAL DIRECTORS, PARKS

J. H. Tschauner, Region 1

Billy J. Smith, Region 2

Bob Magouirk, Region 3

W. B. Hoskins, Region 4

Donald Oliver, Region 5

Spreading the Word

COMMUNICATION is one of conservation's most productive assets. Some of the men behind the national communications scene will come to Texas this month for separate conventions of the Outdoor Writers of America and the American Association of Conservation Information. The members of these two groups form an important link in conservation—the link between a landowner's deer dollars and a state biologist's research on deer die-offs, for example.

Just how important are the jobs of these I & E officers and outdoor writers? They are as important as deer are to hunters, and fish to anglers. In an era of expanding population and dwindling native wildlife habitat, communication on wise use (conservation) is just that critical. Conservation agencies across the country can devise the wisest of management programs, but without public cooperation, the results will be nil and without communication the cooperation will not exist. Unless the why and how of management reaches hunters and anglers and landowners, conservation efforts will be lost at the point of abused bag and possession limits, unused doe permits and political pork barrelling.

The dissemination of such information is itself a cooperative effort; I & E men, outdoor writers and the nation's news media—radio, newspapers, TV and magazines—are interdependent in the process. The program is vast, taking the form of a myriad news items, entertaining and technical articles, editorials and columns.

Reporting and interpreting conservation information, article by article and photo by photo may sometimes seem negligible to both producer and recipient. Day by day, there's another deadline for news releases and another newspaper full of items to be scanned over coffee. But put the fragments together, and both the information man and the sportsman cannot but realize the importance of the conservation picture thus constructed.

To the members of OWA and AACI who help convey this conservation picture the staff dedicates this issue of the magazine. **

THE EDITORS

THE STATUS of the transplanted desert bighorn sheep in Texas is favorable. Reproduction from the small nucleus of brood stock in the 427-acre holding pasture located on the Black Gap Wildlife Management Area has been beyond our expectation.*

The Parks and Wildlife Department transplanting program, aimed at restoring an almost extinct population of the native desert bighorn to huntable numbers, began in 1958 when the first two Arizona-trapped ewes were flown to Texas and deposited in the holding pasture. Many others have been added to the herd, some dying but others thriving and producing new generations. The holding pasture now contains 22 bighorns, and we are looking toward trapping surplus animals for release in the surrounding area. With continued reproduction, we may release some in 1967-68.

Many factors are responsible for the success so far in the transplant program. The holding pasture was selected and designed to provide the best possible advantages for the sheep. The enclosure is located at an elevation of 2,800 feet in a limestone type formation with a high ridge running through the center. The ridge slopes to low valleys on the east and west and a network of draws and small canyons. Although the area has received very little rainfall in the past few months, an abundance of vegetation is available to the sheep.

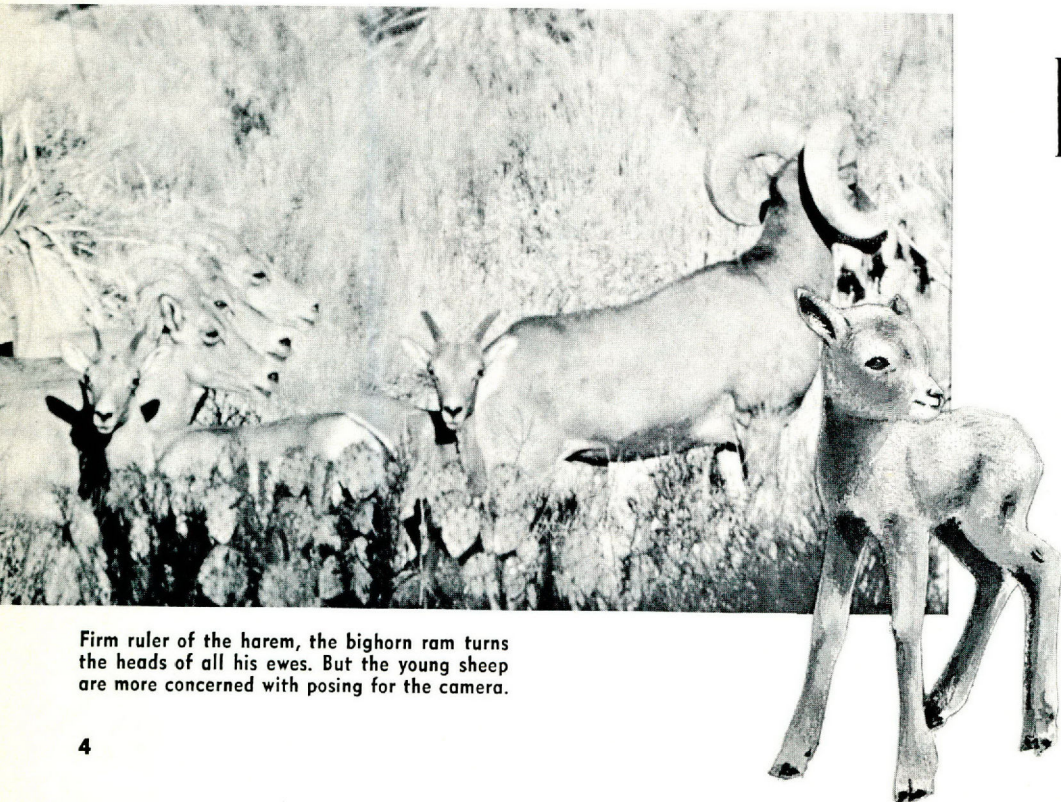
During the past year the bighorns were observed to browse on lechuguilla, soaptree yucca, Torrey yucca, sotol, ocotillo, Texas silverleaf, Big Bend silverleaf, catclaw, creosotebush and chinograss. In browsing on sotol, they took the cured leaves as readily as the green leaves. Also, the rams used their horns and front feet to dig small lechuguilla plants and appeared to consume them in their entirety. Although several species of poisonous plants occur in the enclosure, the sheep have not suffered any ill effects from them during the last

three years. Observations of the various vegetative species in the pasture have revealed no overbrowsed condition. With the exception of two Moorman's 33-pound blocks of concentrate containing all the essential minerals plus vitamin A, Terramycin and a salt content of 14 per cent, no supplementary feed is furnished to the sheep during the year.

Two watering sites are provided for the sheep, one in the southwest portion of the enclosure and the other in the northwest corner. The device in the southwest portion is a rock-header dam type of structure with a sheet iron canopy covering the water to decrease evaporation. The other is a small concrete water trough with a float valve to regulate the water level. The trough is connected to a 2,600-gallon covered metal storage reservoir. From an adjacent earthen tank, water is pumped into the metal reservoir during the rainy season, and supplementary water may be hauled to it during extended dry periods. According to observations made by project personnel and signs around the watering sites, the sheep seem to prefer taking water from the small cement trough rather than from the rock-header structure.

In August 1963, a blind was constructed near the watering site in the northwest corner of the enclosure so that personnel could observe the daytime watering habits and activities of the sheep. The men entered the blind before daylight and remained until after dark. Observations were made during a three-day period, August 28-30. Sheep were observed coming to water only between 10 a.m. and 4 p.m., not early morning or late evening as might be expected. During this period, 20 sheep were observed at the watering site—the entire population in the pasture at that time. Each evening before the observer left the site, an area around the water trough was cleared of all tracks made during the day. The following morning a check was made for any tracks made during the night. No tracks were

*Work conducted under Federal Aid Project W-67-D, Bighorn Sheep Development.



Firm ruler of the harem, the bighorn ram turns the heads of all his ewes. But the young sheep are more concerned with posing for the camera.

Big Hopes for Bighorns

by TOMMY HAILEY
Wildlife Biologist

Deep in abundant vegetation, these bighorns seem quite contented with their Texas home. The sheep are doing well on the Black Gap.



found at the water trough for the three nights checked. This suggests that the sheep water only in daytime and then only during the middle part of the day. This same process was repeated February 19 and 20, with the sheep again watering in the middle part of the day and no use being recorded at night. During the check, individual sheep that could be recognized were observed to water at least every other day and sometimes every day. Although sheep apparently can go longer than two days without water, it seems, from a management standpoint, that surface water available at all times would be beneficial to a herd. Results from the above observations are certainly not conclusive, and additional work is planned for the future.

The possibility of inbreeding has not been overlooked. Because of the extreme difficulties previously encountered in trapping and transporting the original brood stock from Arizona to the Black Gap Area, however, it is doubtful that additional rams may be released in the enclosure in the near future.

Also, we have to consider the possibility of diseases and parasites affecting members of the herd. These dangers will be multiplied as the bighorns increase within the confine of the relatively small enclosure.

Our predator trapping program, which was begun two years before the first transplant, is being continued on the management area to provide as much protection as possible for the brood stock. Trapping on a large scale in a range where desert bighorns are established would probably be prohibitive; however, it is essential to have predator control measures, not extermination measures, in effect with the small number of sheep that we have. During the past year, mountain lion sign was scarce near the enclosure, and only one lion was taken. Several bobcats and coyotes were trapped around the enclosure during the same period.

Sixteen lambs were produced between 1960 and 1963. This year we have eight ewes that could raise lambs. At the time this article was prepared, two lambs had been observed.

The following is a list of the sheep now in the holding pasture: two adult rams (10 and 6 years old), two

adult rams (4 years old), three adult ewes (9, 7, and 4 years old), three adult ewes (3 years old), two rams (2 years old), two ewes (2 years old), six yearlings born in 1963 and two lambs.

Only four sheep (two rams, two ewes) of the original Arizona stock remain in the pasture; the other sheep are Texas-raised.

It may seem premature to start developing methods to trap surplus bighorns in the enclosure for release in the surrounding area; however, with continued reproduction as in the past, the need may soon become a reality. It is believed that the enclosure can support a herd of 30 brood animals (20 ewes and 10 rams) without damage to the vegetation.

Our first consideration in trapping and releasing any sheep from the enclosure is to accomplish this with a minimum of disturbance to the animals. One method being considered is construction and subsequent baiting of a small wire enclosure, possibly five acres, near an outside gate. After the animals have been trapped in the enclosure, the outside gate would be opened and the sheep left to wander out at their own leisure. This would not entail any physical handling of the animals.

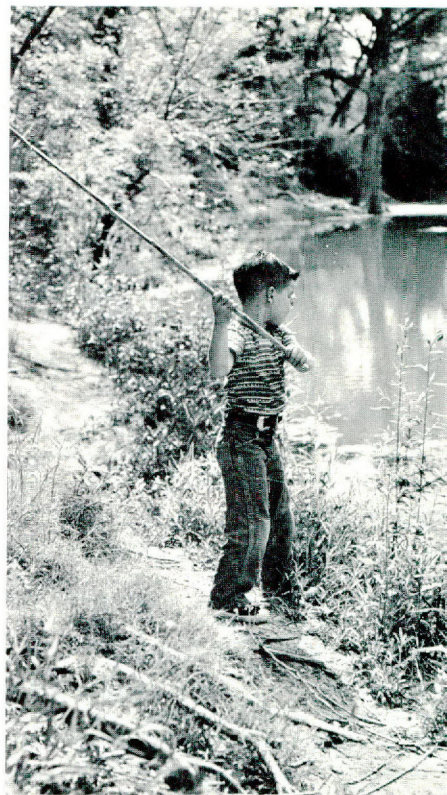
Using a Cap-Chur gun charged with a tranquilizer is also a possibility. This method would permit selection and tagging of the desired animals. However, we feel a degree of apprehension when this technique is considered since there has been some mortality when the method was used to take other animals.

The Louisiana Wildlife and Fisheries Commission, through Research Project W-29-R, has been experimenting on whitetail deer with Tranimul, an oral tranquilizer drug. The drug is mixed with some type of bait and placed in a trough where animals may eat it. The drug tends to restrain the movements of the animals so they may be caught. The exact amount that an animal can consume without harm is not known; some mortality among the deer tested has occurred.

Although many questions about the future of bighorns in Texas are still unanswered, the success in the transplanting program so far indicates a hopeful outlook for restoration.



The first worm is the wiggliest. After that one, they just slide on.



Time to get that wiggler in the water. Heave.

Creek

WHO can say why a little boy likes fishing? Of course, not all little boys like fishing. But, for that matter, not all little boys like ice cream. Enough of them, however, enjoy fishing so that older philosophers can look upon a freckle-faced boy, his cane pole and a bucket of worms as one proverbial and characteristic unit, almost unchanged from generation to generation.

Maybe it's the lure of trees and birds and lady bugs and weeds along the creek. Or, maybe it's the fascination of the creek itself, full of wonders and shimmering reflections.

Or, perhaps, it's the smell of new grass and hiding wild flowers and damp earth warmed by the sun, and worms and fish.

Whatever the reason, doubtless Jeff Jacobs, son of Mr. and Mrs. Jay B. Jacobs of Austin, shown in this picture series, will remember the charm he found in fishing, long after he exchanges such childhood adventure for grown-up responsibilities.

—Ann Streetman

Magic

Photos by Ronald Perryman



Sometimes it's a long time between bites. Then it's just a nibble. Wonder if it's a turtle.



Nope. That's not a turtle. He's a beauty. Wonder what he weighs.



... But maybe he's a little small. Guess he ought to grow some more.

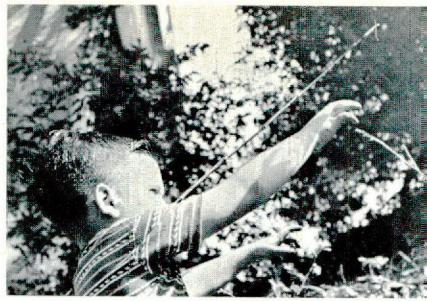
There's plenty more where he came from. Back to the bugs and worms!



Now here's a keeper. But things are getting complicated. A guy's pole gets caught and . . .



Above photo by Nancy McGowan



. . . then the line gets tangled high



. and low. Weeds are such a nuisance!



But, it's back to work, fishing



. and filling the stringer by supertime.



Try the Night

by ROY SWANN

Corpus Christi Caller-Times

NIGHTTIME in Springtime can be fishtime along the Texas Coast.

Just remember that the time to fish is when they're biting . . . and during the spring, when gusty gulf breezes buffet you one day and frosty north winds whip you down the next, nighttime activity often is best of all.

It works something like this. If the wind levels out during the evening (it nearly always will on a southeast wind but almost never on a south wind), then trout fishing more than likely will be good sometime after midnight. If that strong south wind keeps blowing, then change tactics and fish for muddy water fish—like drum—on the bottom.

Fishing can be done just about anywhere—from the banks, from the channels, from public piers or piers on which you pay a small fee.

At Oso Pier on the south side of Corpus Christi last spring a small boy leaned over the top rail and slowly worked a couple of tiny jigs across the surface where the light illuminated a 10-foot circle. Young Paul Smith Jr. wasn't expecting any trout just yet because he had seen none "popping" at small minnows or shrimp. He was just giving it a test.

"There's still too many people out here," he offered. "Wait until they leave and everything quiets down and the trout will move in." A couple of hours later, when Paul Sr. came for his son, the lad lifted a stringer with 17 school-sized specks. He had thrown back that many 11-inchers and no telling how many little yellow-tails and such that hit his lures.

Paul, like many regulars at night fishing, used a double jig rig similar to the one built by Pico. On light spinning tackle, it is presented with a slow retrieve and an occasional twitch. Sometimes the lures are skittered across the surface.

Live shrimp, usually tossed free, with no weight and no cork above it, also is a great bait. Some fishermen like to use the bait under a popping cork, generally having best luck with a plastic bubble when they fish at night for trout. Lures and peeled shrimp also are used. One idea holds true for nearly all night fishing—the lighter the terminal tackle, the better the fishing.

