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# TEXAS PARKS & WILDLIFE

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of Governor James Stephen Hogg and his descendents.

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**Front Cover:** On almost any hot summer day you can find a serious angler wading in the shallows of some Texas lake trying to catch black bass. Photo by Bill Reaves.

**Inside Front:** Blooming season for the Turk's cap, *Malvaviscus arboreus*, occurs from April to October, and these beautiful native wildflowers may be found on a plant three to 10 feet tall. Photo by Martin T. Fulfer.





**Hogg Family Portrait—About 1891**

Ima Hogg

Will Hogg  
Tom Hogg

Governor James S. Hogg

Mike Hogg

Mrs. Hogg

# The Hogg Family

Over 100 years of Contributing to Texas' Greatness



**Texas** plays an important role in the history of America. It is an uncommonly large state with incalculable stores of resources and opportunities awaiting the touch of large personalities who take these elements and turn them into Texas history and Texas culture.

The stature of this land and its assets is such that those people who can bring together the right proportions of purpose, acumen and character are likely to become great like the land. A very special Texas family, whose heritage is composed of large pieces of this state's history and of major contributions to our culture, is the Hogg family. Every schoolchild who learns his lessons knows the names of James Stephen, Will and Ima.

As Texas' first native-born governor, James Stephen Hogg set the pace for a dynamic government of reform and innovation which sent Texas forward after the Reconstruction Period. A decisive force in Texas' early growth, he added another dimension to his family's legacy by being relatively successful in early oil speculation. A short 14 years after his death, one of the richest oil strikes in history made his heirs indisputably wealthy. Jim Hogg's four children, Will, Ima, Mike and Tom continued their father's deep love for and interest in Texas and further enriched the state with their ideas, energy and benefactions. Today, Ima is still accomplishing tremendous goals with the same Hogg fury and enthusiasm. She has become a legend in her own time.

Through the famous Bayou Bend Mansion in Houston's River Oaks, the Jim Hogg State Park in Rusk, the Governor Hogg Shrine in Quitman, Varner-Hogg State Park in West Columbia and the Winedale Properties near Round Top, tourists may view history at the locations where it was made and see the preserved architecture, properties and some of the finest collections of American furniture and art to be found in the United States. On occasion these locations are graced by plays, concerts and a show of crafts.

Institutions such as the University of Texas, Houston Symphony and Hogg Foundation for Mental Health, owe their existence and vitality to this great family. The Hoggs have added measurably to the richness of the State of Texas. Their gifts are for all of us to enjoy.

In 1839, Joseph Lewis Hogg and his wife Lucanda moved from Alabama to the Republic of Texas. They eventually settled at Rusk in northeast Texas, and established the plantation "Mountain Home." Once the plantation was established, Joseph began a law practice and in turn came to sit in the Texas House of Representatives. He aided in writing the Texas Constitution and after Texas became the 28th state was elected Senator.

While his family was sinking its roots deeper into Texas, James Stephen was born in 1851. The Hogg name was already becoming a respected one in Texas. Joseph's patriotic allegiance involved him during the

Civil War on the Confederate side as a brigadier general. Unfortunately, he was one of the casualties and died in 1862. Lucanda died one year later, leaving the young Hogg family orphaned.

James Stephen was 12 when his mother died, and an older sister took over the responsibility of caring for the five children. Feeling an early need to make his own living, he apprenticed himself at no pay at the age of 16 to the local newspaper, *The Texas Observer* (not the *Texas Observer* of today) to learn the printing trade. It was a year of hard work, but he found spare time to study law, literature and poetry. There is an amusing incident during this early period that shows his youthful spunk as well as the fruits of his diligent studies. The story goes that at one time, his editor had to be out of town and young Jim was left to his own devices to make copy and publish the newspaper. "I finally concluded I would set it up in poetry. So it went, and the paper came out with nothing but poetry in it, and it was one of the most remarkable papers you ever saw," Jim declared.

Feeling it was time to move on, Jim found a job in Quitman, a town about 80 miles from Rusk, on *The Quitman Clipper*. He was given more responsibility and writing duties but again no pay, and after a year decided to try another style of life. He took up sharecropping only to be swindled out of his share after six months of backbreaking work. Not easily crushed, he sought work from a nearby farmer and for the first time in three years earned some money — \$20 a month.

Texas 100 years ago still rumbled with a rough quality characteristic of new frontiers in a land awakening to its opportunities. The lawless element was prosperous and unafraid; revenge met at the end of a gun was not uncommon. Life during these times was a toughening experience for a teenager like James Stephen. During these early years, he had invoked the wrath of some desperadoes and was shot in the back and left for dead. Fortunately for him, and for Texas history, he recovered. His wounds and recuperation left him unable to perform the heavy labor of farming, so he turned once again to the newspaper business. This was a lucky twist of fate for this launched him onto the long road of politics and political reform.

He was 21 now and editor of the *Quitman Weekly News*. Hogg spent many hours each week talking to citizens and politicians about local problems and current issues and his growing interest and concern was exhibited in his news columns. His editorial stands showed both courage and intelligence. He was a staunch Democrat and a vigilant opponent of large corporations that tried to control the government. He used every available opportunity in his newspaper to give vent to his political views and to blast the Republican party.

Noted by the liberal tenor of his columns and his fearless stands against lawlessness and injustice, he was elected to a three-year term as Justice of the Peace





in Quitman. From this time forward, his political career became his profession.

By 1886 he had worked his way up to the office of Attorney General for the State of Texas. Although at times "retiring" from public office and putting out a lawyer's shingle, he was urged by the people to return to public service. In 1888 he again won the nomination for Attorney General and gained yet more fame by attacking the monopolies in Texas at that time. These were out-of-state corporations — mainly insurance and railroad companies — who were making a huge profit on their Texas earnings and giving little in return. He filed suits against fraudulent insurance companies and secured the return to the state of almost two million acres of railroad lands. He is credited with the idea of establishing a State Railroad Commission which was created to prevent usurious freight rates.

By 1890 the governorship of Texas was in his sights. He was nominated on August 13 for governor at the San Antonio Convention and won the nomination by acclamation. When elected he became the first native-born governor of Texas. In 1892 he was re-elected.

James Stephen Hogg is remembered as the great reform governor. He battled on the people's side and felt that it was the citizens, not the corporations, who should run the state. His policies aroused strong support as well as bitter opposition. He fought land monopolies; through the alien land law he guaranteed

Texas lands to be safe from ownership without taxation by foreigners. Also he strengthened antitrust laws, upgraded public school systems, enforced laws and kept cities and towns from imposing extravagant public debts on the people. His four-year administration launched Texas into the transition of becoming a modern state. Texas led the nation in protecting its citizens.

He was 44 years old when he left the governorship of Texas in 1895. His two terms had been landmarks in this state's history and Jim Hogg, risen from stark beginnings, was by then considered to be of presidential quality. He chose instead to continue his career through private law practice and to devote the rest of his time to his young family. His wife, Sally, had died the fall of 1895 and left him with the responsibility of caring for the four children: Will, Ima, Mike and Tom. Still not a rich man, it was rumored that at the time of his retirement "he had only fifty dollars in cash."

He used the earnings from his law practice to finance oil speculations in southeast Texas. Spindletop in 1901 had gushed forth with its liquid gold and aroused tantalizing hopes in the hearts of speculators. Hogg was a partner in establishing the Texas Company (Texaco) in 1902 and because his business dealings became so demanding he moved his family to the Houston area and bought the 4,100-acre Varner Plantation. During this period he accumulated a sizable fortune.