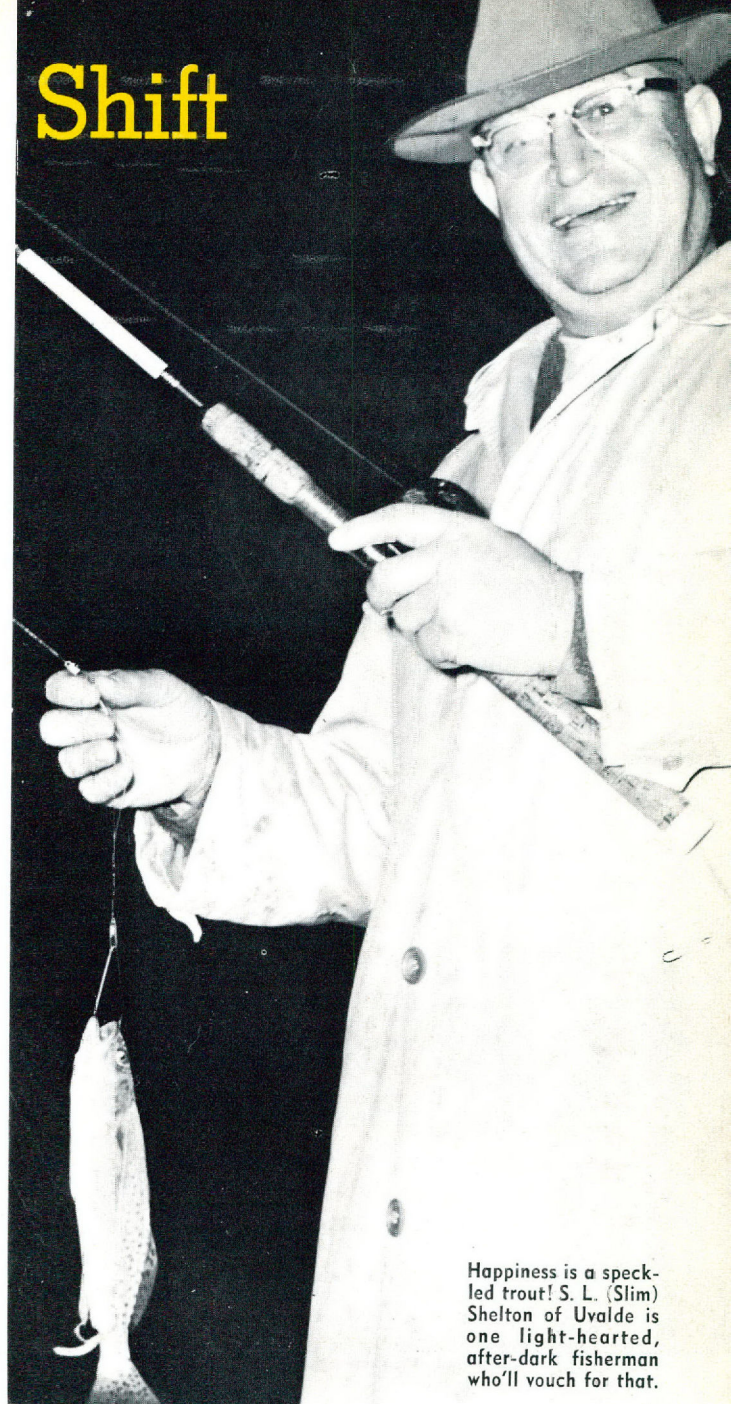
Nobody tries to predict the weather in Texas. On the coast, it's certainly next to impossible. That's a good reason for changing fishing tactics to suit the weather.

You very likely won't have great luck catching drum on a flat, calm bay; those big huskies delight in rough, muddy water. That's when night fishermen have a ball. The fishing then, though it sounds corny, can't be beat.

Unless there are hurricane winds—and some caught fish during the last hurricane on the coast—go ahead with your fishing. Just try for drum and other bottom fish.

The deep channels usually are good; so are the piers, gulf and bay. The Intracoastal Canal in South Texas and Laguna Madre are especially good. Some parties stick

Shift



Happiness is a speckled trout! S. L. (Slim) Shelton of Uvalde is one light-hearted, after-dark fisherman who'll vouch for that.

it out all night. They put their rigs in sand spikes while they catnap, and they catch pickup loads of the big bulls.

Use regular bottom rigs for the drum. That is, a heavy pyramid sinker on the end with a couple or more hooks dropped from the main line, or leader. With sea louse, small crabs, dead shrimp or chunks of large blue crabs, you can't go wrong. At least you're in business.

There's one thing about fishing in general that applies to night fishing: a guy never knows what he'll hook next. I've heard of fishermen catching everything from a five-foot rattlesnake to seagulls. Padre Island surf fishermen have been known to snag coyotes when they left the bait exposed on the beach.

Don't give up when the sun goes down; you might be missing the fish-catchingest time of all. **

Buggin' the Frogs

by L. A. WILKE

WHEN the willows along the creek bank begin to bud out in spring's first blast of beauty, it's bullfrog time in Texas. Every place that affords a fairly good sized puddle of water is the home ground for the loud-croaking, fast-jumping long-legged bits of food that can be called a delicacy on any table.

Bullfrog hunting is not new in this state, where during the early days the marshes of East Texas and the small stream beds over the rest of the state produced bullfrogs in abundance. Now, however, with myriads of stock tanks scattered throughout the state, there are so many places for them that bullfrogs definitely are on the increase.

One man who takes his bullfrog fishing seriously is Eugene Ebersole, executive director of the Lumberman's Association of Texas, who lives in Austin. He's adapted his bullfrog collecting to the fly rod. As a result he has a bountiful supply of clean, white bullfrog legs in his freezer almost any time during the season.

It's a real inspiration to watch Ebersole as he tosses a red and yellow-feathered popping bug in the faces of the bullfrogs sitting in the moss fringes around a stock tank or creek bank.

Wearing a pair of waders, Ebersole works slowly through the shallow water until he spots the big, glaring eyes of a frog's head protruding from the water, or sees one sitting in complacency on the bank. Then he starts tossing the bug, with a gentle swish of the tapered fly line, until the bug picks up enough distance to be dropped in front of the frog. This seems to hypnotize it, until the frog can resist the plug no longer. Then the mottled green frog leaps upon the imitation bug. It grabs the bait in its toothless mouth and the hook sinks into its throat.

This is the first warning to the

frog that it has tried to eat something more dangerous than a multi-colored bug. It dives into the deep water and the fly rod goes into action. These big frogs are something more than a foot long and will give a fight equal to any fish its size or larger. It takes off line in a hurry and you must struggle to keep it out of the brush beneath the surface of the water. It never stops fighting until it is brought in and bashed over the head with a stick, or slapped against the side of a tree, and then dumped into a sack or creel.

"Catching bullfrogs on a fly rod is great sport," Ebersole says. "Any ranch stock tank usually has an endless supply. Red and yellow combinations of colored bugs, with feathers, seem to attract them best. The lure should be dropped on either side or just beyond the frog, then worked slowly past him. If the leader touches the frog, he is likely to spook."

Ebersole does most of his bullfrog fishing in a series of stock tanks on his son-in-law's ranch near Albany. Here, rancher Bob Green has built a series of stock tanks on his 20,000-acre ranch. They are all connected with a series of channels and each tank also is stocked with fish, mainly bass, catfish and bream. But bullfrogs provide the delight for Ebersole, who accidentally discovered a way to catch them. He was bugging for bass when a big spotted-trunk frog took the lure and gave him a fight. Occasionally now he fishes for bass, but his love is for the bullfrogs, especially during the hot summer months when the stock tanks grow a fringe of moss that covers the water's edge anywhere from two to six feet out from the bank.

Ebersole wears a large straw hat and a pair of waist-length waders. Attached to his belt is a gunny sack into which he drops the frogs as he wades from one end of the pond

to the other. Many times the frogs ahead of him will jump into the water. He then stands silent for a short time until he spots a frog going back to the bank or edge of the moss. He has caught frogs measuring 18 inches and weighing two pounds or more. And they do not go to waste.

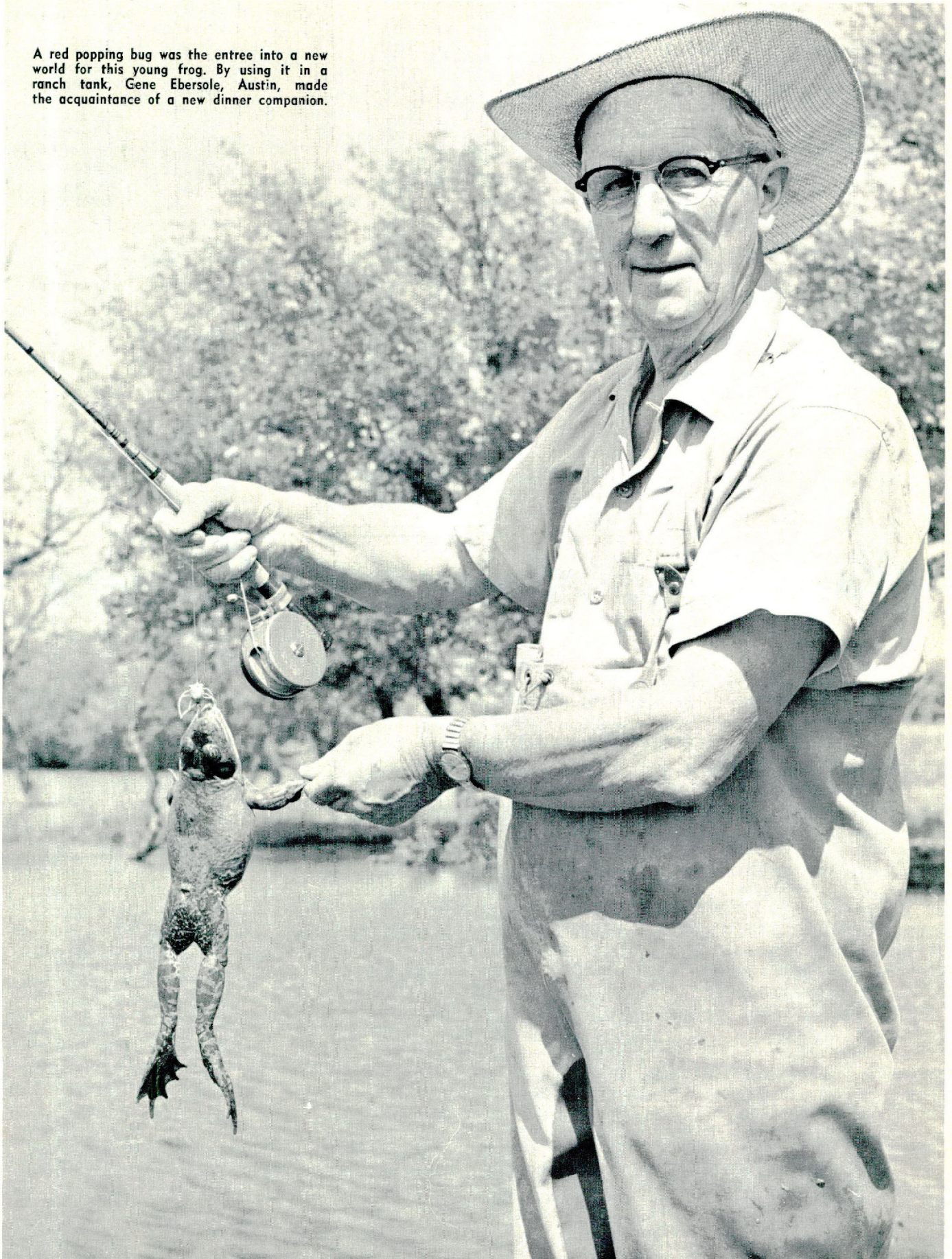
"Those big frogs should be skinned from head to feet, as the front legs have portions of delicious meat on them also," he says. On medium-sized frogs, from eight to 12 inches, take a sharp knife and cut the skin in a circle around the body just above the hind legs. With a pair of pliers, pull the skin down the legs and cut the legs off just above the crotch and at the feet. This gives you a saddle of delicious white meat that somewhat resembles a pair of skinned chicken legs.

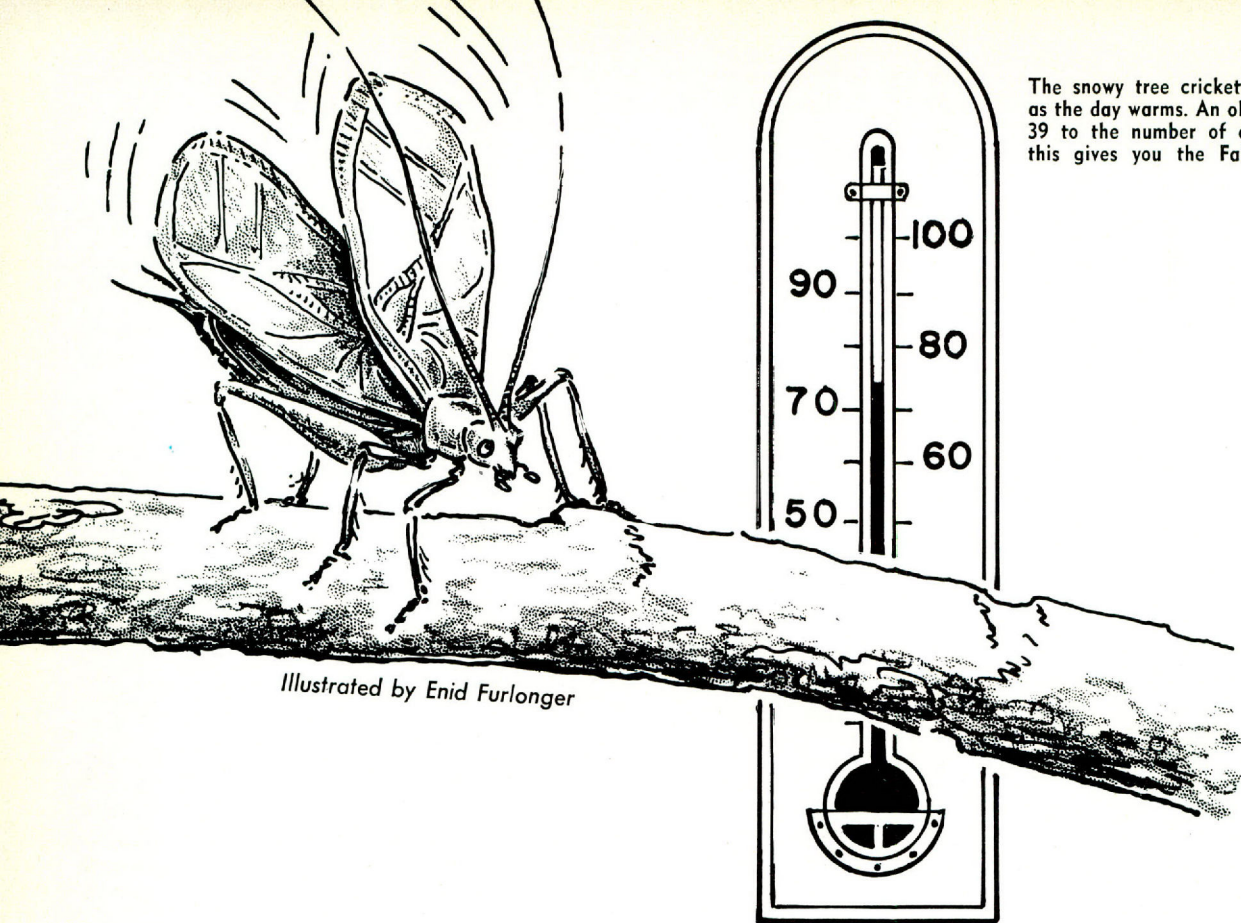
"Deep freezing the legs in a cake of ice keeps them for a long time, and it eliminates the disconcerting muscle movement that is frequent when fresh legs are cooked in the frying pan. To cook and really enjoy frog legs, place them in a large glass jar and marinate them in well-seasoned butter, margarine or salad oil and an equal amount of lemon juice or vinegar. A little powdered margoram adds a delicious flavor.

"Three hours in this jar, which should be shaken occasionally, readies them for the frying pan. My favorite cooking method is to tie them in bunches of three or four pairs, spit them on the rotisserie rod and let them broil under infrared heat for 15 minutes. Everyone should be ready to sit down promptly when the first batch is done. Then cook another batch right at the table and let the sizzling aroma fill the air as your guests sample the first batch of hot, succulent chunks of white meat as it flakes tenderly from the bones."

And that's the sport of Gene Ebersole, catching bullfrogs on a fly rod. **

A red popping bug was the entree into a new world for this young frog. By using it in a ranch tank, Gene Ebersole, Austin, made the acquaintance of a new dinner companion.





The snowy tree cricket speeds up his chirps as the day warms. An old formula says to add 39 to the number of chirps in 15 seconds: this gives you the Fahrenheit temperature.

Illustrated by Enid Furlonger

Courtship Among the Insects

by MAX EASTMAN

WE ALL KNOW that the cricket sings on the hearth. And some of us know that you can tell the temperature by measuring the rapidity of his bursts of song. Count the number of chirps in 15 seconds and add 39—this will give you the temperature in degrees Fahrenheit.

This strange law, discovered in 1897, applies to the snowy tree cricket. The ratio may vary slightly depending on sub-species and location. It's the tree cricket who makes most of the sleighbell-like noises you hear at night. But a less known fact about all crickets is that their song changes when they are courting.

They have a file and an edge or scraper on each wing cover. Their song is made by rubbing the wing covers against each other.

Reprinted from Audubon Magazine

The Author—At 81, Max Eastman is still going strong after half a century as editor, author, lecturer, suffrage leader and poet. He lives at Chilmark, Massachusetts, where nature phenomena such as the mating practices of insects are among the variety of subjects claiming the attention of this distinguished writer.

There are as many as 100 to 140 teeth on the file, and in his everyday song the male (who is the only real singer) uses about 47 per cent of them. But when he is in love, this percentage rises to about 89, and moreover, the song becomes so irregular that you can't tell the temperature or anything else by it, except that he is courting a female. While he is singing, the female lingers near and gives him an encouraging nudge from time to time.

Finally, he stops scraping his wings together and lifts them both up. If she has been sufficiently moved by the song, she climbs on his back and proceeds to eat out of a cup-like gland, placed just behind the joints of his wings. This gland secretes a substance which she finds perfectly ravishing, and may be compared, perhaps, to the gift of a box of chocolates. This process of singing and nudging, giving and receiving, continues for about half an

hour before she is satisfied, and he silent. Then the nuptial union takes place.

There is often a connection like that in nature between the sex drive and the pleasures of eating. These pleasures are simultaneous in the female of the praying mantis, who devours her sweetheart while he is in the process of mating with her.

Starting at the head, which she seems to find especially tasty, she often gets him half eaten up before their amour is over. He surrenders his life to love, and to posterity, without a quiver of hesitation.

Such gruesome love scenes make it seem doubtful whether the lower orders of life have any experience in sexual union which can be compared to ours. And yet, I think I have seen human marriages in which, from a spiritual point of view, a similar thing happens.

A more edifying mixture of love

and nutrition is that of some species of the empid fly. The male hunts up some tempting morsel, a fly smaller than himself perhaps, or perhaps the petal of a flower, wraps it in delicate silk strands spun from glands in his forelegs, and formally presents it to the chosen female. This giving of gifts is a frequent part of courtship among certain birds and mammals, as well as among humans, but among insects it is rarely detected.

Biologists of the hard-headed school suspect that he adopts this manner of wooing in order to avoid the fate of the praying mantis. His behavior is, at least, a little more impatient than mere gallantry would explain, for he doesn't wait for the lady to exclaim over the delicacy of his gift, but proceeds to mate with her in something of a hurry while she is busy unwrapping it.

The grayling butterfly puts on an act that seems to require solemn music. He alights in front of his inamorata, whom he has brought to rest by pursuing her through the air, and displays his beautiful wings, waving his antennae until she is *almost* in the mood of consent. Then at the critical moment he dips his head in a courtly gesture and enfolds her antennae in his wings.

He carries a sort of sachet bag on his left wing, and during this courtly ceremony a bit of the perfume is brushed off on her sensitive antennae. That delicate gift of perfume overcomes the last remnant of her coyness; the courtship is over; impregnation follows as a matter of

course. It follows, however, in an awkwardly businesslike fashion for which our solemn music would have been a poor introduction. They turn around and back up, end to end, and when the deed is done he flies off without so much as a glance back at his beloved or the scene of his romance.

It was long thought that the colors of moths, their tiger hues and the great luminous eyes painted on their "deep-damasked wings," were designed primarily for purposes of courtship, but this begins to be doubtful now that biology is becoming experimental. Moths have good eyesight, and the showy colors are undoubtedly useful for recognition and discrimination. But it is largely their vivid sense of smell which brings them together in the mating season and which stimulates the sexual instinct.

In species where the female has a scent gland, a female visible under a bell glass is of small interest to the males in the vicinity, but a female in a container that is not airtight, if she is in a lovelorn condition, will bring males fluttering to her through the dark from distances that to us, with our feeble olfactory equipment, seem almost incredible. The males of the emperor moth are thought to be able to find females up to three miles away.

There is a doubt among biologists about this distance, and since the perfume of the female cannot be detected by the human nostril at all, it does seem hard to believe. Still, it is a fact that 40 or 50 males will often assemble, as though out of nowhere, around a latticed box containing a lovelorn female.

Moths seem, on the whole, rather matriarchal in their attitude to the love relation. Instead of a male pursuing a fluttering female through the air, their romances begin with a female sitting quietly where she chooses and calling a male. Her scent gland is especially designed for this purpose, and "calls" by raising the tip of her abdomen and vibrating her wings so rapidly as to drive the air over it and disperse the scent in all directions.

Whatever her state of mind may be, her instincts are precise enough

so that she never calls except when weather conditions are suitable for a wide dispersal of the scent. About her lovers she shows less discrimination than about the weather, for it is a case of "first come first served" once she is in the "come hither" frame of mind.

This indifference to the suitor's appearance has been a surprise to those biologists who had assumed, along with Darwin, that the gay colors of so many male insects were developed through the ages of evolution by billions of discriminating choices on the part of the female—a process called "sexual selection."

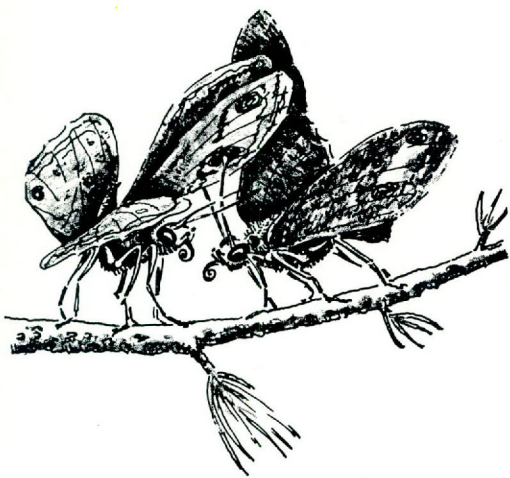
Insects do have eyes, however, great big ones some of them, and in many species "showing off" is the principal means by which the male attracts the female, or vice versa. It must be so, since many insects spend most of their lives on the wing and go so fast—a giant dragonfly has been clocked at 50 miles an hour—that visual recognition is about the only thing that can bring them together.

The males of some species of two-winged flies have bigger eyes than the females, and this is supposed to help them to locate a partner in flight. Other species have bifocal eyes, one half looking downward or sideways, the other half up, and this too is supposed to be helpful when they are on the hunt for a mate.

Fireflies have not only a keen eye for colors of light, but a time sense that is even more remarkable. Several million years before revolving lamps were installed in lighthouses, fireflies had learned to identify themselves to prospective mates by the length of the intervals between their flashes.

Besides eyes and noses (so to speak), some insects have ears, which many of them carry around conveniently like microphones on their legs. This enables them to detect a love song even if it steals up on them from the side or rear.

Both sight and hearing are involved in one of the most human seeming of all modes of courtship among insects—the communal song and dance. The dance of the midges and mayflies inspired three lines of one of the most beautiful poems in



The grayling butterfly not only catches the female's message but her antennae as well.

• Continued on Next Page

our literature, Keats' ode "To Autumn":

Then in a wailful choir the
small gnats mourn
Among the river shallows,
borne aloft
Or sinking as the light wind
lives or dies.

The scientists cannot make you see and hear this happen, as Keats did, but they have even a more romantic explanation of it.

"In due season, and at certain times of the day," says Maurice Burton in his *ANIMAL COURTSHIP*, "mayflies [and midges] swarm over or near rivers. Their dancing consists of a quick fluttering ascent followed by a more leisurely descent, repeated again and again. The dancers are almost entirely males and they are rejoined every now and then by one or a few females. Each female becomes paired with a male and the couples fly away."

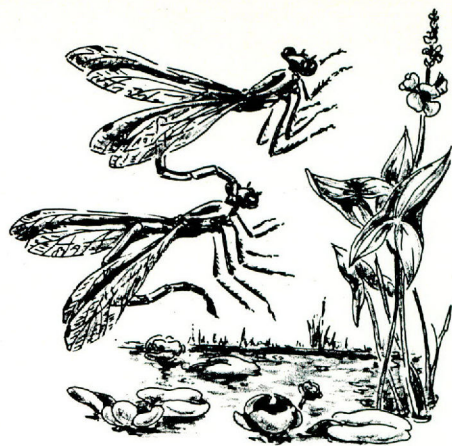
So it is not the light wind, after all, but love that puts on this rhythmical pageant. It is light love, we may be sure. And those biologists I spoke of would shudder at our using the

It's not the wind, but the mating drive, that sets Keats' "wailful choir" of gnats to dancing.

word "love" at all. It is a wild exaggeration, of course. Love is a state of consciousness as well as of behavior, and nobody has the slightest knowledge, or apparently ever will have, of what the conscious states of other members of the animal kingdom may be.

Some biologists, in view of this ignorance, maintain that we should never assume any consciousness in animals at all, but discuss their behavior as though they were automata. Others permit themselves to assume that a psychological evolution has accompanied the physical evolution of higher forms of life.

Especially in this matter of sexual behavior, the latter way of talking seems more sensible. In studying the courtship of insects you will find examples of every mode of amorous behavior known to man: bowing, curtsying, kissing, hugging, snuggling, nudging, fondling, caressing, clasping, embracing—some of them have special arms for this purpose—giving of presents, seducing with perfume, serenading, dancing (both



Demoiselle dragonflies learn that two can fly as cheaply as one, in premarital test flight.

social and solo)—even rubbing of noses or butting of heads together—not to mention rape, trickery and brazen exhibitions of sex appeal.

And the act of impregnation itself, although there are variations, is in most cases surprisingly similar among insects to that among us mammals.

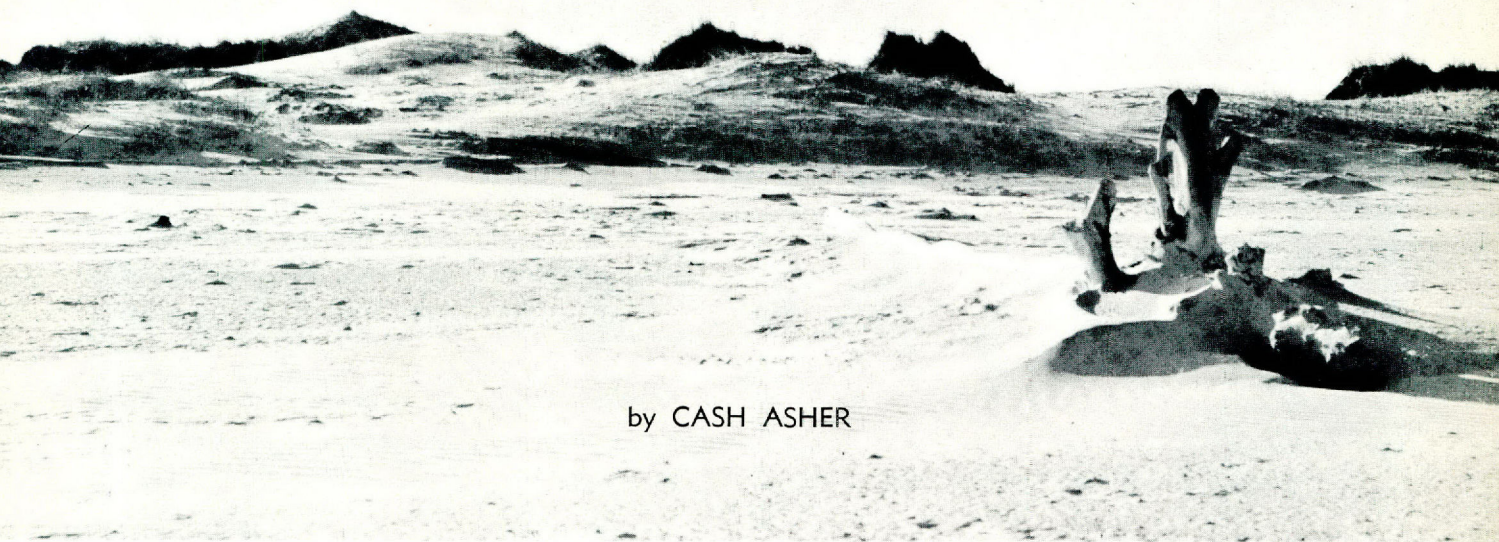
Reproduction through sexual union is so almost universal a trait of living things that it seems egregious to argue that any one animal, even so sometimes noble a one as man, has a monopoly sic the feelings involved. So tiny a creature as the paramecium, a single-celled oblong speck of life, although it usually reproduces by the simpler process of dividing itself in two, does every once in a while take a shine to a companion and they merge together before dividing.

Just when and why this happens remains as yet a mystery. It remains a mystery why the slender demoiselle dragonflies link themselves together and fly around tandem for hours at a time before mating. More puzzling still, they continue in this position, the male bringing the female along behind him as though on a flying bicycle-built-for-two, long after they have mated—until, indeed, she has laid her eggs on the leaf or stem of some plant growing in the water. Sometimes they even go under water together for this purpose.

We'll never have any scientific knowledge about the conscious feelings which may accompany the behavior of simpler forms of life, but by the same token no scientist can stop us from enjoying the poetry in them! **



Creatures of the Beach



by CASH ASHER

An artistic donation from another land, this driftwood log journeyed from Central American shores to be washed onto Mustang Island beach.

THE TEXAS shoreline, which extends along the Gulf of Mexico for 600 miles, is a region of endless variety, rich in marine life, postcard scenes and adventure. It resembles the pieces of a geographic jig-saw puzzle, with the restless sea reaching to infinity, fractured at its edge by bays, inlets, channels, rivers and the stone and cement masonry of ship canals. Grassy marshes, white dunes, mud flats and miles of sandy beaches document the work of wind and sea.

For the tourist from the more urbane sections in America, this is a land of adventure where surprises are endless and expectations realized.

From the northern end at Beaumont to the Mexican border city of Brownsville, this picturesque coast is a haven for countless species of wildlife. The visitor may see a disturbed nighthawk flying above its nest in the sand and see a gray, elusive coyote or hear its voice after dark. He may come upon an octopus or a hammer-head shark washed into shore, a starfish trapped in a pool left by the tide, the ridge of a lettered olive where it is tunneling through the sand, or a sea turtle laying its eggs in a well it has dug at the edge of a dune. Along every mile of the beach and around the bays and channels, he will see colorful migratory and resident birds—many varieties of ducks and geese in the winter; sand-

hill cranes in flight, great blue herons, standing like sentinels; snowy and American egrets, willets, ruddy turnstones; perpetual sanderlings, crocheting an edge in the spindrift; and innumerable gulls and terns, diving for fish or just soaring in the wind.

The ghost crab will dart over the sand or peer from the entrance of its burrow, and edible blue crabs will come into the shallows at night to

Photos by Cash Asher and Winnie Smith



Winnie Smith, co-photographer on this story, doesn't mind getting her feet wet zeroing in on a jellyfish at the Corpus Christi beach.

feed. Tie a piece of meat to a string and cast it into the water, and this ungainly creature will cling to the morsel until he is pulled upon the shore.

White pelicans will be in view, looking like banks of snow in Laguna Madre and Corpus Christi Bay; and everywhere on the sand or in the soft mud will be the tracks of animals and birds and the trails left by a multitude of crawling creatures that forage along the sea shore.

Those pictured here were seen during a three-month period on trips from Port Isabel, near the southern tip of Padre Island, to the center of Matagorda. The Intracoastal Canal, 200 feet wide and 20 feet deep, winds through the inland waters of this territory, like a gigantic pale blue python with its tail at Aransas Pass to the north, and its fangs formed by the jetties where it reaches the Gulf of Mexico at Boca Chica at the southern end of Laguna Madre.