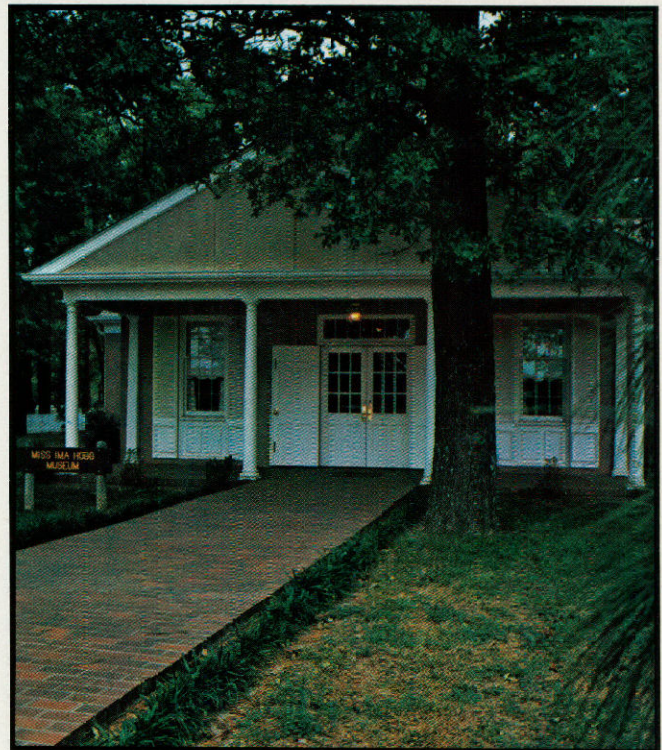
These were happy times for the Hogg family as they shared in the productivity and definition of each others interests. But Jim Hogg's life was called short when he died in 1906 of complications from an injury received the year before. He was 55 years old.

In his will he requested, "Let my children plant at the head of my grave a pecan tree and at my feet an old-fashioned walnut tree. And when these trees shall bear, let the pecans and walnuts be given out among the plain people so that they may plant them and make Texas a land of Trees."

William Clifford Hogg was 31 and the eldest son at the time of his father's death. He was a responsible young man with much the same stature and characteristics as his father. He took protective custody of his brothers and sister and assumed management of family interests. He was well prepared for this responsibility from his training in law and finance and from his inherent business sense.

Aside from his business interests, he was a man to take up causes and enlist the interest and finances of other Texans. One of his major lifetime concerns was with the growth and quality of his alma mater - The University of Texas. He founded the Ex-Students Association, and in 1911 raised from well-to-do friends \$250,000 for better college facilities and scholarships.

Sitting as regent to the University from 1913-1917, Will became deeply involved in the troubles of this struggling institution. The greatest battle was in 1916



Ima Hogg Museum by Tom Blackwell

Near Rusk, in East Texas, is the restored Jim Hogg birthplace. On park land in Quitman is the Old Stinson Home, site of Governor and Mrs. Hogg's wedding, and the Ima Hogg Museum which reflects northeast Texas history.









between the University of Texas and then Governor Ferguson. Ferguson's aim was to weaken and suppress the college. He vetoed entire appropriations and labeled faculty members as "day dreamers" and "two-bit thieves." Infuriated, Will became the driving force in opposing him; he and his coalition succeeded by having Ferguson impeached in 1917. The University in turn was strengthened by the publicity and drew heavy support from the people of Texas.

Will, Ima, Mike and Tom were suddenly thrust into the status of being instant multi-millionaires in 1919. Governor Hogg's speculative dream in purchasing what became Varner-Hogg Plantation came true with the Tyndall-Hogg No. 2 gusher; that well not only produced faithfully but was only the first of many in the immediate area. By 1947 the oil field was producing over two million barrels a day!

Will was masterful in organizing the family interests during this time, but rather than being consumed by sudden wealth, he and his sister and brothers found this fortune to be a springboard for many altruistic projects. The Hogg children had the opportunity while growing up to travel throughout the United States and Europe. Now they wished to make Houston a beautiful and cultural center like others they had seen. Will was interested in planning. He envisioned parks, esplanades and a properly designed residential area. To implement the latter, he formed The Hogg Brother's River Oaks Corporation, which bought 1,500 acres in what is now central Houston. Adeptly applying the weight of the family fortune, he transformed this hostile terrain of Houston bayou land by massive filling and drainage of ravines and the installation of all residential service amenities. He also bought land for the public Memorial Park and raised money for The Houston Museum of Fine Arts.

William was only gaining momentum when during a trip to Europe he died. The year was 1930 and like his father, he was 55. His death created a serious financial crisis for the family. Will had invested in many long-term commitments to the purchase of real property and with his death this debt had to be balanced against short-term claims on Will's estate including those of the University of Texas. It took the income from the West Columbia Oil Field for over a period of 25 years to salvage the debt. At the end of that time the rent property was clear of debt and the oil field was very greatly depleted.

In his will the University of Texas received the bulk of Will's estate, and under the direction of Ima, Mike and Tom the Hogg Foundation for Mental Health was established.

Will's loss was great but the brothers and sister were of the same indomitable stock. Mike had risen to

*Varner-Hogg Plantation, once the home of Governor James S. Hogg, is completely furnished to depict colonial life in the early days of Texas, 1835-1850. Guided tours enable park visitors to view these beautiful antiques.*





Olden days are relived at restored Winedale.  
Lye soaps made and sold at the 1974 Festival.

D'Arcy James

the position of state representative for Harris County in the years 1926-1931. As a legislator, his principal goal was the passage of natural resource taxes on oil and sulfur. Tom was a lawyer and Ima continued her interest in preserving tradition and culture.

Ima lived now at Bayou Bend, an estate house the family had built in 1927, Mike lived nearby and Tom established a residence in Scottsdale, Arizona. Life continued to be fulfilling for the family and they watched with pride as the achievements and land of their forebearers matured. Mike died in 1941 and Tom in 1949 leaving Ima the sole Hogg heir.

Consistent with the tradition of the family, Ima is a unique and remarkable Texan. Named for the romantic Southern Civil War heroine in the epic poem "The Fate of Marvin," she is a lady of limitless capabilities. She has been guiding the cultural growth of Texas very unobtrusively, but firmly, since the beginning of this century. Dating from the days when she took her ailing mother's place as hostess of the Governor's Mansion through today as she sits front row at Winedale's Theater Barn, her sparkle and warmth dominate and pervade the gathering. Her mark is indelible on the state's fine arts, education, civic and cultural affairs.

Like others of her family, she has the quality necessary to arouse community spirit to heights of great accomplishment. Each of her dreams involves other's efforts and it therefore becomes a Texas project. Perhaps the best example of this can be seen by Ima's





instrumental role in the founding of the Houston Symphony. The year was 1913 and Ima, newly returned to Houston from piano studies in New York and Berlin, planned on being a music teacher. Upon her return she was "struck by the many good musical talents in Houston" who were supporting themselves by playing in theater pits and at parties. A lady accustomed to frequent European concerts, she saw the possibilities of uniting a group of musicians for the music lovers of Houston. Along with other Houstonians, Ima organized the local musicians, paid them \$5 each and prepared them for their first performance at the Majestic Theater. They were a success! This humble beginning was the foundation from which the great Houston Symphony Orchestra of today was built and Miss Hogg was for many years its president and mentor.

Ima and Will had long been discriminating collectors. Will had acquired a fine collection of Remington paintings as well as antiques and mirrors. Ima delighted in early American glass and European antiques. It was in the early 1920s while visiting a friend's home in New York and admiring an antique chair of American origin, that Ima first conceived the idea of collecting American antique furniture. Brother Will quickly supported the project and together they began to prowls basements, shops and old residences for the fine furniture of our heritage.

By 1927 the collection had grown too large for existing facilities. It was only a natural step that a



Jim Whitcomb

Bayou Bend, former home of Miss Ima Hogg, is completely furnished with American antiques.



home should be designed to accommodate both family and antiques. A large wooded tract along Buffalo Bayou was chosen and a comfortable Latin-colonial style home was constructed. The estate was named Bayou Bend. Today, the collection of 17th, 18th and 19th century American furniture and paintings is reputed to be one of the finest collections in the United States. Miss Hogg donated her home and collection to the Houston Museum of Fine Arts in 1966 and moved to a high-rise apartment. She said in parting, "... when you love something enough it's easy to give it up in order to see it go on..." In 1971 she was given the Award of Merit from the American Association for State and Local History, mainly for her contributions of Bayou Bend and the Houston Symphony.