The ever-changing tempers of the sea and the wind work artful magic on the sky and the land, fashioning dawn and sunset scenes and thunderous and peaceful cloud formations. And always there is the drum beat of the surf, the enchantment of a wilderness area, and at times a feeling of being alone at the edge of infinity, in the midst of Nature. **

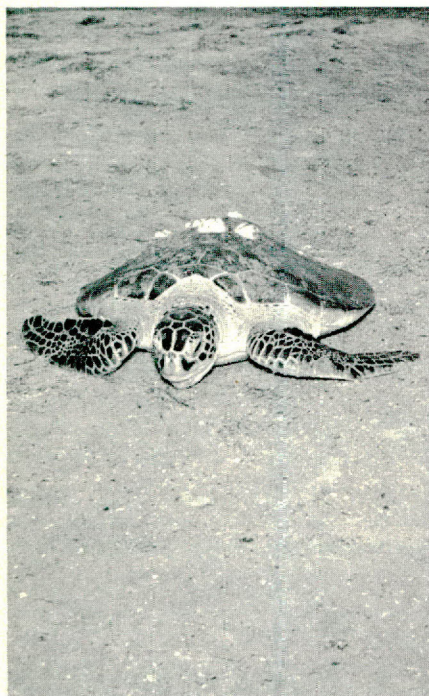
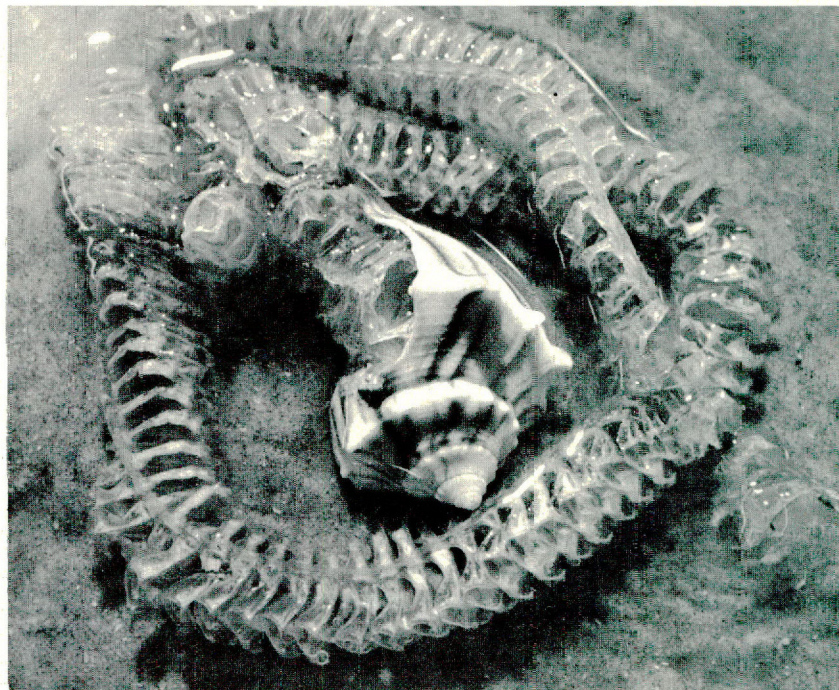
• Pictures Continued on Next Page

Respect that claw! A hermit crab demonstrates ownership of a moon shell. These crabs move into empty shells and carry them on their backs.

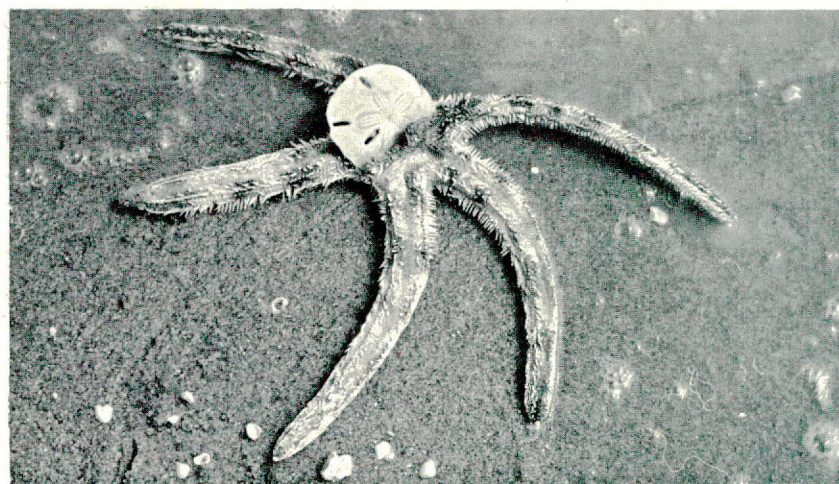


Poetically called "Cross of Christ," dried gafftop catfish skeletons are picked up on Texas beaches as curios. Common in bays, gafftop are aggressive, striking most bait.

Like something from Neptune's jewelry box is this left-handed whelk with egg cases. Whelks lay hundreds of eggs in parchment-like discs strung together, sometimes with 100 discs in a yard-long string. At first attached to the sea floor, the strings often get washed ashore.



Barnacles used this sea turtle as a ferryboat over the Gulf. Once-flourishing Aransas turtlemeat industry died due to creatures' scarcity.



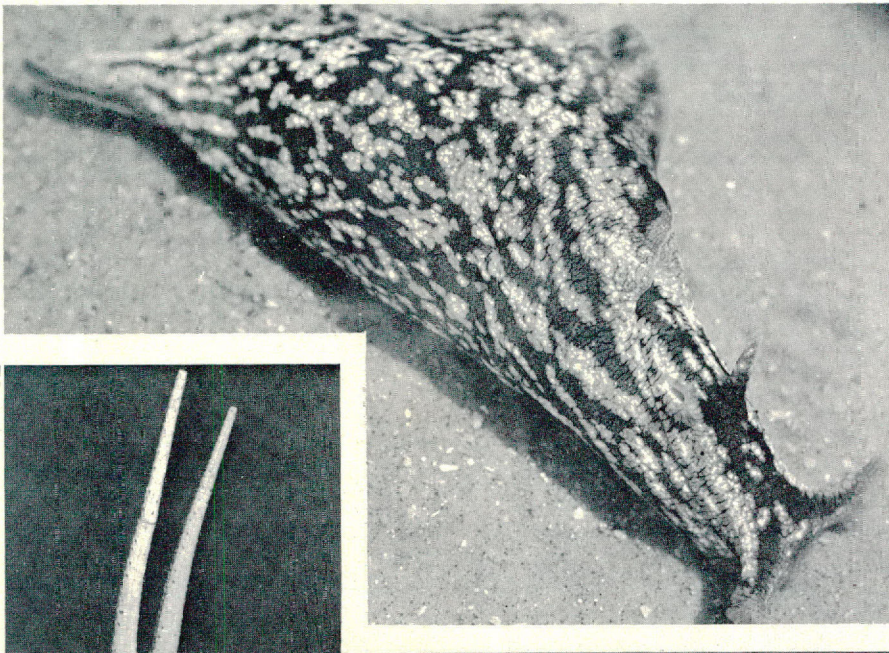
A starfish whose gluttony got the better of it was found choked on a sand dollar. This common species menaces oyster beds, and eats any animal it can. Its arms contract to open mollusk valves, then through its mouth stomach protrudes around meat to digest it.



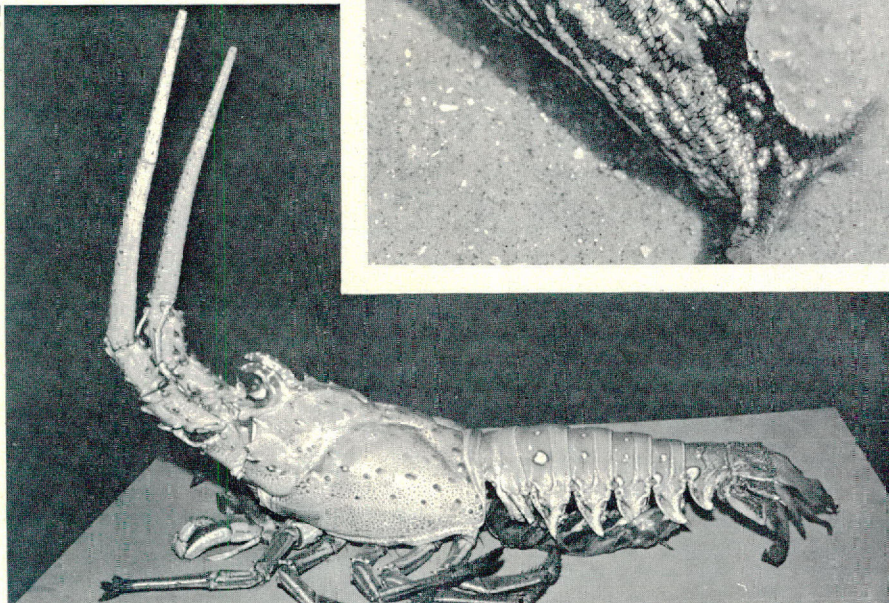
Small crabs like this one are often seen on masses of seaweed washed in by the tide and wind along the beaches of the Gulf of Mexico.



A young Natica, or moon shell, left high and dry by a wave, deserved an A for effort but found the sand too compact to dig farther.



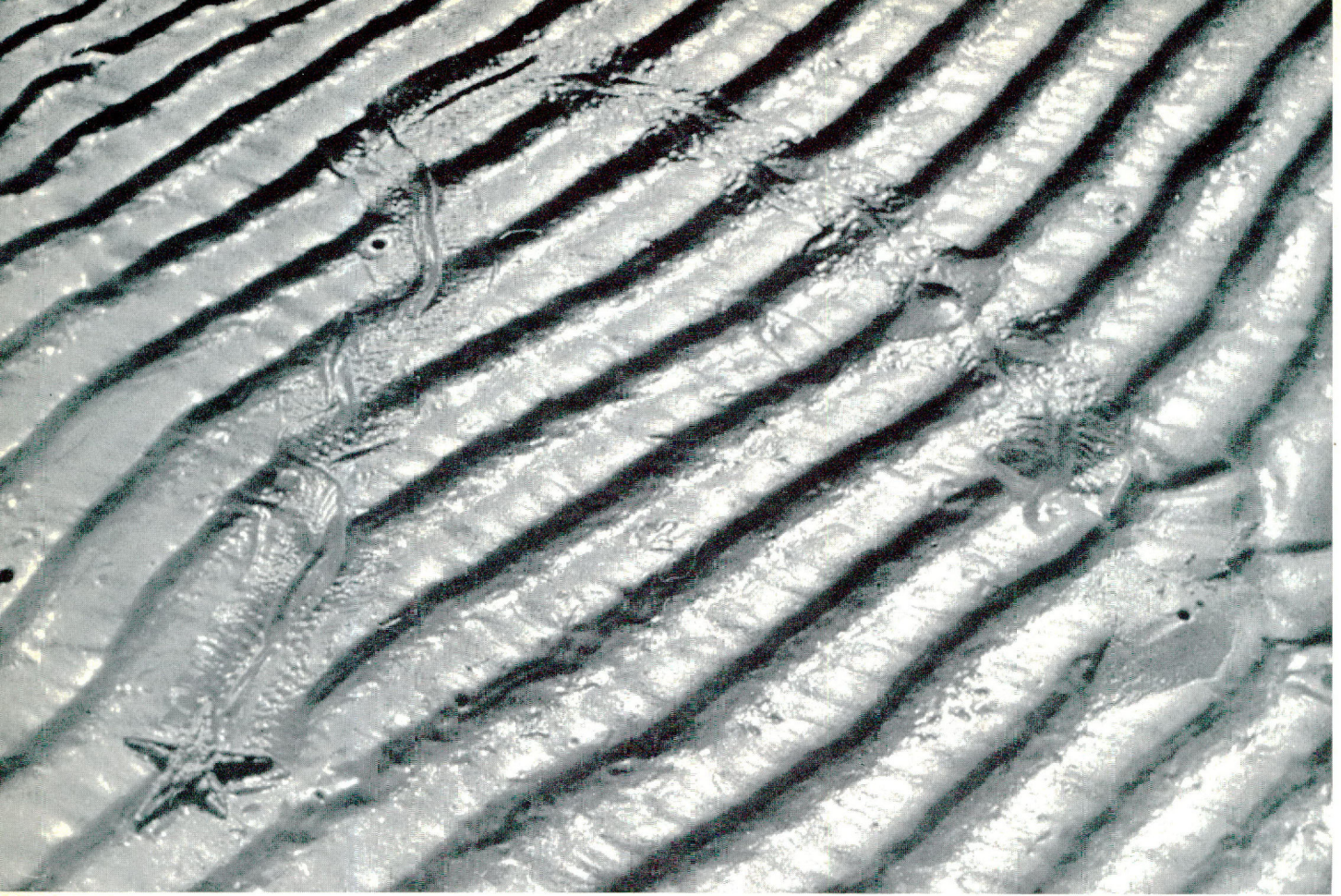
This odd slug-like creature is a West Indian sea hare, mainly vegetarian. It was in a stagnant pool along a Laguna Madre mud flat.



Guaranteed to jolt the casual beach stroller, this 12-lb., 2½-foot West Indian spiny lobster is said to be largest ever found. It was scooped from depths of Corpus Christi Bay.



Sandbugs put familiar marks on Gulf beaches. Tumbled from water, they soon dig and vanish.

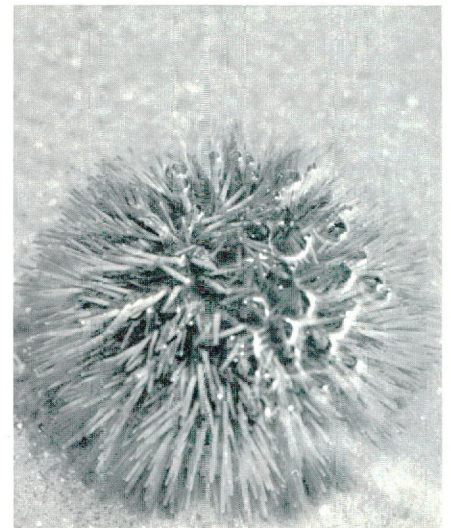


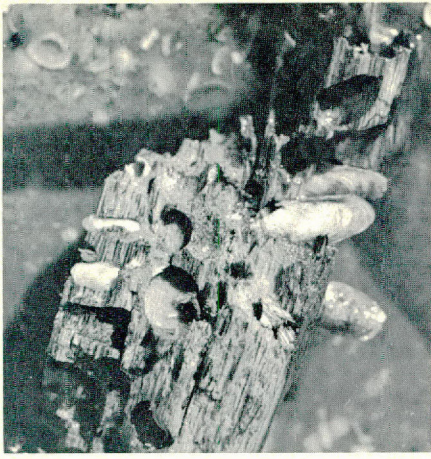
Stranded on the corrugated sand by the receding tide, this little mud star left a torturous path in its efforts to get back to the sea.



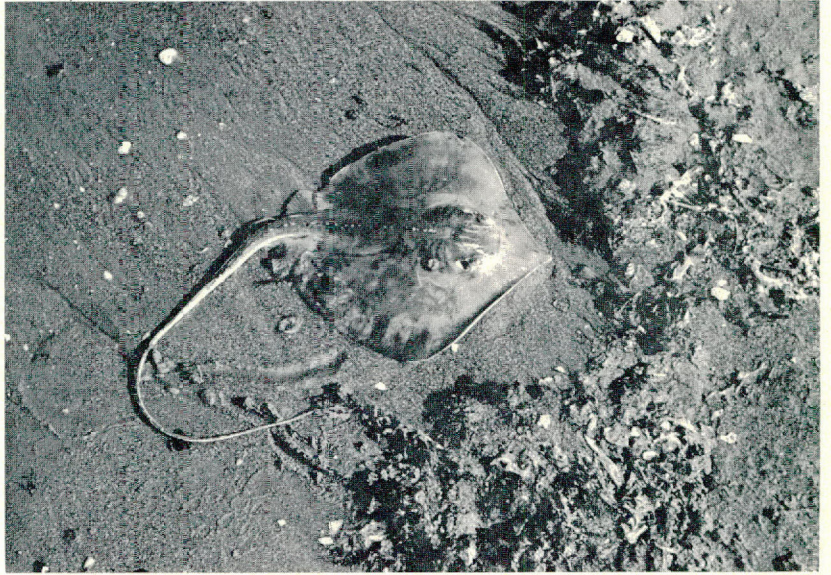
This gay little sea urchin was seen at Port Aransas. Kin to starfish, they live on rocks in coastal waters. Turtles find them tasty.

Submitting to be photographed is this exquisitely colored *Yeella*, or "by-the-wind-sailor," a close relative of the Portuguese man-of-war. It has a flat blue-green float and a keel-like crest running diagonally across it. Its bright blue tentacles are out of sight here.





Wood borers or Piddocks can show termites a thing or two! These striate *Martesia* are at home in wharves or other wood below water, like this driftwood found at Mustang Island.



This stingaree was mad and showed it, by flapping its tail angrily when the photographer approached. It was stranded by the tide on the lagoon side of Padre Island.

With scenes like this to reward them, it's no wonder campers are lured to the Texas coast!



Dove



HUNTERS are eagerly awaiting the announcement of an open season on white-winged doves; they know that they no longer can take one for granted because of the recent scarcity of whitewings, resulting from destruction of nesting habitat. Deciding whether the whitewing season should be open is a complex and carefully executed process, involving biologists, administrators and top conservation officials on both the state and federal levels.

The starting point is an annual survey of the whitewing population in Texas. In determining the annual whitewing breeding population, biologists attempt to cover 100 per cent of the important nesting range in the lower Rio Grande Valley. This survey of the Valley accounts for more than 95 per cent of all the birds which nest in Texas. Every citrus grove and native brush tract containing nesting birds is covered. Approximately 3,000 miles are driven by department personnel in the four-county Valley area of Starr, Hidalgo, Cameron and Willacy during the course of the census.

Estimates of whitewing nesting density are based primarily on call counts conducted during early morning hours, usually from 5:30 a.m. to 8:30 a.m. Breeding birds are recorded as so many pairs per acre, and the size of the nesting colony is also recorded. Later the biologist will simply multiply the pair per acre figure by the number of acres to arrive at the total number of birds in the particular tract. Bear in mind that most individual nesting areas are less than 20 acres in size and thus lend themselves to this type survey.

To determine nesting density by means of call counts, a relation between cooing volume and density

has to be established. This is accomplished by intensive nesting studies on areas, which have a variety of densities, scattered over the Rio Grande Valley. The exact number of nesting birds in these study areas is determined by actual count. By listening to the cooing volume of a known number of birds on the various study areas, the biologists can estimate with a remarkable degree of accuracy the whitewing nesting density on other areas.

These census takers are highly trained, experienced professionals who can distinguish a variation in whitewing cooing volume as a symphony conductor picks out a flat note in his orchestra. If the wind during the course of the census reaches a velocity of 12-15 miles per hour, or even less in areas with palm trees lining the road, the counts are discontinued as unreliable because of the distorted cooing volume and noise reaching the ear of the counter. Periodic spot checking of given areas reveals that most estimates of breeding density fall within 10 per cent of the actual number.

After all nesting areas are censused and the data tabulated, the biologist in charge of the whitewing project makes recommendations for the hunting season to the administrative staff of the Parks and Wildlife Department. Along with his recommendations the biologist is required to submit all of the pertinent data concerning the whitewing population and to further explain and justify his decision. The recommendations and data from the field are carefully studied and reviewed by the administrative staff to formulate the Department's recommendation to the Secretary of the Interior at the dove conference held in Washington, D. C. during late June of each year.

The Migratory Bird Treaty Act, which protects doves, pigeons and waterfowl as well as many other birds, makes the Secretary of the

by TED L. CLARK
Wildlife Biologist

Interior responsible for adopting hunting regulations in all states to permit a reasonable harvest of migratory game birds and leave an adequate supply for broodstock for subsequent years. Based upon data accumulated by federal and state biologists and the recommendations of the individual states, the Secretary sets up a framework of proposed hunting regulations, including season lengths, bag and possession limits, and the earliest opening and latest closing dates. The Parks and Wildlife Commission sets the hunting regulations for Texas within the framework established by the Secretary of the Interior.

A reliable method of censusing whitewings has been extremely useful as a tool for measuring the species' reactions to changing habitat conditions. Prior to the intensive clearing and cultivation of the once-dense Rio Grande Valley, whitewings had traditionally used this area as their nesting grounds. As native brush habitat dwindled, the birds began to use citrus groves, and by 1950 more than 80 per cent of the estimated 1,039,000 whitewings in the lower Rio Grande Valley were

using citrus nesting cover. A severe freeze during the winter of 1950-51 destroyed 85 per cent of the citrus trees used by whitewings during the previous summer, and the 1951 breeding population dropped to 110,000 birds which nested chiefly in the remaining brush. The scant remaining brush continued to provide most of the nesting habitat while citrus nesting cover was making a slow comeback. By 1955, 75 per cent of the breeding population was still using native brush habitat (Table 1). Citrus nesting habitat had recovered sufficiently by 1956 to provide nesting cover for 119,000 birds—an increase of 236 per cent over the previous year! Between 1955 and 1956 the breeding population increased by 65 per cent, with the bulk of the increase being in citrus nesting birds; 35,000 in 1955 to 119,000 in 1956. During the four-year period, 1956-1959 the whitewing breeding population was about equally divided between citrus and native brush nesting habitat. For the next two years the population showed healthy increases; however, most of the increase was in citrus-nesting birds. ✖

By 1961, 10 years after the 1951

freeze, the whitewing population had increased to 592,000 birds, 65 per cent of which depended upon citrus as nesting cover. During January 1962 another devastating freeze slammed into the semi-tropical lower Rio Grande Valley and severely damaged citrus groves. Although the 1962 freeze did not kill as many citrus trees as the 1951 freeze, it did freeze the crowns of most trees where whitewings customarily build their nests which contributed to the 1962 breeding population's decline of 49 per cent over the 1961 figure. The brush habitat, already saturated, could not provide nesting sites for those displaced by damage of citrus habitat. The decline from 383,000 birds using citrus nesting cover during 1961 to only 70,000 in 1962, while the number of birds using brush habitat showed little change, shows the degree to which our Texas whitewings have come to depend upon citrus nesting habitat. Records covering many years indicate that the available brush habitat in the Valley is saturated at slightly more than 200,000 nesting birds.

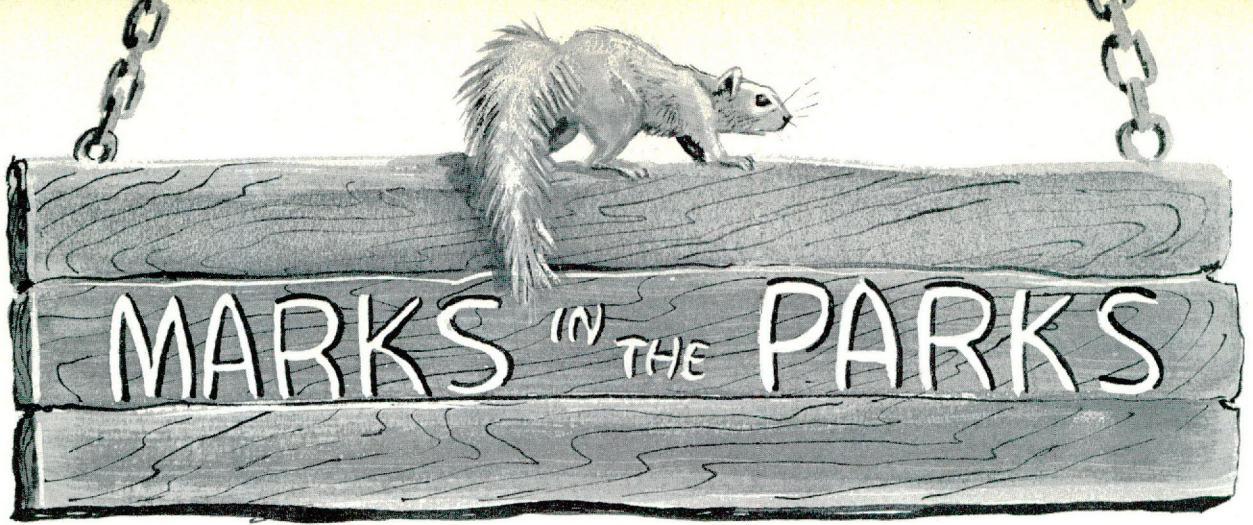
There was very little improvement in the quantity and quality of citrus nesting cover during 1963. This coupled with a decline in the breeding population resulted in the decision by the Commission to close the 1963 hunting season. The Commission felt that an open season on whitewings during 1963 would have made further inroads into the depleted brood stock.

What of the prospects for 1964? Even as you read this, biologists are concerned with the annual breeding population census. Their findings will largely determine whether the hunting season is reopened. While the final decision on the hunting season will not be made until July, certainly the outlook is not as black as it was a year ago. Citrus nesting cover appears to be considerably improved over 1963. Furthermore, whitewing production of young during 1963 showed an increase over the previous year. The great unknown and pivotal factor is the extent of mortality the birds suffered on their wintering grounds in southern Mexico and Central America. The annual head count of whitewings will give us the answer. **

TABLE 1

RELATIVE USE OF BRUSH AND CITRUS NESTING HABITAT
AND BREEDING POPULATION TRENDS BY HABITAT TYPES, 1955-63
LOWER RIO GRANDE VALLEY OF TEXAS

Year	TOTAL		BRUSH			CITRUS		
	Breeding Population	Annual Trend in Numbers	Number of Whitewings	Per Cent Total	Annual Trend in Numbers	Number of Whitewings	Per Cent Total	Annual Trend in Numbers
1955	142,000		106,500	75		35,500	25	
1956	234,000	+65%	115,000	49	+ 8%	119,000	51	+236%
1957	334,000	+42%	161,000	48	+41%	173,000	52	+ 43%
1958	245,000	-25%	125,000	51	-22%	120,000	49	- 27%
1959	338,000	+38%	167,000	49	+34%	171,000	51	+ 43%
1960	441,000	+31%	168,000	38	+ .6%	273,000	62	+ 60%
1961	592,000	+34%	209,000	35	+24%	383,000	65	+ 40%
1962	301,000	-49%	231,000	77	+11%	70,000	23	- 82%
1963	277,000	- 8%	189,000	68	-18%	88,000	32	+ 26%



MARKS ^{IN} THE PARKS

by JAY VESSELS

ONE of the more delicate, and yet one of the absolutely vital, routines of the Parks and Wildlife Department is posting park areas with helpful signs.

The management, where possible, refrains from the demanding approach—that is the KEEP OFF THE GRASS angle.

Yet it is essential that some DON'Ts are conspicuously placed, such as concern bathing areas and camping areas.

The millions visiting state parks include some overly exuberant types who need a sharp reminder about water hazards, road hazards and fire hazards. And always the goal is to be effective without offending.

Just recently, a camp fire was fanned by winds into a raging grass and brush fire that could have been very destructive in Palo Duro Can-

yon State Park. Two years ago some visitors at Stephen F. Austin State Park got past a warning sign and went bathing in the Brazos River,

• Continued on Page 30



Ironically, signs requesting consideration for park property bear the marks of vandals.



W. A. (Pete) Palmer, supervisor at Tyler State Park, labels trees for visitors' information.



The typical historic park is reflected in this marker at the entrance of Mission San Francisco, near Weches in East Texas' Piney Woods.



The Cleburne State Park entrance sign, decorative but informative, is typical of the system.

IN THESE days of tensions and anxieties which cause all of us to be somewhat neurotic, consider the earthworm. Think what a traumatic experience it must be for a baby earthworm to meet one of its parents. The baby's question might well be, "Are you my father or my mother?" The earthworm is bisexual. Each worm produces both eggs and sperms, but cross-fertilization is accomplished by an exchange of sperm cells when mating occurs.

To most of us the earthworm is the bait at the end of a cane pole and line or the food of the early bird. Actually, a little study and examination shows the earthworm to be an interesting and valuable member of nature's groundcrew.

The earthworm is an invertebrate—it has no backbone but it has a ventral nerve cord—and is placed in the phylum of annelids. Probably the most striking feature of the annelids is their segmented bodies—generally made up of more than a hundred segments in the earthworm. The earthworm is further placed in a class of annelids called Chaetopoda. These are animals with setae, bristle-like structures used for locomotion. As to the species of the earthworm, many are found in the world. The earthworm is widely distributed, absent only where humus is deficient or soil is scanty. Some 90 species of earthworms are found in the United States.

So much for nomenclature; now to look at the worm itself.

On each of the hundred plus segments the earthworm has four pairs of the bristle-like structures called setae. Two pairs are on the worm's lower, or ventral, surface and a pair is found on either side of the worm. These are used in locomotion. Besides the setae, motion is accomplished by two sets of muscles in the worm's body. One set is circular and forces the body forward while



Muscle sets can lengthen or shorten.

the other set runs lengthwise and by contracting can pull the rear of the worm forward. The setae are necessary to anchor that portion of the

Consider The Earthworm

by PAUL F. LONG



body not in motion. Projecting them into the sides of the burrow prevents the worm's being pulled out by an enemy.

Breathing is accomplished in the earthworm, not by lungs, but through the skin. Oxygen is taken into the body and carbon dioxide given off only when the worm's skin is moist. Since the skin must be moist, the worm lives only in damp soil and comes out on the surface only when the air is moist and cool. For this reason the earthworm is a nocturnal prowler. Hence, a worm's being captured by an eager robin is due, adages to the contrary, not to the



Late worm becomes bird breakfast.

virtues of early birds but to the carelessness of late worms.

When you impale the hapless earthworm on a fishhook, are you aware of the worm's bleeding? He does—not rich, red blood, but red blood nonetheless. Through the vessels of the worm flows blood containing only white corpuscles. The oxygen-carrying substance, hemoglobin, is dissolved in the blood plasma instead of being in red blood cells, as in our bodies. This blood is driven through the body, not by a heart, but by the dorsal vessel and five aortic arches. The arches lie near the front of the earthworm's body.

These and the dorsal vessel contract rhythmically like a heart.

If one examines an earthworm, he will find a thickened band or region about 30 segments from the front or anterior end. This is the clitellum, or egg girdle. When the worm is ready to lay its eggs, a slimy coating is secreted about this girdle. This coating hardens into a skin-like sac which slips forward over the worm's head. Actually, the worm backs out of the sac. As the sac passes openings in the fourteenth segment (counting from the head), eggs are laid in it. Sperms, from mating with another worm, are deposited on the eggs as the girdle passes openings of the seminal receptacles. These openings are between the ninth and tenth segments. The egg sac is shed into the soil and fertilization occurs within it. In two or three weeks those egg cells which were fertilized develop into small worms similar to adult worms.

Earthworms are known by a variety of names in different sections of our country. Some of the more



The worm backs out of the sac.

descriptive as well as picturesque are angleworms, fishworms and night crawlers.

Often we think of the return of spring in terms of the abundance of robins feeding upon our lawns. But the real harbingers of spring are the

• Continued on Page 25

New Marine Lab

by AL FLURY

FOR the first time, the Galveston Bay game wardens and marine biologists of the Texas Parks and Wildlife Department are docked at the same location as their boats. The new Marine Laboratory in Seabrook, completed in January, is headquarters for four bay wardens, five biologists, a chemist, a statistician, two secretaries and a 10-man crew for maintenance and boat operation.