Ima's generosity and concern also included the field of education. An active member in the Hogg Foundation and in University of Texas affairs, she found time for other advances in education. In 1937 she instigated a child guidance program for disturbed children. At the time, this was an unheard-of concept. In 1943, as a member of the Houston School Board, she initiated the successful visiting teacher program. Years of scholarships to talented music students of all races built and expanded her legacy. The University of Texas honored her in 1968 with its first Santa Rita Award for distinguished alumna who had demonstrated concern for higher education.

Architectural restoration of buildings and their surroundings has rated Miss Hogg high on the list of historical conservationists. It was under her guidance that the Varner-Hogg Plantation was restored, furnished and dedicated to the state in 1958. Her many efforts in this field earned her in 1966 the Louise Dupont Crowninshield Award for the "superlative achievement in the preservation and interpretation

of sights, buildings, objects and antiquities significant in American history and culture."

Her most recent triumph is in the restoration of Winedale, a sleepy German-American community in rural Fayette County that was once a stagecoach stop between San Felipe and Bastrop. Having recreated the authenticity and intimate bustle of the small community, Miss Hogg then gave it to the University of Texas to be used as a center for performing arts and conferences. Summers come alive with Shakespeare workshops, performances and music recitals. A museum as well as a country "theater in the round" draw aficionados to Winedale from all parts of the state.

Miss Ima is now in her ninth decade. Recently some of her many friends honored her with a grand birthday party. Together they bought the 60 acres of land adjoining the Winedale Museum property as their birthday gift to the lady who has given so much to Texas. The land is to be used as an arboretum for rare and endangered species of native Texas plants and together with the other 130 acres will be used by students for ecological study.

A tremendous strength of character has pervaded the bloodline of Hogg generations. It is remarkable that each Hogg has been an individual success in his own right. Joseph Lewis made a name in a new land, James Stephen was his own man at an early age before going on to become one of the best governors Texas has known, Will devoted himself to rightful causes and assured the family's wealth, Mike and Tom were able lawyers and businessmen and Ima has left an indelible mark on the fields of music, education and historical conservation. To each of these strong personalities history owes a debt of thanks; by their presence and accomplishments Texas is left with a greater heritage.

\*\*

### HOGG FAMILY HISTORICAL SITES

Sites	Location	Facilities
Governor Hogg Shrine State Historic Site	Quitman	30 picnic sites—no camping—group facility, Old Settlers Tabernacle, playground 3 museums—Honeymoon Cottage: first home of Governor and Mrs. James S. Hogg. Contains many of the Governor's personal items and some of Mrs. Hogg's and the children's belongings. Miss Ima Hogg Museum: displays reflect history of Wood County and Northeast Texas. Exhibits vary from Indian artifacts to tea services of the 1800s. Old Stinson Home: site of Governor Hogg's wedding. Contains period furnishings supplied by Miss Ima Hogg. Hours: 8-12 and 1-5, Thursday through Monday. No charge.
Jim Hogg State Historic Park	Rusk	20 picnic sites, playground museum—no exhibits except a bed and dresser donated by Miss Ima Hogg. Hours: 8-5, seven days a week. No charge.
Varner-Hogg Plantation State Historic Park	West Columbia	25 picnic sites—no camping museum—completely furnished old plantation manor which was the home of Governor James S. Hogg. Tours: 10-12 and 1-5 on Tuesday, Thursday, Friday and Saturday; 1-5 on Sunday; closed Monday and Wednesday. Charge: 50¢ adult, 25¢ children under 13.
Bayou Bend Collection	Houston	24-room, former home of Miss Ima Hogg. Completely furnished with American antiques and paintings. Tours by reservation only. Contact: Tour Secretary, Bayou Bend Collection, P. O. Box 13157, Houston 77019, or phone: AC 713/529-8773.
Winedale Inn	Round Top	picnic facilities—no cooking or camping Restored Inn and outbuildings administered by The University of Texas at Austin. Charge: \$1 adult, 25¢ student. For tour information contact: Winedale Inn, Box 11, Round Top 78954, or phone: AC 713/278-3530.





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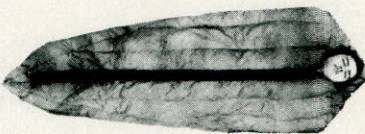
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# OUTDOOR BOOKS

**THE SMOKED-FOODS RECIPE BOOK** by Jack Sleight; Stackpole Books, Cameron and Kelker Streets, Harrisburg, Pa. 17105, 1973; 240 pages \$8.95.

Author provides hundreds of new ways to prepare and serve smoked meat, fowl, game, fish and shellfish.

**CATCH AND COCK SHELLFISH** by Dorothy Raymond; Great Outdoors Publishing Company, 4747 28th Street North, St. Petersburg, Fla. 33714, 1973; 64 pages, \$1.50 paperback.

How to find, catch, net, trap, clean and cook many kinds of shellfish from the delicious stone crab to the beautiful little coquinas.

**HERBS AND SAVORY SEEDS: Culinary, Simples, Sachets, Decoratives** by Rosetta E. Clarkson; Dover Publications, Inc., 180 Varick Street, New York, N. Y. 10014, 1972; 369 pages, \$3 paperback.

An unabridged republication of a work originally published by The Macmillan Company in 1939 under the title *Magic Gardens*. It is filled with the history and practical benefits found in herbs which have provided man centuries of enjoyment as flavorings, medicines and perfumes.

**25 VEGETABLES ANYONE CAN GROW** by Ann Roe Robbins; Dover Publications, Inc., 180 Varick Street, New York, N. Y. 10014, 1974; 216 pages, \$2 paperback.

A republication of a work originally published by the Thomas Y. Crowell Company in 1942, the book treats gardening strictly from the amateur's point of view. Each of the 25 most popular and useful vegetables are thoroughly discussed, including steps in growing and using each one.

**SIMPLE BICYCLE REPAIR AND MAINTENANCE** by Ross R. Olney; Doubleday & Company, Inc., Garden City, N. Y. 11530, 1973; 104 pages, \$2.95 paperback.

An all-inclusive, illustrated guide to

repair and maintenance of all bicycles from one speed to ten.

**THE AMATEUR TAXIDERMIST** by Jean Labrie; Hart Publishing Company, Inc., 719 Broadway, New York, N. Y. 10003, 1972; 156 pages, \$7.95.

A step-by-step, liberally illustrated handbook on how to mount and preserve birds, fish and furred animals. One particularly disconcerting feature of the book, however, is that the author uses examples of protected species in illustrating taxidermy methods. Any would-be amateur taxidermist would be well-advised to know what species are protected by law.—Tim Leifeste

**THE COMPLETE BEGINNER'S GUIDE TO OUTBOARDING** by A. H. Drummond; Doubleday & Company, Inc., 245 Park Avenue, New York, N.Y. 10017, 1974; 241 pages, \$6.95.

Beginning with his childhood summers at the seashore, A. H. Drummond developed a lifelong romance with the sea and boats. He has 20 years of experience in the boating field and has even taught courses in boating, sailing, canoeing, swimming and life saving.

He is editor-in-chief of the science department of a major textbook publishing company and the author of two other books on boating, *The Complete Beginner's Guide to Sailing and Sailboarding: A Beginner's Guide to Boardboat Sailing*.

*Outboarding*, with its textbook approach, is detailed, yet easily understood. It includes a chapter on nautical terminology with a comprehensive glossary and an index. It is liberally illustrated with over 100 photographs and drawings, the latter being elementary, but effective.

Other chapters deal with maintenance and repair of the outboard engine, marlinspike seamanship (knots), reading the weather and navigation, just to name a few.

As the title suggests, it is complete, and well worth reading if you are an owner or potential owner of any type of boat, not necessarily just an outboard.—Tim Leifeste

**THE WILDERNESS HANDBOOK** by Paul Petzoldt; W. W. Norton & Company, Inc., 500 Fifth Avenue, New York, N.Y. 10036, 1974; 286 pages, \$7.95.