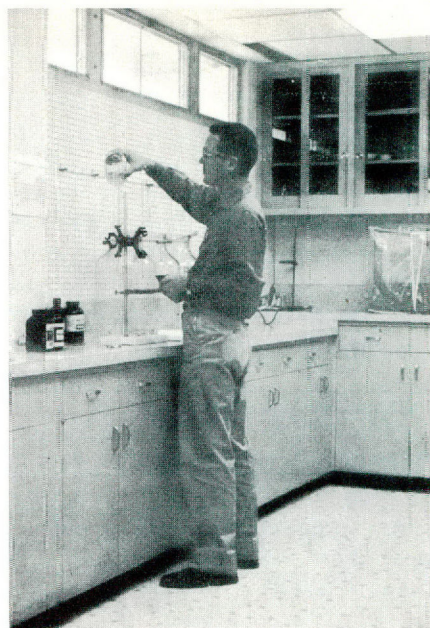
The original lab, a one-floor frame building with 2850 square feet of floor space, served as a center for the Department's work in Trinity and Galveston Bays from 1957 through September 10, 1961 when it was destroyed by Hurricane Carla. Besides the building and equipment not moved out, many valuable maps and records of biological conditions in the bays were lost. Although the lab was on a waterfront lot, the boats

were kept in sheltered slips at several boat yards in the Clear Creek area. The Department leased the old Elementary School building in Seabrook for temporary headquarters.

The major features of the new building include storm protection. Bell-bottomed piers of reinforced concrete, four feet in diameter and 33 feet deep, form the foundation for the cement slab first floor. The slab is 81 feet long and 32 feet wide, giving a floor space of 2400 square feet.

The first floor, housing a repair and maintenance shop and covered work and storage areas, is equipped with overhead garage doors which can be raised before a storm. The end walls are of concrete block, designed to be knocked out easily by storm waters, thus allowing for passage of water through the area. Moveable equipment and machinery would, of course, be taken to the second floor or to other locations prior to a serious storm.

The second floor and roof are



made of pre-stressed cement U-beams and poured slabs supported by pillars that are 16 inches square. The upper walls are prefabricated slabs with a gravel aggregate exterior.

Other special features which facilitate the coastal division work are separate and well-equipped laboratories for the biologists and the chemist, drain tables with sinks for biologists' offices, a combined library and conference room and a chart and drafting room. A lead-lined table and saltwater aquaria for observing living marine organisms will be installed later. A saltwater system with pump and storage tank will furnish bay water to these fish tanks. **

Herring is one of our most important food fishes and one of the most abundant fishes in the world. The young are marketed as "sardines."

The box turtle is the most common species, is the first turtle seen by every child, the one turtle known to every adult, and probably the longest-lived species of American wildlife.

3-Power K3

4-Power K4

you'll see better, shoot better with

a model K3 or K4 WEAVER SCOPE

Precision, hard-coated lenses give a clear, sharp, magnified target. Long, safe eye-relief and constantly-centered reticle make aiming fast and easy, shooting more accurate. You'll like these other Weaver-Scope features, too: compression O-ring sealing and nitrogen processing for weather-proof performance; light, sturdy steel-tube construction; fine finish and permanent blueing. See the seven Weaver K Models . . . priced from \$34.50 . . . at your dealer. © 1964 W. R. Weaver Company

W. R. WEAVER CO. DEPT. 34 | EL PASO, TEXAS 79915

FREE!  Full-color 1964 catalog

Name _____
Address _____
City _____ State _____

MADE BETTER BY AMERICAN CRAFTSMEN

Bobwhite Quail Eggs
7 Cents Each
At the Farm—No Shipping
LAKESIDE QUAIL FARM
Telephone No. CE 4-2588
Eagle Lake, Texas

The escaping half may grow complete.
Consider The Earthworm — From Page 23
 lowly earthworms. Robins in profusion are found only when their source of food is plentiful. This source of food, earthworms, is available to robins only when the average temperature of the soil is 35 degrees Fahrenheit. During the cold of winter and during periods of drought the earthworm burrows deep into the soil—sometimes as deep as six to eight feet.

Besides man, bent upon obtaining a supply of fish bait, and a variety of birds, the earthworm has other enemies. Shrews, moles, mice, and, on occasion, toads feed on earthworms.

Because of its ability of regeneration, being caught by an enemy does not always mean death to an earthworm. Often the enemy gets only half or part of an earthworm and the half that escapes may soon grow to a complete worm.

Feeding as it does upon soil and humus, the earthworm has little competition from other animals, foodwise. In loose soil the earthworm may push its way through the soil, but in tightly packed soil it literally eats its way along.

The value of the earthworm to farmers, gardeners and agriculturalists lies in the feeding habits of the worm. The worm's crop softens what has been eaten and the thick-walled gizzard grinds the food. Although it seems hard to believe when one is digging worms for bait, counts of earthworms have shown that some soil carries a population of one and one-half million worms. Populations of 50,000 worms per acre are quite common. Earth the worm eats passes through its alimentary canal and is deposited at the surface as castings. Scientists have concluded that earthworms bring up and cast tons of material on each acre of soil each year. These castings are rich in humus. Earthworms working into the soil bore holes that aid soil drainage and admit air.

So the earthworm is not just another "worm." It is nature's way of plowing and enriching the soil. Unsung and unheralded, harassed by man and preyed upon by animals, the nocturnal plowman goes about its valuable job of soil enrichment. **

NEW ENGLAND FISH CHOWDER

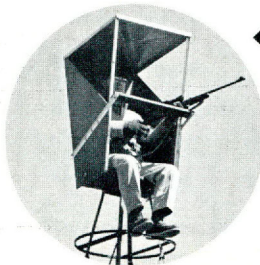
4 cups (2 lbs.) flaked or cubed cooked fish
 ¾ cup (4 oz.) salt pork, cubed
 ½ cup sliced onion
 4 cups water
 1 teaspoon salt
 2 cups sliced potatoes
 4 cups milk, scalded
 ½ teaspoon pepper
 1 sliced lemon (optional)
 Paprika; minced parsley or chives
 Crisp crackers or toast points

Flake or cube cooked fish. Fry pork to golden yellow; add onion, cook until pork crisp and onion a light yellow, stirring occasionally. Add water and salt, bring to boil, pour into saucepan. Add potatoes, cover; cook 20 minutes or until nearly done. Add fish and simmer 5 minutes to heat thoroughly. Just before serving, add hot milk, lemon slices and additional seasoning if needed. Sprinkle with paprika, minced parsley or chives. Serve with crackers or toast points.



TEXAS HUNTER®

For Safety and Comfort!



SWIVEL "HIGH CHAIR"

Silent, 360° turn seat with aluminum framework. Side arm rests. Front safety bar and gun rest. Available on 10' or 15' all-steel 4 leg stands with wide base spread for extra safety. Shipped knocked down. Easy to assemble. On 10' Stand. \$82.00

SWIVEL ARM CHAIR

Aluminum and wood chair is extra strong and roomy with proper tilt for comfort. Designed for use in the enclosed blind. \$16.00



THE FEED-ALL

Self operated by a breeze. 5-gal., rust-resistant feeder dispenses dry grains and pellets. Only one moving part. Pat. 2,972,334. \$5.95



WARM AND DRY ENCLOSED DEER BLIND

Steel frame, galvanized metal roof, ¼" tempered masonite sides and ¾" plywood floor. Shooting ports on four sides have bypassing glass sections and panels in divided channels of extruded aluminum. Blind may be used on the ground or on our Texas Hunter all-steel 10- or 15-ft. towers. Shipped knocked down in handy packages. On 10' Tower. \$132.00

● SPECIAL UNITS DESIGNED AND FABRICATED ON REQUEST

*Discount on quantity purchases.
 For descriptive brochure, prices, write*

Prices
 F.O.B. S.A.



BRADEN WIRE & METAL PRODUCTS, INC.

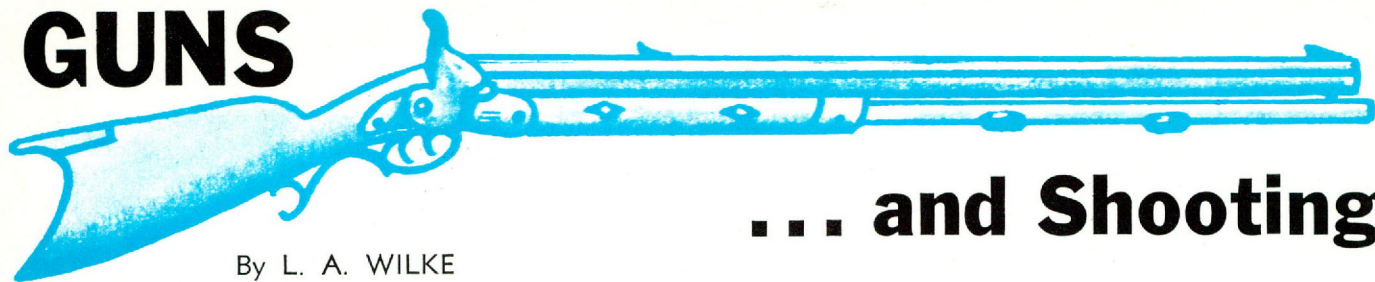
P. O. BOX 5087 • SAN ANTONIO, TEXAS, 78201

TEXAS HUNTER BLINDS are also displayed and for sale at:

Oak Hill Gun Shop — Highway 290 West
Wilbert Ottmers — 306 E. San Antonio St.
Lawrence Schaeffer

Austin
Fredericksburg
Comfort

GUNS



By L. A. WILKE

... and Shooting

TEXAS shooters who have been looking for just one gun that would be the answer to all their big game rifle needs may find it in the new Remington 600 in the 6mm caliber. This is perhaps the nearest approach to a satisfactory combination of deer and varmint gun that has come along yet.

It was originally announced a few months ago in .308 and .22 calibers. Now it is being offered in the popular 6mm, which is an ideal gun for deer and antelope. In fact it is heavy enough for just about any game in the United States, with carefully placed shots.

Then, with a good scope, something like the Weaver K4 or K6, it becomes an excellent gun for coyotes at long range. The 6mm caliber is not exactly new. Remington has produced it in what was previously known as .244. The old .244 ammunition can be shot in the 6mm. There

is a difference in the bullet weight, however, which can affect the accuracy slightly when the ammunition is changed from one gun to the other.

This new 600 is an ideal brush gun, because it is short and light. It weighs only five and one-half pounds, yet every inch is a rifle.

For those who use a saddle scabbard or carry their gun in a rack on a jeep, it is just about the handiest made since the Model 94 Winchester.

The model 600 is quite different in appearance. The barrel is fitted with a ventilated rib to form a quick sighting line that helps the shooters get on a target faster. The front sight is of the blade-ramp type with a brass bead. The rear sight has a U-notch and the receiver is drilled for scope mounts.

Checkering on the gun is similar to that of the shotguns now being produced.

The stock is Monte Carlo, of American walnut with fluted comb. There also is a different bolt design, with the cartridge head completely encased by a ring of solid steel.

The bolt handle is specially shaped to hug the stock, which makes it easier carrying. There is a rotating thumb safety, with a wide trigger with a pull that is crisp and clean, with no creep.

Other specifications include: 5-shot; 18½-inch barrel; over-all length

37½ inches; 14-inch pull, 2-inch drop at heel and 1½ at comb.

Ballistically, the 100-grain, soft-point bullet leaves the barrel at 3190 fs, dropping to 2400 at 300 yards. Its muzzle energy is 2260 fp and 1300 at 300 yards. Midrange the trajectory is 0.5 at 100 yards and 5.1 inches at 300 yards.

For comparison the old .30-30 with the 150-grain bullet at 300 yards has 1360fs left; 615 fp of knockdown and a 12.5-inch midrange. This quick glance indicates the killing effect of the 6mm and range dependability is about twice that of the .30-30.

The El Paso scope maker also has announced a new Weaver variable for .22 rifles. It has continuous variable power of from 3X to 6X, resulting from just a slight turn of the eye-piece. It is a new concept in .22 scopes, with a larger main tube, larger lenses, a brighter scope and centered reticule. It is a fast-change, with the cross-hair always remaining at the same size. It is mounted with split-ring, tip-off type mounts and can be fitted to any of the new .22 rifles in a few seconds with the use of a coin. It and other scopes are described in the new Weaver catalog now available free by writing to the W. R. Weaver Co., at El Paso.

Smith & Wesson and Remington have combined for a new .41 caliber cartridge and revolver. This is a different cartridge than the original .41, made famous in early-day gambler derringers. The new load comes in 210-grain bullets, with a MV of 1600 fs from a 10-inch barrel. Its performances generally are considered superior to the .38 special.

There are two bullets available. One is a lead bullet, with only 600 pounds of knock-down and a mid-range at 100 yards of 4 inches. The soft-point bullet develops 1193 fp of muzzle energy and has a mid-range of 2.1 inches. **

HUNTING & FISHING KNIFE

Made in Germany. Finest steel and workmanship. 5" blade, leather sheath. The knife that STAYS sharp. Fully guaranteed. Special at \$3.95.

T. J. KIRKPATRICK

Box 590 Pleasanton, Texas 78064

DEER HUNTERS

The first experience of the C. T. White Ranch of McCulloch Co. with commercial hunting was so satisfactory both in hunter success and personal relationships additional pastures are now offered. Only on an exclusive pasture basis reservations at \$100 per gun for the entire season are being accepted on pastures accommodating as few as four hunters and as many as ten. No meals, lodging or camping facilities provided but campsites are numerous. Contemplate Commission setting same limit in 1964 as in 1963 which was three deer with at least one being antlerless. Prefer hunters inspect before making reservations.

Call **FRED WULFF** at LY 7-2330 or write P. O. Box 1270 Brady, Texas for information and appointments.

DEER HORN MOUNTING KIT

DO-IT-YOURSELF
OLD OR NEW
HORNS

IT'S FUN & EASY

DELUXE KIT \$4.95

STANDARD KIT \$2.75

FINISHED SHIELD PLAQUES \$1.00 ea.

NO COD'S PLEASE. SEND CHECK OR M.O. TO:

DEER HORN KITS

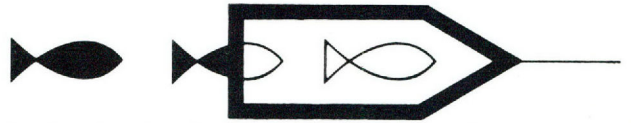
P. O. BOX 6802 • SAN ANTONIO, TEXAS



NOW! Scale Fish Automatically!

WITH THE REVOLUTIONARY NEW

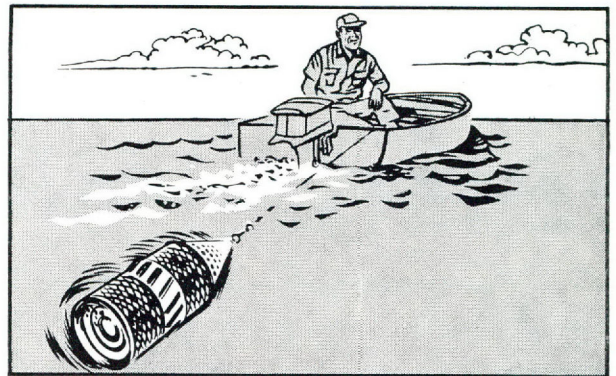
ROCK-IT



AUTOMATIC FISH SCALER

PATENTS PENDING / ADDITIONAL PATENTS APPLIED FOR

THOROUGHLY TESTED AND PROVEN BY BOTH EXPERT AND NOVICE FISHERMEN



Make all of your pleasure fishing *all pleasure* with the new "Rock-It" . . . the first and only **Automatic Fish Scaler** . . . **AS EASY TO USE AS TAKING A BOATRIDE!** \$13.95 in most areas. Dealers now being appointed. **SATISFACTION GUARANTEED.**

FILL OUT THE COUPON AND MAIL TODAY!

- Please send _____ ROCK-ITS. My check is enclosed.
- I am interested in becoming a (dealer) (distributor).*
- Please send me more information.

*8mm action movie available. Request on your business letterhead.