Paul Petzoldt at 66 is a radical, an advocate of a national organization for the education and certification of outdoorsmen, a proponent of a permit fee system for people who use the outdoors and a conservationist with few equals.

When he was nine years old, he scaled the walls of the Snake River Canyon. In 1924, when he was sixteen, he climbed the Grand Teton and soon after established a mountain guide service there. Later he directed the Petzoldt-Exum School of American Mountaineering in the Teton Range and in 1938 joined the first expedition to K2 in the Himalayas, the second highest mountain in the world.

During World War II he taught mountain evacuation and cold-weather dress to ski troops, and in 1963-64 he helped establish the first American Outward Bound program in Colorado and was its chief instructor. Currently he is director of the National Outdoor Leadership School, which he founded in 1965 in Lander, Wyoming.

"This book contains no untested theories," Petzoldt writes in the book's introduction. "It is an attempt to convey, at least in part, the techniques, methods, and philosophy I have developed over fifty years so that others may discover how to comfortably, safely, and skillfully enjoy the wilderness and still conserve it for those yet to come."

Some of his ideas will surprise even the most experienced outdoorsman. Even the good camper will find that practicing what Petzoldt considers good camping techniques involves more than what one may have learned in scouting. In fact, it may require unlearning some generally accepted notions.

There are chapters on selection of clothing (one of the most surprising chapters), equipment and rations (liquor is even listed); expedition behavior; trail techniques; camping for conservation (the most practical); basic climbing; and information on snow techniques and winter mountaineering. In the final chapter (the most radical), Petzoldt offers a blueprint for educating wilderness users.

Special appendix material includes checklists, recipes and a section on teaching in the wild outdoors.

Well thought out, the book should be required reading for all outdoorsmen.—Tim Leifeste



# PHOTO AND ART CREDITS

Front Cover — Bill Reaves; Nikon F with motordrive, 28mm Nikkor; Kodachrome II.

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# LONG SHOTS SHORT CASTS

compiled by Neal Cook

## Estimated power consumed by home appliances in a year:

	Average consumed wattage	Estimated kilowatt hours annually	Average consumed wattage	Estimated kilowatt hours annually
<b>Food Preparation</b>				
Blender	386	15		
Broiler	1,436	100		
Carving Knife	92	8		
Coffee Maker	894	106		
Deep Fryer	1,448	83		
Dishwasher	1,201	363		
Egg Cooker	516	14		
Frying Pan	1,196	186		
Hot Plate	1,257	90		
Mixer	127	13		
Oven, Microwave	1,500	300		
Oven, Self-cleaning	4,800	1,146		
Range	8,200	1,175		
Roaster	1,333	205		
Sandwich Grill	1,161	33		
Toaster	1,146	39		
Trash Compactor	400	50		
Waffle Iron	1,116	22		
Waste Disposer	445	30		
<b>Food Preservation</b>				
Freezer (15 cu ft)	341	1,195		
Freezer (Frostless 15 cu ft)	440	1,761		
Refrigerator (12 cu ft)	241	728		
Refrigerator (Frostless 12 cu ft)	321	1,217		
Refrigerator/Freezer (14 cu ft)	326	1,137		
Refrigerator/Freezer (Frostless 14 cu ft)	615	1,829		
<b>Laundry</b>				
Clothes Dryer	4,856	993		
Iron (hand)	1,008	144		
Washing Machine (automatic)	512	103		
Washing Machine (non-automatic)	286	76		
Water Heater (standard)	2,475	4,219		
Water Heater (quick-recovery)	4,474	4,811		
<b>Comfort Conditioning</b>				
Air Cleaner		50	216	
Air Conditioner (room)	1,566	1,389		
Bed Covering	177	147		
Dehumidifier	257	377		
Fan (attic)	370	291		
Fan (circulating)	88	43		
Fan (rollaway)	171	138		
Fan (window)	200	170		
Heater (portable)	1,322	176		
Heating Pad	65	10		
Humidifier	177	163		
<b>Health &amp; Beauty</b>				
Germicidal Lamp	20	141		
Hair Dryer	381	14		
Heat Lamp (infrared)	250	13		
Shaver	14	1.8		
Sun Lamp	279	16		
Tooth Brush	7	0.5		
Vibrator	40	2		
<b>Home Entertainment</b>				
Radio	71	86		
Radio/Record Player	109	109		
Television (b&w)	237	362		
Television (color)	332	502		
<b>Housewares</b>				
Clock	2	17		
Floor Polisher	305	15		
Sewing Machine	75	11		
Vacuum Cleaner	630	46		

1,000 watts = 1 kilowatt hour  
100-watt bulb burning 10 hours = 1 kilowatt hour

Source: The Electric Energy Association.

**Don't Litter the Seas:** Plastic bags and the plastic rings that hold six-packs together can be dangerous when thrown overboard in the Gulf. Not dangerous to man, but dangerous to sea turtles and birds. Sea turtles mistake the floating bags for the jellyfish they feed on, and the birds get their beaks and necks caught in the rings. Be thoughtful and return to the dock with these and other items of trash to dispose of them properly.



# Cedars For Bass

Article and photography by P. Anthony Zeiss

**Black bass fishing** on Central Texas' Stillhouse Hollow Reservoir should be fast and furious this season due to the efforts of a Killeen bass club. Locating fish is the angler's biggest problem, but the Twin Lakes Bass Club has narrowed the odds considerably. More than 100 large cedar trees, *Juniperus sp.*, were submerged in several strategic locations to encourage high bass concentrations.

Stillhouse Hollow Reservoir was built by the Army Corps of Engineers in 1968 six miles southeast of Killeen. The 6,430-acre impoundment has been only a fair producer of bass largely because of its structure-free bottom which makes locating the fish difficult. Members of the Twin Lakes Bass Club felt the lake could become a real bass bonanza if more underwater structure was available.

In January club members Norman Williams, vertebrate zoologist, and Leo Chenoweth, past club president, met with Texas Parks and Wildlife biologist Roger McCade of Waco. Under McCade's guidance and with the aid of a topographical map, Operation Cedar Structure was developed. Plans called for bunches of 10 to 15 trees to be sunk in depths of 10 to 20 feet in areas favorable to a good fish environment. The depth selected had to be deep enough to cut down on excessive light penetration, yet shallow water had to be avail-

able close by for a feeding ground. Weighted with rocks the cedar bunches were submerged on sloping shelves, points and the outside bends of old creek channels.

By sinking cedar trees, the Central Texas bass enthusiasts improved the total environment of the lake from several standpoints. Not only will the weighted trees attract bass, but smaller game fish such as crappie and bream will find more cover from predator fish. Of course, the bass are partially attracted because of the presence of the smaller fish, but this creates a mutual benefit to both the fish and the fishermen.

The daylong project was handled by 18 club members who represented 90 percent of the club's total membership. The cedar trees were donated by local landowners and a local marine dealer provided the deck boat for hauling.

Other Texas bass clubs have collected discarded Christmas trees with which to build such fish sanctuaries, but because of the various toxic sprays on some commercial trees, the Twin Lakes Club decided to use cedars.

A check in February showed that most concentrations of crappie and black bass on the lake were in and around the cedar structures. With results like that under its belt, the club plans additional similar projects at Stillhouse. \*\*





Finding fish is the basic problem faced by most anglers when fishing a lake that is virtually structure-free, such as Stillhouse Hollow Reservoir in Central Texas. As any knowledgeable fisherman will attest, underwater brush attracts and concentrates fish, making them easier to find and catch. At Stillhouse, native cedars were weighted with large rocks (left) and submerged (above) at strategic locations throughout the lake. Members of the Twin Lakes Bass Club who conducted the operation say fishing there should improve considerably.







# Cuckoos

by John Tveten and Ilo Hiller

**A good candidate** for the strangest family in the bird world would certainly be the Cuculidae family. Their looks, food habits and other characteristics are truly unique.

There are three general subfamilies found in North America—cuckoos, anis and the roadrunner—and members of all three occur in Texas. These birds are so different in appearance, it is hard to believe they belong to the same family. Ornithologists, however, go by more than just outward appearances and recognize that despite their differences, all of these birds are slender with rounded wings, curved bills and long floppy tails. They also have graduated tail feathers with the shortest ones on the outer edges. Males and females within a species are marked alike.

Another family trait may best be seen in the tracks of the roadrunner which look like "X's." This yoke-toed track is formed by two toes pointing forward and two back, an arrangement which enables the birds to climb and grasp.

All of these interesting birds have rather strange eating habits. Cuckoos, for instance, dine on hairy caterpillars, a food item most birds pass up. This habit makes them welcome guests in yards and orchards because they eat many of the caterpillars, such as the tent caterpillar, that damage trees. They also consume locusts, beetles, bugs, grasshoppers, ants, wasps, an occasional frog or lizard and wild fruits.

Anis (pronounced ah'nees), on the other hand, may be found in small flocks on the ground feeding on insects. They, like cattle egrets, have learned to feed around grazing livestock and catch the insects disturbed by the cattle's hooves. Many insects can be consumed in this way without too much effort on the part of the birds. Although anis are mainly insect-eaters, they will also eat fruit, berries and other vegetation, especially during the dry

season. Their reputation as a tick-eater is grossly exaggerated, but they do occasionally perch on cattle and eat ticks from the animals.

The roadrunner will eat anything from insects to small mammals in addition to fruits, seeds and prickly pear. The bird is particularly fond of lizards and snakes, including small rattlesnakes. Although reptiles actually make up only a small percentage of the bird's diet, its method of killing them has caused people to exaggerate the number they consume.

To kill a snake, the roadrunner circles around it using speed and agility to stay clear of the snake's fangs. Whenever possible, the bird rushes in and stabs the snake with its pointed bill. Repeated blows stun the snake so it can be seized and slammed against the ground. It is then pounded repeatedly against the ground or a rock until the bones in its head and body are broken or crushed. Other large prey is also killed and softened in this manner by the roadrunner.

Some snakes are swallowed whole without softening, especially by nest-bound young. In these instances the roadrunner forces as much of the reptile down its gullet as possible and leaves the excess hanging outside its beak. As the bird's digestive juices work on the swallowed portion, the remainder is slowly consumed. In a matter of hours, the snake is eaten.

All members of the Cuculidae family definitely qualify for personality awards, even though they are not the most beautiful birds in the world.

Yellow-billed, black-billed and mangrove cuckoos are called "rain crows" by many people because their chuckling call is heard most frequently on cloudy days.

Most common is the yellow-billed cuckoo, *Coccyzus americanus*, which is found over most of the United States and nests throughout Texas. It can be





Yellow-billed Cuckoo by John Twelan

recognized by the yellow lower mandible on its slightly curved bill and the large white spots on the underside of its dark tail feathers. Its body is dull brown above and white below with reddish wing coloration.

Graceful and swift on the wing, the yellowbill slips quietly through its leafy habitat. Birders will seldom see it on an exposed limb since it prefers to skulk in the leaves searching for insects and caterpillars.

The less colorful black-billed cuckoo, *Coccyzus erythrophthalmus*, which migrates through eastern and central Texas has, as its name implies, a black bill. It also has a narrow, red eye-ring, but lacks the reddish coloration in its wings. The tail spots, found on the underside of its olive-brown tail, are much smaller than the yellowbill's.

Trying to spot the blackbill may be even more difficult than the yellowbill as it is an even greater recluse. It seeks the dense woodlands along streams, ponds and lakes; dense borders of meadows and forests; and the deep thickets and groves of coastal prairies. Although the blackbill visits orchards and gardens, it still remains well hidden from interested observers.

Third member of the species, the rare mangrove cuckoo, *Coccyzus minor*, is found among the mangroves of the Keys and along the southwest coast of Florida north to Tampa Bay. It also inhabits the West Indies, the mangrove belts of the lowlands in Middle America, the north coast of South America and many off-shore islands. This bird has

bright buffy underparts and a black mask.

Yellow-billed and black-billed cuckoos usually build nests of twigs in bushes and trees and raise their own young. However, they have been known to occasionally lay their eggs in the nests of other birds.

This act is known as social parasitism and is a common practice among the Old World cuckoos. The unfortunate thing about this social parasitism is that when the young cuckoo hatches, it pushes nestmates or unhatched eggs belonging to the foster parents out of the nest to make more room for itself. Foster parents may also have a difficult time gathering enough food for their hungry, substitute offspring which may be larger than they are.

The groove-billed ani, *Crotophaga sulcirostris*, of South Texas and the smooth-billed ani, *Crotophaga ani*, of southern Florida are probably the least known members of the Cuculidae family and the oddest. Medium-sized, black birds with long tails, they might easily be mistaken for blackbirds or grackles were it not for their high, parrotlike beaks. As their names indicate, the groove-billed ani has grooves on its beak which are visible at close range while the smooth-billed ani does not.

Anis are weak fliers, and it is comical to watch a flock of them flutter about in a strong wind. To take flight, the ani leaps into the air, gives a few quick flaps, sails for a couple of feet, flaps some more and then sails again. When the bird lands, its tail flops forward over

Groove-billed Ani by Bill Reaves



Yellow-billed Cuckoo by John Twelan



Young Groove-billed Ani by John Twelan





its back and almost knocks the bird off its perch. Despite its reputation as a weak flier and resident of the Neotropics, the groove-billed ani has made startling appearances in such nontropical spots as Minnesota, Nebraska and Kansas.

Another inconsistency appears in nesting. The birds may follow the normal pattern of one pair of birds to one nest or they may share a communal nest. In the latter method, two or more female anis lay their pale greenish-blue eggs in the same untidy basket of twigs, leaves and grass hidden in a thorny bush and take turns incubating them. When the young hatch, all adults, both male and female, share the task of feeding them. Some baby birds are cute little fellows, but the young ani with its greasy black skin and huge bill would hardly be expected to win a beautiful baby award from anything but another ani.

Choice of habitat is still another inconsistency of the ani. In Texas, the groovebill seems to prefer the thickest thornbush it can find, but in Mexico the bird appears to be more at home in open pastures with only scattered bushes.

In the Southwest the roadrunner, *Geococcyx californianus*, is a favorite of most people and somewhat of a tourist attraction. Also known as chaparral cock or paisano, the roadrunner is primarily a terrestrial bird using its wings to leap into the air when startled or glide to the ground from perches. Its fitful flight is seldom long lasting and usually consists of a spectacular leap into the air followed by a crashing dive into dense brush for concealment. The rest of the time the bird can be found running across the ground at speeds up to 15 miles per hour.

Most people picture this bird only in a desert-type habitat of West Texas mesquite and prickly pear. However, the bird is equally at home among the swamplands, tall pines and magnolias of East Texas. All it requires is some bare ground with more or less scattered trees and bushes where it can walk around and catch food.

Its white eggs are laid in a nest of sticks hidden in a cactus or thorny bush. Young are raised on such delicacies as lizards, scorpions and insects, and it is quite a sight to watch a young roadrunner trying to swallow a snake whole.