Name _____

Address _____

City _____ State _____ Zip Code _____

DMG, Inc., TG-6 4227 Herschel Bldg Dallas 19, Texas

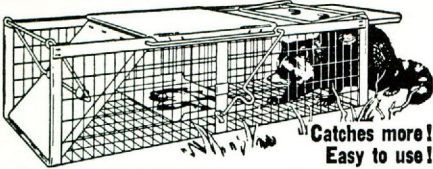


**LIGHTWEIGHT • DURABLE
HANDY • EASY TO USE
COMPACT • NO MOVING PARTS
SAVES TIME AND ENERGY
DOUBLES AS A FISH BASKET**

SCALE 50 FISH AT ONE TIME

The new "Rock-It" scales up to 50 pan size — or several larger fish — at one time. It scales them *clean* — and cleans as it scales. So fast and easy to use . . . just put your catch in the "Rock-It" and pull it behind your boat for a couple of hundred yards — THAT'S ALL — just a short boat ride and your fish are completely scaled. Yes, perfectly scaled by the time you reach the dock or another fishing area. No more hot, messy, slimy hand scaling for you *ever again*. And the automatic scaler will not break the skin or damage the meat of the fish in any way. The scaler doubles as a live fish basket while you're fishing — right off the hook and into the "Rock-It," then you need not handle the fish again until you are home. Keep 'em, scale 'em, and carry 'em — all in the "Rock-It." It lasts for years. And you can trail it behind any motor — 7½ hp. and up. The "Rock-It" is 22" long and 10" in diameter — and weighs approximately 4 lbs.

CATCH ANIMAL RAIDERS!



Simple, safe HAVAHART traps catch raiding rabbits, coons, squirrels, pigeons, sparrows, etc., without injury. Straying pets, poultry released unharmed. No jaws or springs to break. Galvanized; many in use 20 years. Open ends give animal confidence. Sizes for all needs. Write for valuable illustrated guide and price list.
HAVAHART, 149-G Water Street, Ossining, N. Y.
 Please send me **FREE** new 48-page guide and price list.
 Name _____
 Address _____

Game Bird Eggs

BOBWHITE QUAIL EGGS
 12 Cents Each

CHINESE RING NECK PHEASANT EGGS
 20 Cents Each

Minimum Order \$5.00

Postage Prepaid

Please Mail Check With Order

Keechi

QUAIL & PHEASANT FARM

Telephone Number DA 2-4770

Route #2
 BUFFALO, TEXAS



ATLAS "A"

**GETS RID OF WEEDS
 AND ALGAE IN
 PONDS AND LAKES**

The best way to kill most water weeds and algae! Widely used . . . highly recommended. Harmless to fish when applied as directed.

FREE! WRITE FOR BULLETINS
 on Water Weed & Algae Control

CHIPMAN CHEMICAL CO.
 Dept. T, Box 272, Pasadena, Tex.

What Others Are Doing

by JOAN PEARSALL

MORE TO IT THAN MEETS THE EYE: Unsuccessful hunters often blame areas for being "barren." But most game, blessed with highly acute senses of smell and hearing, can easily avoid detection by both inexperienced, careless hunters and experts, as proved by a recent experiment in Michigan. Thirty-nine whitetail deer were fenced into a mile-square area comprised of hardwoods, pine swamps and open pine barrens. Despite clear weather and ideal snow tracking conditions, six experienced hunters required almost four days to sight a buck.

ON THE UP-GRADE: In Wyoming, all applicants for deputy warden positions are now required to hold a degree from an accredited university or college before they can take the warden's examination. Applicants holding degrees in natural resource management are given first consideration. Residence requirements are one year instead of five, as they were previously. Presently employed wardens there are not affected by the new regulations.

CALL OF THE WILD: A Pennsylvania farmer let his six domesticated turkeys, three toms and three hens, range loose around the farm. Three wild tom turkeys came into the yard, beat up his toms and apparently charmed the tame hens. Shortly after, the hens took to the woods and have not yet returned.

VOICED THEIR CHOICE: Personnel of the New Mexico Department of Game and Fish so disliked the design of their badges that they agreed to defray the cost of a new badge out of their clothing allowance. The new one has a bear head, official symbol of their department, in the center of a gold-colored arrowhead. Outside the arrowhead is a silver shield headed by the American eagle.

MICE IN A TRICE: Twelve field mice in 27 minutes is the catch record of one industrious eastern Oregon coyote, watched by a game agent at close range in a stubble field crusted over with snow. Its technique was to walk slowly but deliberately until it spotted its lunch. It would then spring in an arc, as much as six feet, coming down hard with its front feet to break the snow crust. If the animal was not successful on the first try, it would make several shorter jumps, but most of the time if the mouse was not caught on the first attempt, it wasn't caught at all. If the crust was too hard, no attempt was made to break through after the first jump. The animal hunted downwind more than it did upwind, indicating its sense of hearing to be just as important as its sense of smell. All mice were consumed immediately after capture—except number nine. Evidently something was wrong with this one, because it was discarded in the snow.

BEST OF ALL TIMES: Something old and something new in game and fish management happened recently in Arizona—a wide-open, old-fashioned buffalo hunt and the stocking of a foreign game fish called the tilapia. A total of 119 surplus buffalo was taken by hunters on the state's buffalo preserves. Tilapia have been a stocking success in several Arizona irrigation canals.

TURKEY HAMS: The Missouri Conservation Dept. recently announced plans to equip trapped yearling wild gobblers with miniature radio transmitters in an attempt to trace their movements. Two biologists have built seven sets, hoping to learn from studying the birds' movements what kind of habitat the turkeys prefer at different times of the year, and why.

Texas

Tackle Talk

by CURTIS CARPENTER



THE ADVANTAGES of using floats on fishing lines are many and varied. One fisherman revealed, "I use a float because it is attractive and because it's just plain old custom." Another uses one so he can lie under the shade tree with one eye open and watch his multicolored, plastic bobber dance around on the ripples. It's relaxing. Most fishermen slip floating gadgets on their lines as a "nibble signal," or to hold the bait at just the right depth.

These nibble signals come in all sizes and shapes, colors and weights. They are called floats, bobbers, floaters, corks, bobs and buoys and a few other colloquial names not listed in the files. These important bits of tackle will do everything from pop loudly to stand on end.

A person cannot own just one bobber and be in business. He needs different sizes for different fish. On the coast when fishing for trout and reds a large cork, balsa or styrofoam float with a concave top is best for the heavier tackle being used. In this case, also, the rod is snapped back to sock the float into the water for a popping sound, thus the reason most fishermen call this type of float a "popping cork." It attracts the attention of the desired fish.

For smaller perch-type fish, a very light bobber is best. The porcupine quill is extremely popular because it offers very little resistance, and because it stands on end as a signal at the slightest nibble.

Not too long ago, cork and balsa floats in their natural colors were the only types sold on the market. These were difficult to see at a dis-

tance. Today, one of the most popular floats has green on the lower portion and bright iridescent orange on the upper edge.

Floats are not always needed when fishing with live bait. As a matter of fact, there are times when anything on the line other than the hook can be detrimental. I have found that when fishing for nibbling sunfish and crappie, I have better luck when I allow the worm or minnow to float freely. This is especially true when using a cane pole. Quite often a perch will snip a bait off bit by bit until there is nothing left. But, by giving the little thief some free line it will work the hook into its mouth. This is not an ideal way to fish when fishing over a brushy bottom, because the little bandits will drag line and all right into the depth of the brush and leave it wrapped around half of the limbs.

An important factor to remember is the depth to set a float. Fish don't always feed at the same level. I usually start fishing at a shallow depth and work down. When I find fish, that's where I stay. Don't set your bobber at one height above the bait and leave it there all day. If the fish don't hit it at one level, move it up the line and try again. If you use the nibble signal correctly, it can be one of the most important pieces of tackle in the box.

Bass Poached in Beer, Ummm!

THE HUNGRY SPORTSMAN'S FISH & GAME COOKBOOK

More Than 400 Recipes \$1.00 Postpaid
Fish, Big Game, Small Game, Wildfowl,
Turtles, Frogs, Mushrooms, Etc.

EDDIE MEIER
Box 3030—Scottsdale, Ariz.

Graders
Grills
Agitators
Dip Nets
Hauling
Tanks

Factory: 6000 Bowman Springs Rd.
Factory Tel. No. GL 1-0112
B. W. Womack
Owner

Write for free catalogue
CRESCENT MFG. CO.
P. O. Box 3303 — Ft. Worth, Texas



A TACKLE TIP—If you are one who has been having trouble keeping the rubber skirts on your lures from melting and sticking together, try placing them all in one small container and sprinkling on some talcum powder. Use enough to coat the skirts, then close the box and shake it. Don't worry about the white coating; it'll wash off when the lure hits the water.

A FISHERMAN'S MUST—I have always wanted an interesting and educational book on fishing to place at the head of my bed for scanning each night just before I drift off into dreamland. I found that book recently. It's the 1964 edition of *The Fisherman's Digest*. Two chapters I like best are "HS/HL Casting Technique" and "The Most Versatile Lure." I like these two because I am just getting into fishing with fly rods. The first chapter, page 28 in the Digest, by expert Charles Ritz, goes into detail about the mechanics of correct fly casting. The second one, page 165, by Chauncy K. Lively, will show you how to make popping bugs that will catch fish.

No matter what type of fishing you prefer, there's a chapter in the new *Fisherman's Digest* for you. It contains 320 pages of very informative writing, by some of the top authorities on fishing in the world. Tom McNally has done a fine job as editor of the fifth anniversary edition. It sells for \$3.95 and you can get one by writing to Gun Digest Association, 4540 West Madison Street, Chicago, Illinois 60624. **

MEALWORMS

Choice FISH BAIT. Feed for monkeys, finches, all birds. 300, \$1.00, 1000, \$3.00.

NEUMANN

Rt. 1, Box 392L San Antonio, Texas

"FISHERMEN"

LET US CUSTOMIZE YOUR
AMBASSADUER REEL

Will Install PRECISION Ball Bearings
- - Clean, Lubricate & Return Post
Paid, For Only \$7.50 Cash with Order.

TUCKER'S GUN SHOP
120 N. Seagoville Rd. Dallas 17, Texas
AT 6-1636

where stepoffs are tricky. Five drowned.

Park signs are designed purely to help the folks have a good time and

to provide the maximum protection, according to W. M. (Mark) Gosdin, assistant director for Parks. "Our business is serving the public, not needlessly discouraging them or needlessly restricting their activities," said Gosdin.

All parks have a standard speed limit of 20 miles an hour. Some of the roads are really trails, narrow and twisting. The Parks and Wildlife Department tries to impress upon the visitors the safety angle and also to slow them down. Then they enjoy the scenery on the way in and adjust themselves from the speed of everyday life to the deliberately slow pace of park routine.

The effect of the gentle approach has been highly satisfactory, according to Gosdin, who noted that traffic control is not a major park problem.

"The average visitor," he said, "enters state parks ready to relax and benefit from a contrasting environment. The dividends, therefore, are self created."

The signs are just insurance for reaping such dividends. **

FOR SALE:

WILD TURKEY EGGS

from

PENNSYLVANIA EASTERN WILD TURKEYS

--CHUKAR EGGS--

NORTHERN BOB WHITE QUAIL EGGS

★ ★ ★ ★

GUNN BROS. GAME FARM

WRITE OR PHONE

BOX 2450 — AMARILLO, TEXAS — DR 6-4381

★ ★ ★ ★

TEXAS LARGEST GAME BIRD FARM



TIMELY FEEDER

Lehman Automatic Game Feeder

Saves Time and Cuts Labor and Feed Costs.

Will feed from 6 oz. up at any selected time—unattended.

Throws feed in circle for 50-100 feet in diameter, depending on height feeder is installed.

Hang from Tree or set on leg extensions.

Operates on 6-volt Dry Cell Battery from 3-6 months.

Sturdy Galvanized Construction.

Hopper Capacity—Approx. 250 lbs. (to 900 lb. capacity available)

PATENT PENDING WRITE FOR FREE BROCHURE

MANUFACTURED BY

LEHMAN EQUIPMENT COMPANY

RT. 3, BOX 53 CORPUS CHRISTI, TEXAS

BOBWHITE QUAIL



Booking Orders Now

Mature Quail90c
6-8 Weeks Old50c
MINIMUM ORDERS—50

OVEN DRESSED QUAIL

\$16.00 Per Doz. Plus Shipping Charges

Minimum Order—Two Dozen

Send Check or Money Order to:

J. C. COX
1412 Norman St., Ft. Worth 6, Texas
Orders Taken by Telephone After 6 P. M.
Telephone: MARKET 6-7843

Hunt EVERY Day

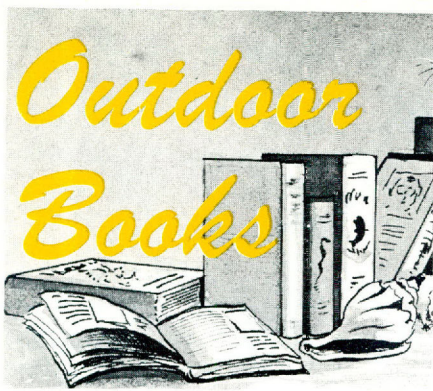
**GUIDES, TRANSPORTATION FURNISHED!
MEALS, ACCOMMODATIONS AVAILABLE!**

- CORSICAN WILD RAMS
- INDIAN AXIS DEER
- JAPANESE SIKA DEER
- INDIAN BLACKBUCK ANTELOPE

Write or Call Us Today!

Y. O. RANCH

Mt. Home, Texas OL 4-2076



CAREERS IN CONSERVATION, edited by Henry Clepper; 141 pages. Published by The Ronald Press Company, 15 East 26th Street, New York 10, N. Y., \$3.75.

The young person's world now seems to be crowded with brochures and counselors and programs, all bent on guiding him into the "right" career. One field is not so heavily represented in the array—conservation. A new Ronald Press book, however, gives an account of some conservation opportunities and a sketchy outline of duties and philosophies of various phases of conservation.

Chapters on soil conservation, wildlife management, fisheries, forestry, range management, watershed management, parks and recreational development, and general conservation are written by experts in the respective fields. A chapter by the editor sets forth a brief overall outline of America's conservation situation, including historical aspects. Colleges and universities with accredited curricula in the above fields, and some conservation organizations and publications are listed.

Fairly exemplary of the book is the excerpt from the chapter in fisheries by Kenneth D. Carlander: "There is no typical fishery biologist, but perhaps the most nearly typical positions could be described as follows: A fishery biologist may be called upon to make lake and stream surveys including physical, chemical and biological measurements and to determine the suitability of waters for certain species of fish; to investigate the cause of fish kills and suggest remedies; to collect and analyze statistics on the harvest by sport and commercial fishermen; to determine the relative abundance of the fish, and their rate of growth, food habits, movements and reproductive success so that their management can be improved; to explain the reasons for a particular management program to sportsmen's clubs; to write a technical report for publication in a scientific journal or a popular account of the results for the state conservation magazine; to treat a lake with chemicals for control

Southern Fried Catfish, Ummm!
THE HUNGRY SPORTSMAN'S
FISH & GAME COOKBOOK
 More Than 400 Recipes \$1.00 Postpaid
 Fish, Big Game, Small Game Wildfowl,
 Turtles, Frogs, Mushrooms, Etc.
EDDIE MEIER
 Box 3030—Scottsdale, Ariz.

of algae, for control of aquatic weeds, or to eliminate an unwanted fish population. . . ."

Like most books designed for career guidance, *Careers in Conservation* has no

Correction

The photo on the March issue cover was erroneously accredited to Tom Diltz. The ringtail picture was taken by Bill Brown of Sheridan, Wyo., a former employee of the old Game and Fish Commission.

easy or magic answer to a young man or woman's choice of career, but it does have some basic information, which might stimulate further investigation.

—Ann Streetman

CAST NETS

100% Nylon, Small Mesh, Six-Foot Spread. Complete with Draw Strings and Hand Line. Tax and Postage Prepaid. Satisfaction or Money Back Guarantee. \$20.00 Value For Only \$16.00.

LONG SHANK SALES
 Box 218
 SEADRIFT, TEXAS

RECREATIONAL AND SCENIC PARKS	LOCATION Located Near The Town of	OVERNIGHT FACILITIES																		
		Camping Permitted	Shelters	Group Camp	Trailers Permitted	Restrooms for Showers	Cabins	Picnicking	Groceries	Dining Room	Fishing	Swimming	Boat	Golf	Nature Study	Hiking	Saddle Horses	Museum		
ABILENE	BUFFALO GAP	X	X		X	X		X												
ATLANTA	QUEEN CITY	X		X	X	X				X	X									
BASTROP	BASTROP	X		X	X	X				X	X				X	X				
BENTSEN - RIO GRANDE VALLEY	MISSION	X		X	X	X				X					X	X				
BIG SPRING	BIG SPRING							X												
BLANCO	BLANCO	X	X		X	X		X			X									
BONHAM	BONHAM	X		X	X	X		X			X	X	X						X	
BRAZOS ISLAND (Open Gulf Beach)	BROWNSVILLE	X		X	X	X		X			X	X							X	
BUESCHER	SMITHVILLE	X	X		X	X		X			X								X	
CADDO LAKE	KARNACK	X	X	X	X	X		X			X	X	X						X	
CLEBURNE	CLEBURNE	X		X	X	X		X			X	X	X						X	
DAINGERFIELD	DAINGERFIELD	X		X	X	X		X			X	X	X						X	
DAVIS MOUNTAINS	FT. DAVIS	X		X	X	X		X			X								X	
EISENHOWER (Modern Boat Marina)	DENISON	X		X	X	X		X			X	X	X						X	
FALCON	FALCON	X		X	X	X		X			X	X	X						X	
FT. PARKER	MEXIA	X	X	X	X	X		X			X	X	X						X	
GARNER	CONCAN	X	X	X	X	X		X			X	X	X						X	
GOOSE ISLAND	ROCKPORT	X		X	X	X		X			X	X	X						X	
HUNTSVILLE	HUNTSVILLE	X	X	X	X	X		X			X	X	X						X	
INIS LAKE	BURNET	X	X	X	X	X		X			X	X	X						X	
KERRVILLE	KERRVILLE	X	X	X	X	X		X			X	X	X						X	
LAKE BROWNWOOD	BROWNWOOD	X	X	X	X	X		X			X	X	X						X	
LAKE CORPUS CHRISTI	MATHIS	X	X	X	X	X		X			X	X	X						X	
LAKE WHITNEY	WHITNEY	X		X	X	X		X			X	X	X						X	
LOCKHART	LOCKHART	X		X	X	X		X			X	X	X						X	
LONGHORN CAVERN (Daily Cavern Tours)	BURNET	X		X	X	X		X			X	X	X						X	
*MACKENZIE	LUBBOCK	X		X	X	X		X			X	X	X						X	
MERIDIAN	MERIDIAN	X		X	X	X		X			X	X	X						X	
MONAHAN'S SANDHILLS	MONAHAN'S	X		X	X	X		X			X	X	X						X	
MOTHER NEFF	MOODY	X		X	X	X		X			X	X	X						X	
PALMETTO	LULING	X		X	X	X		X			X	X	X						X	
PALO DURO CANYON	CANYON	X		X	X	X		X			X	X	X						X	
POSSUM KINGDOM	CADDO	X		X	X	X		X			X	X	X						X	
TYLER	TYLER	X	X	X	X	X		X			X	X	X						X	
VELASCO (Open Gulf Beach)	FREEPORT	X		X	X	X		X			X	X	X						X	
HISTORICAL PARKS																				
FT. GRIFFIN (Texas Longhorn Herd)	ALBANY	X		X		X		X			X								X	X
GOLIAD	GOLIAD					X		X			X									X
GOV. HOGG SHRINE	QUITMAN					X		X			X									X
INDIANOLA	PORT LAVACA	X				X		X			X	X							X	X
JIM HOGG	RUSK					X		X			X									X
MISSION TEJAS	WECHES	X				X		X			X								X	X
MONUMENT HILL	LA GRANGE					X		X			X									X
*SAN JACINTO	DEER PARK					X		X			X									X
STEPHEN F. AUSTIN	SAN FELIPE	X				X		X			X								X	X
VARNER-HOGG PLANTATION	WEST COLUMBIA					X		X			X								X	X
WASHINGTON	WASHINGTON	X				X		X			X									X
HISTORIC SITES																				
ACTON	GRANBURY																			(Burial Site Only)
*ALAMO	SAN ANTONIO																			X
EISENHOWER BIRTHPLACE	DENISON																			X
*FANNIN	FANNIN																			X
GEN. ZARAGOZA BIRTHPLACE	GOLIAD																			(International Historic Site)
OLD FT. PARKER (For Restoration)	GROESBECK																			
PORT ISABEL LIGHTHOUSE	PORT ISABEL																			
SAN JOSE MISSION (Historical Drama - July-Aug.)	SAN ANTONIO																			(National Historic Site)
SAN SABA MISSION	MENARD																			X

*Facilities not operated by Parks and Wildlife Dept.

Deer - Turkey - Quail HUNTERS

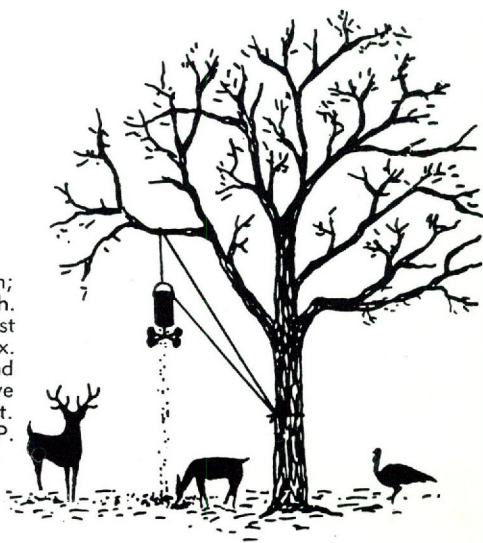
Be a smart Hunter

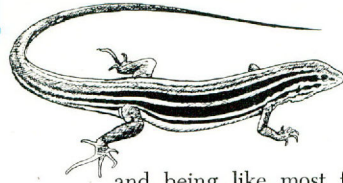
Don't look for the game, let the game look for you.

Use a
FRENCH'S FEED-LURE FEEDER

and be sure of your game. Use corn; maize, oats or a mixture of each. It's wind activated. 1 filling will last up to 5 weeks average. Holds approx. 32 lbs. of grain. Perfect for birds and all grain eating animals. Help preserve your game. Feed the year 'round. Wt. approx. 8 lbs. packed. Can go PP. \$8.95 plus 2% Tax. F.O.B.

FRENCH'S MFG.
 817 W. Norwood
 San Antonio, Texas 78212
 DEALERS WANTED





Ol' King Cat



Editor:

This snapshot is of a 49-pound, 48-inch long catfish I caught at Possum Kingdom State Park last May. I will probably never catch one like that again. I am 75 years old, and put that fish in the boat all by myself.

This reminds me. Where or how did the "trotline" get its name?

L. E. Slate
Sudan

(Congratulations on the noteworthy fish and feat. One unverified theory about the name "trotline" is that it was used because of the way the long line and the short ones are rigged. Another is that it is so-called because it keeps the fisherman trotting as he tries to keep the hooks baited and the fish removed. Perhaps some of our readers can come up with a better answer.—Editor)

Idaho Bass, Beware

Editor:

I was born and raised in Dallas, but came to Idaho to attend college and since have decided to live here. Having fished many lakes in Texas with my dad, who taught me to fish and hunt and to LOVE it, I naturally look for that fun here.

As many know, Idaho is famous for its stream fishing—salmon and scrappy big trout, which I have learned to catch with much pride. But until this season opens

and being like most fishermen, I had to fish somewhere.

Near Nampa is a lake used by catfish and perch fishermen and for water skiing. On one side of this lake is a lot of brush, trees and swamp area, used as U. S. Duck and Goose Refuge. Knowing how bass like shallow water for spawning, I thought surely there must be some around. So one evening after work I took chest waders, rod and reel to try my luck before dark. In 30 minutes, using a weedless spoon and black pork rind, I had five strikes and landed two six-pound, 20-inch largemouth twins. Next evening, it was six caught and three lost, and so on, till in four evenings and 14 bass later my friend and I had accumulated 72 pounds of largemouth bass. Not bad for six hours of fun.

So you see, you can take the boy out of Texas, but you can't take Texas fish learnin' out of the boy!

Gene E. Clark
Nampa, Idaho

(We'll go along with that statement about Texas fish learnin'! Hope you have continued success in Idaho, and that you return to Texas some day to enjoy the good fishing that we now have.—Editor)

Redfish & Redbirds

Editor:

My husband shakes his head at some of the things I do when fishing. I won't say I catch a fish every time, but at times they do work. For instance, four of us were fishing for redfish in one of the salt-water lakes along Bastrop Bayou. I couldn't cast quite as far as the men in our party, and there was a little spot I wanted to reach where I felt there must be a red lurking. Each time I cast I would not get quite far enough and then the tide would move my line away from shore. When my husband was not looking, I attached a small empty milk carton to the float on my line and eased it down the side of the boat. Just as I hoped, the wind handled the carton as it would have a sail. My husband said, "For Heaven's sake, you will scare every fish in the country." I didn't reply, but started reeling in. "You're hung up," said my brother-in-law. My sister winked at me. I pulled in the biggest red caught that day. I like to tell this tale when a group of fishermen are telling their stories. Since my husband saw it with his own eyes, he bears me out, or they would never believe it otherwise.

I would like to tell you about the pair of redbirds which we have been feeding since May, 1962. I suppose they are the same birds. We bought a birdbath on that date, and I put sunflower seed out by it. The redbirds, among others, came then, and since then they have come each day. In trying to train them, I stopped putting the seed out, and now they come to perch on the limb of a tree at my back door and call for it. I put the seed out on the porch, close the door, and watch them through the glass. I have made many interesting observations.

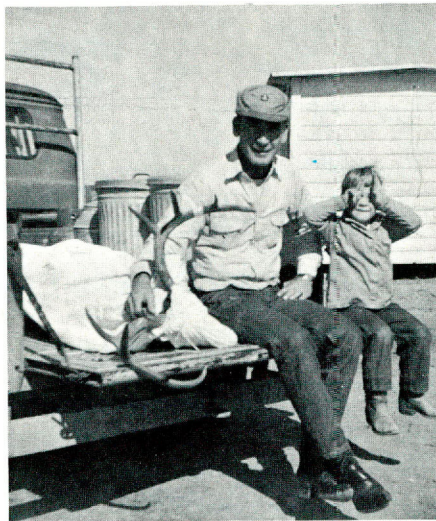
A few years ago, we lived near the Rio Grande River. That spring, which was very nasty, the birds came constantly for food. One female redbird was so tame that she would eat from our hands, although she would not allow us to touch her. Every morning, just at daybreak, when my husband got up and switched on a light, this bird would hit the screen of a window, demanding at the top of her voice to be fed. The other birds, of many kinds, came to feed at our feet, but she was much more friendly, so we all came quickly at her call.

Thanks for the story on the game warden. It was most revealing.

Mrs. Harold E. Vaughan
Houston

(You sound like a sportswoman who thinks for herself, and more power to you. We enjoyed the refreshing view of the outdoors as seen in your anecdotes—Editor)

El Toro Buck



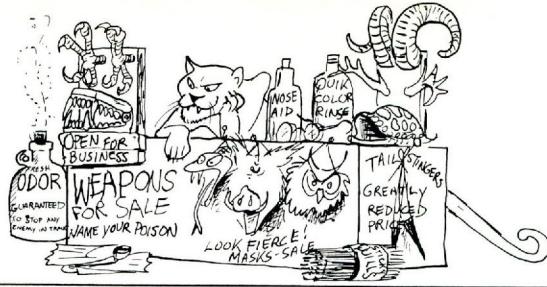
Editor:

This picture is of J. E. Wallace and his daughter Melissa, of Odem, with a 10 pointer killed on the El Toro Ranch south of Hebronville. The antler spread, 23½ inches. Field dressed, 145 pounds.

L. E. Miller
Odem

(Thank you for letting us see the result of this successful hunting trip.—Editor)

Junior Sportsmen



Wiles of the Wild

by JOAN PEARSALL

EVERY ANIMAL, from the biggest to the smallest, possesses a weapon of some sort, or several of them. Every species, in its natural surroundings, is kept within limits by its natural enemies. Nothing in Nature is immortal or unbeatable and nothing is wasted—everything is used or eaten. In this intricately balanced scheme, weapons play a vital part. They could be called Nature's survival equipment.

To help the animals in the business of feeding, breeding and living, the weapons are sometimes used for attack and sometimes for defense. You can't help but marvel at the wide variety of them and the cleverness of their uses. It is interesting to list them: horns, teeth, tusks, claws, talons, beaks, spears, spines, tentacles, camouflage, speed, sense of smell, digging ability, odor glands, force of numbers, diving ability, tongues, spitting ability, fangs, stings, shells, quills, suction discs, kicking ability, armor, sounds, squeezing ability, color, fierce appearance. You might be able to think of others.

Man, in comparison, seems poorly equipped physically, with just fists and muscles for defense, but, of course, his real weapon is his brain, to be used for good or bad. With it he has produced fantastic scientific weapons. In designing some of them he has studied the animals and used some of their secrets. Also, he uses the weapons of the animals to help

him in many ways. The alertness of seeing-eye dogs helps the blind, the instinct of homing pigeons has long been valuable, the talents of dogs, ferrets and hawks are of great assistance to hunters, and man depended on the fleetness of horses for centuries. The world that has the atomic bomb still couldn't go on turning without the weapons of Nature.

Here is something to do that you may find interesting. Listed below, on the left, are names of various creatures. On the right is a list of natural weapons. Draw a line from each animal to link it with each of the weapons it has. Sometimes they will have more than one. It may be more effective if you can use different colored pencils or crayons for the animals.

Bighorn sheep
Skunk
Porcupine
Rattlesnake
Portuguese man-of-war
Chameleon
Eagle
Octopus
Scorpion
Mole
Lobster
Merganser
Deer
Pronghorn antelope
Hog-nose snake
Puffer fish
Badger
Oyster
Javelina
Turtle
Beaver
Buffalo

Talons
Keen sense of smell
Ability to change color
Stinging tentacles
Digging ability
Shell
Inflatability
Antlers
Kicking ability
Stinging tail
Quills
Powerful suction discs
Speed
Poisonous fangs
Odor glands
Claws
Horns
Diving ability
Teeth
Sharp eyesight
Beak
Fierce appearance

Editor:

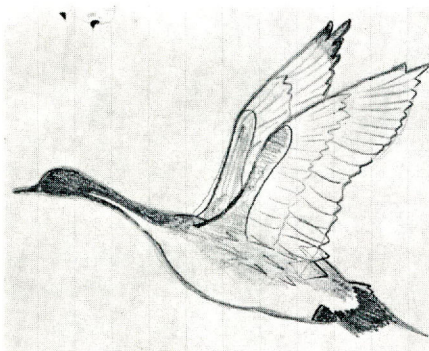
I have deeply enjoyed your story that you have written about *A Duck Tale*, by Maudeen Marks.

I felt very sorry when mother duck got blind and crippled, but soon I got happier when she had gotten well and was paddling back in the pond. I think it was a kind man to keep these baby ducks until they had gotten grown.

I am 11 years old and enjoy your stories very much. I would enjoy it if, in the future, you could write more than one animal story in each issue.

Anita Moore
Channelview

(You expressed your feelings beautifully, Anita. We are glad to have such interested readers of your age, and we will do our best to give you more stories and articles that you will enjoy.—Editor)



(This fine drawing has been in our files for several months. It has no name attached, but was in an envelope postmarked "Houston." We are pleased to present it, and if the young artist recognizes it and would send us his or her name and address, we will publish this information and return the picture.—Editor)

Editor:

Lately I was reading a story in a field and stream book, and I was wondering if you could give me the meaning of Boone and Crockett. Thank you.

Robert Pickett, age 12
Elm Mott

(The term "Boone and Crockett" is used for an organization which keeps records of game animals, and publishes a book in which these records are made available to the public. To qualify for entry in the Boone and Crockett records, an animal must be measured according to the organization's strict rules. If you want to know what is the greatest set of antlers ever taken of a particular species (such as the white-tailed deer), these people can tell you the record head, who killed it and when. Perhaps some day you will bag such an animal yourself (See March issue for a story on Boone and Crockett scoring.—Editor)

Bringing Home the Bacon

JUN 8 1964



E. Crantham

10 1268 5 05181
SAN ANTONIO COLLEGE LIB
1300 SAN PEDRO AVE
SAN ANTONIO 12 TEXAS