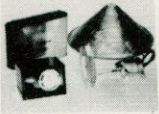
The next time you laugh at the antics of a paisano or hear the *cuc-cuc-cuc* of the rain crow, remember how interesting and unique the Cuculidae family can be. \*\*

Roadrunner by Martin T. Fuller



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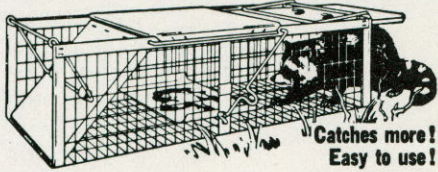


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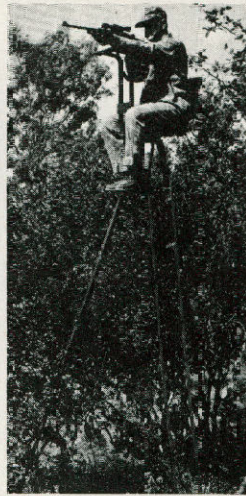
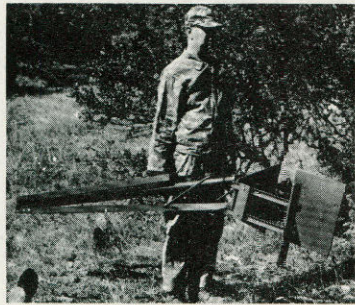
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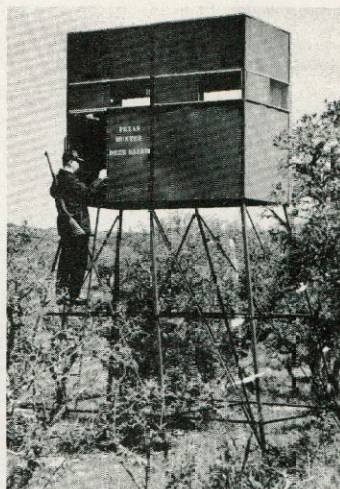
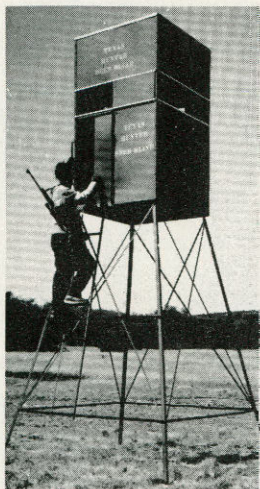


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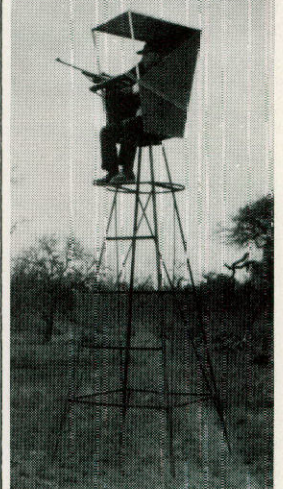


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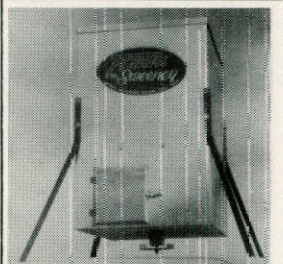
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## Outdoor Education Workshops

# Teaching Teachers



Article by Ilo Hil er, photography by Bill Reaves

**Throughout the state**, concerned educators are striving to make outdoor education and outdoor recreational activities an integral part of our schools' curriculums. But before teachers can teach such outdoor activities as hunting, fishing, archery, camping, canoeing, backpacking and nature study, they must be taught these skills.

At the request of the Texas Education Agency, Dr. Julian Smith of Michigan State University, outdoor education project director for the American Association for Health, Physical Education and Recreation, brought his instructors to Baylor University last October to hold a workshop to certify interested teachers in the skills of archery, angling and shooting sports. During the 2½ days of this session, 48 teachers had the opportunity to become proficient in any one of the three activities.

This effort was so well received that another session was held in April of this year, but unlike the Baylor meeting, this workshop was taught by Texas instructors, and the participants had the opportunity of being exposed to all activities.

It was sponsored by the Texas Education Agency, Southwest Texas State University Department of Health, Physical Education and Recreation and the Region XIII Education Service Center.

The three-day workshop was held at a youth camp in Wimberley, and sessions were devoted to learning such activities as angling and casting, canoeing, hiking and backpacking, camping, conservation and nature study and the application of outdoor education to various academic fields.

A representative of the Health, Physical Education and Recreation Department of Southwest Texas State University addressed the group before the activities began. He explained that one of the reasons his department was helping sponsor the workshop was to bring physical education people into the outdoor recreation field and to show them how these activities can supplement any physical education program as well as other academic areas.

Actual outdoor activities presented to the teachers were divided into four major groups, as were the 42 participants. During the first three-hour session, while





one instructor was teaching a group the art of casting, other instructors were teaching backpacking and nature study, campcraft and canoeing techniques to the other groups.

At the next session, the groups rotated. By the time the four sessions were completed, each group had participated in all activities. Although the sponsors of the workshop know that a three-hour exposure to an outdoor skill, such as casting, does not an expert make, it is hoped that the experience will whet the teacher's interest in the activity. Perhaps then, upon returning home, the teacher will acquire a rod and reel and a practice plug, set up a target in the backyard and develop the skill necessary to show a classroom of students how to enjoy the sport of casting.

If you are interested in seeing a workshop of this type held in your area to expose your school's teachers to outdoor education and outdoor recreational activities, contact your principal or superintendent. They, in turn, can contact the Director of Health, Physical Education and Recreation Division of Curriculum Development, Texas Education Agency, Austin 78701, with regard to setting up a workshop in your area similar to the one held in Wimberley this year. \*\*



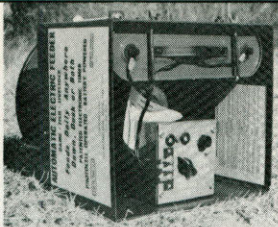
*After dry-land lessons on basic strokes, the teachers launched their canoes to get experience and additional instructions. They also learned how to safely trade positions on the water.*





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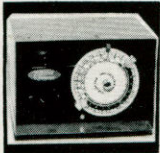
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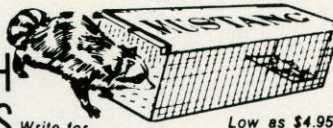
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# Sharpen Shotgun Skills

by W. R. Long, Information Officer, Dallas

**As hunting pressures** in Texas mount, skill in the field becomes more important; and the time to acquire that skill is now, before the season opens.

Texas game birds provide hunters with hours of outdoor sport and they deserve better than a sloppy shot by an unskilled marksman. Wing shooting is an art and, like all arts, takes practice to perfect. Here is where trap and skeet shooting can prove their worth to the hunter planning to go afield this fall.

Few hunters take advantage of either of these methods because of the expense involved in belonging to a gun club where skeet and trap fields are available. Yet, there are less expensive ways to get around this. Before getting into that, however, let's take a look at trap and skeet shooting for those who have not participated in either.

While so much alike in ultimate results, skeet and trap are wholly different in style and technique. Both games, under the rules of the Amateur Trap Shooting Association and the National Skeet Shooting Association, have enough regulations and bylaws between them to fill volumes. However, it's not necessary for the person who merely wishes to learn how to properly lead and fire his shotgun to know them all.

Skeet, the English spelling of a Scandinavian word meaning "shoot," uses a full box of shells to base a hit-and-miss score for 25 targets. The skeet field has a high house built on one end of a fan-shaped layout from which "birds," clay targets, are released with a built-in altitude. At the other end of the field is the low house from which targets are released near the ground and gradually rise. The field has eight shooting positions, and the shooter fires at one target



from each house at each station, then returns to stations one and two, six and seven, and fires at "doubles"—one bird from each house at the same time. This uses 24 shells. The 25th shell is used as a repeat shot from the station where the first missed bird occurs, or else fired from station eight at the low house bird if the shooter manages to complete the game without a miss.

Trapshooters, on the other hand, fire from a shallow semicircle of five stations, each of them 16 yards from the dugout where the trap machine is located. Five shooters make a team, and each man fires in rotation from his station until he has shot five shells. After five shells he moves to the next station and the other shooters do likewise. Total: 25 shells. The one breaking the most clay targets is the winner.

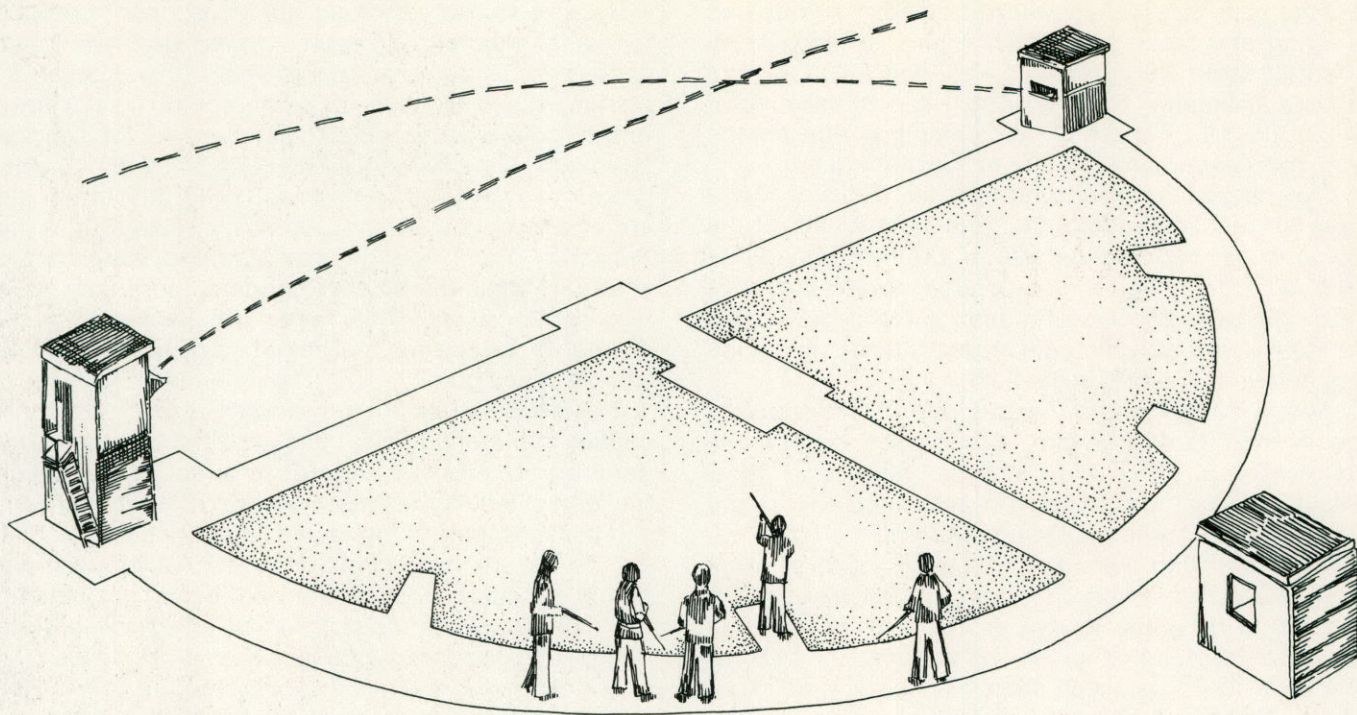
Trap has a following of some one million shooters, 80,000 of them registered with the national organization. Skeet has 18,000 registered shooters, but more than 80,000 persons shoot one or more times each year.

While oversimplified in description, rules of each game are followed, with a referee to call hits and misses. The beginning field shooter would profit from one or both games, but such rigid marksmanship isn't essential to making a good wing shooter out of someone who either has little time for such games, does not wish to become financially imbedded in such organized activity or, as we will point out, will do just as well employing other methods.

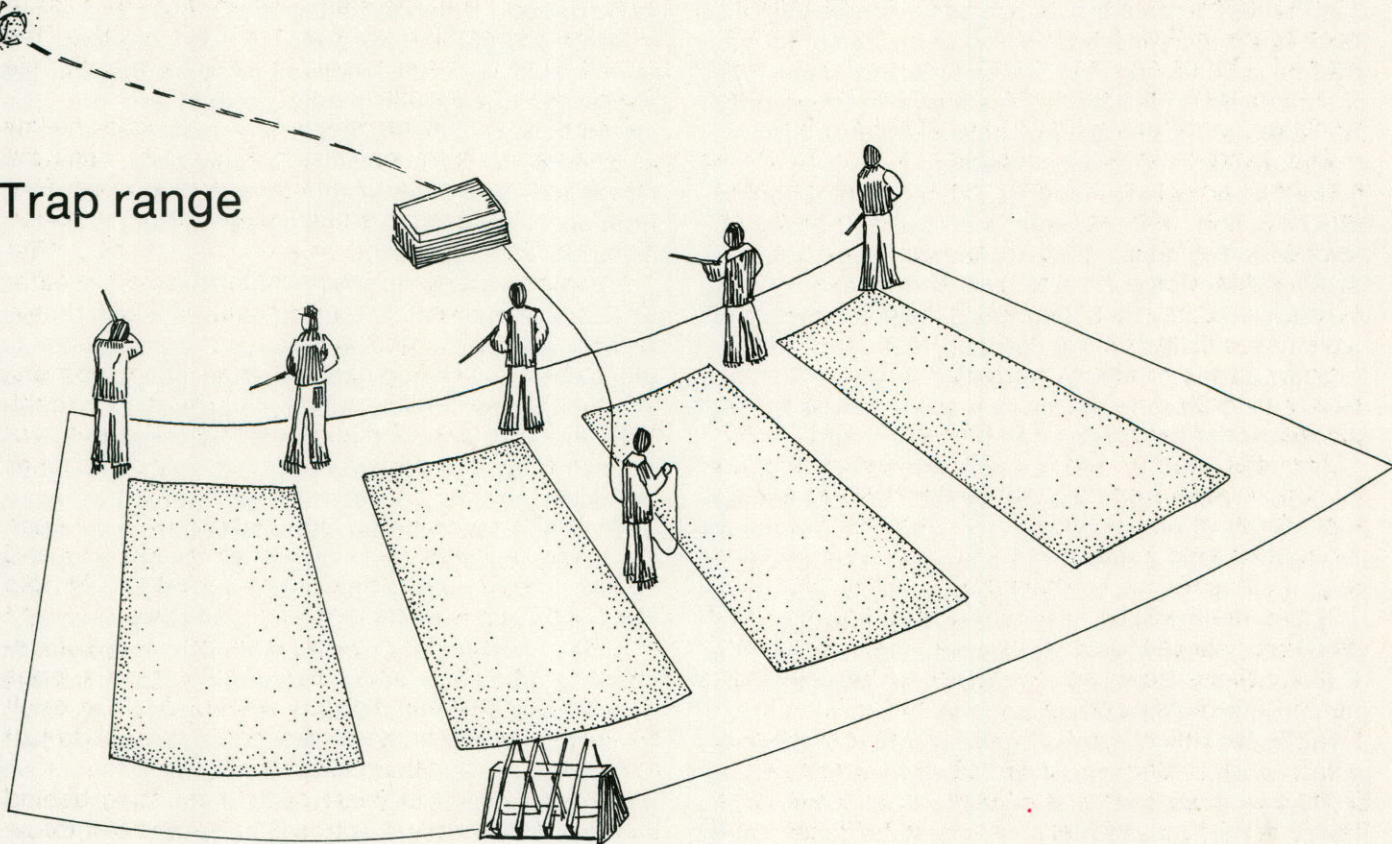
Many hunters with years of field shooting behind them will scoff at skeet or trap as a method of improving field scores. They may also be the ones who shoot



# Skeet range



# Trap range





a couple of boxes in the field and come in with five birds or less. Others say that being a good trap shot or skeet shooter doesn't mean the 25-straight man on the gun club range will necessarily go out bird hunting and come home with a bird for each shell. With the latter we agree wholeheartedly. But, we are adamant in stating that the good trap or skeet shooter will LIKELY take more birds cleanly than the person who has never mastered one or the other game.

Clay target prowess is no indication of the way a man will react to feathered targets that may arise from 30 yards, or perhaps underfoot, and fly in any direction. We do say that a man accustomed to the basic and rigid rules of the swing, lead and pull of the clay range will probably become more proficient in adjusting his eye to the bird in the field.

Another argument is that trap and skeet shooters begin their bird with gun at shoulder, control the movement of the bird by calling "pull," and know exactly when the bird will be presented for trigger work. True, but with qualifying remarks.

If the man who plans to shoot clay targets in preparation for the feathered ones will use the gun on the range he plans to use in the field, rather than a gun made for the full-choke shooting of trap, or the open bore of skeet, then his eye will be more finely attuned to the speed of his target. He will also have a smoother swing, be able to immediately calculate proper lead and develop the formal habit of pull and swing through on the shot.

To avoid the cost of gun club facilities and accompanying expense, less than \$5 will purchase a hand trap that will throw a bird at almost any angle desired. For a few dollars more the shooter may elect to purchase a ground trap that can be adjusted to any type of shot desired. This will enable the puller to surprise the shooter with a high, low or angling shot that will challenge even the finest marksman.

Skeet is not marksmanship. It is a game requiring concentration, coordination and correct timing. It teaches swing and self-discipline so that shot and target will intercept on a known path of flight. Trap is marksmanship to a degree. It also teaches discipline, controlled firing, proper lead and follow-through and is probably the better of the two as an aid for field birds. Both factors are exposed to the shotgunner with the hand trap or the foot trap.

Just one word of caution: do not select a place to shoot where hogs are being fed, or where they may be fed during the next few years. The material from which clay pigeons are manufactured is highly toxic to all members of the swine family. If you have no place of your own upon which to shoot, be sure to get the landowner's permission and advise him of the toxicity of the clay pigeon. The substance is not known to harm cattle in any way.

The cost of clay pigeons for these throwing devices is not prohibitive, and handloading ammunition greatly reduces the cost of each shell fired. One truism is that the handloader doesn't actually save money, but with an abundance of newly created or

renovated live shells around the house, he may get in a lot more shooting for the same amount of money he would expend for factory-loaded shells.

Be sure to use your field gun if you want practice for wing shooting. Use the largest gun you have access to. Too many fathers make the mistake of starting wives, sons or daughters with a .410 bore or a 20-gauge shotgun. Such guns are not for average shooters. They belong in the hands of the expert. Almost any woman and practically any child old enough to hold up a shotgun will be able to tolerate the recoil of a 12-gauge, gas-operated, autoloading shotgun. While the smaller gauge or bore may have less recoil, it also has fewer pellets resulting in disheartening misses that might have been hits with a larger-sized gun.

Be sure the stock fits the shooter. A stock too short causes the thumb to slam back against the nose, and generally causes the shooter to shoot low. A stock too long invariably results in overshooting the target.

If the shooter is going to use an entire box of shells, ear plugs are only common sense to prevent ear damage. Cotton balls in the ears are of no benefit, and ear plugs may be purchased at any drug store or sporting goods store for less than a half dollar.

Shooting glasses not only help define the target, but protect the eyes from the occasional fleck of brass, the backlash of a blown primer in the shell and even from flying dust, dirt or a splashback of hot gun oil. They will pay for themselves many times over. The lenses are usually gray in color, although some have a yellow tint. If they save an eye, their value cannot be defined in terms of dollars and cents.

Many gun clubs have periodic public shoots. The nonmember is cordially invited to share the fun, the shooting, the meeting new people and the free instruction given on the range. The usual cost is about \$1.25 to \$1.50 for a round of 25 clay birds. Here the hunter may learn from doing, by watching others and from occasional hints or tips garnered from the more experienced shooters.

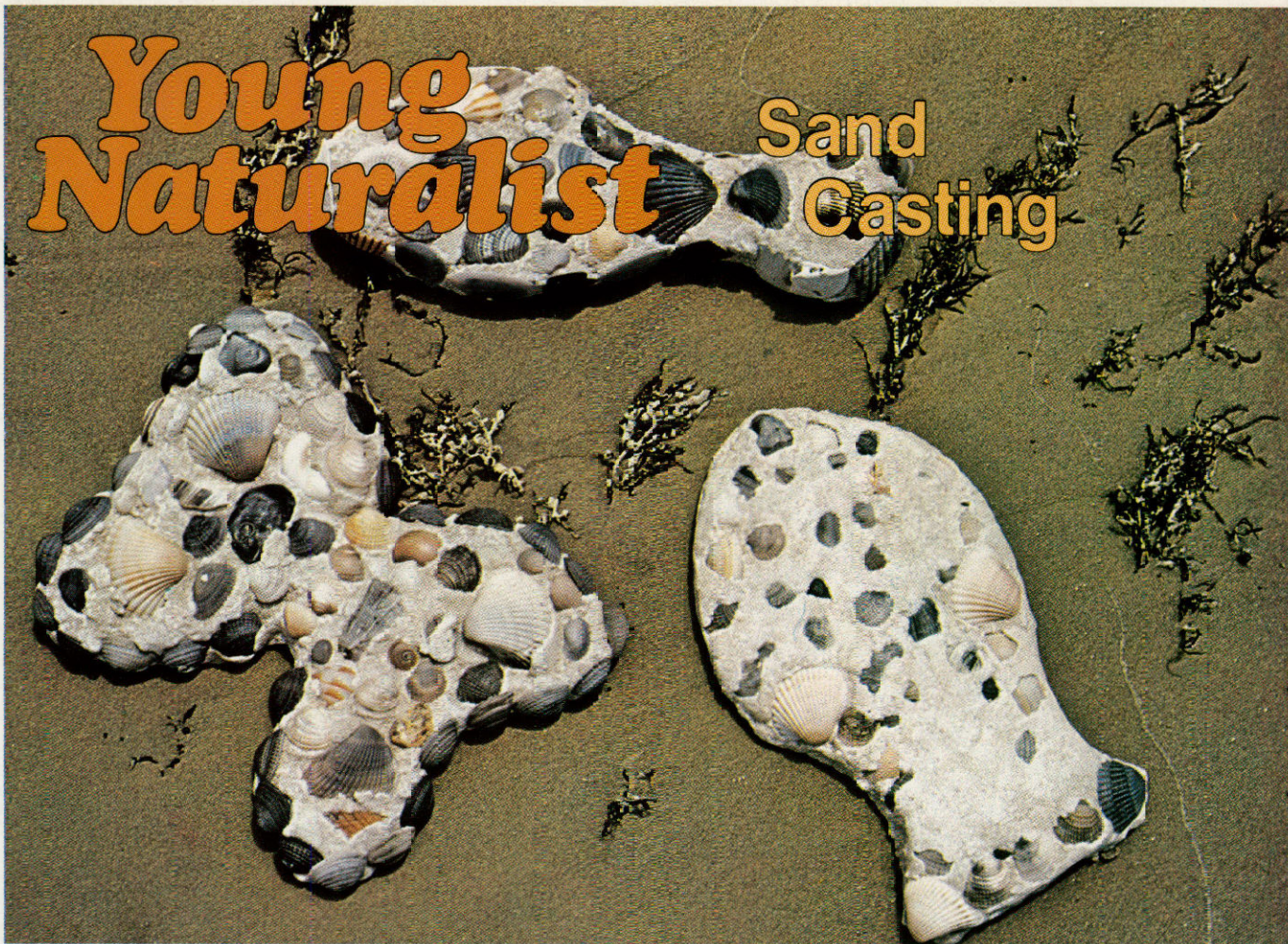
For a firsthand, near-at-home observation, this writer maintains that the usual skeet success is five hits for each box of 25 shells for the newcomer to the game. This figure, gained from gun clubs and ammunition companies, has been proven more times than the theory about the earth as a sphere. But, on many occasions too numerous to even remember, the same shooter, possessed with normal reflexes, after only a few rounds with instruction, may easily be hitting 18 to 22 birds out of 25. Climbing up the ladder to 25 straight is up to the individual and how much time and work he wants to put into the sport.

Almost without fail, the person who manages to master a game of skeet and score consistently above 20 will bring home more birds in the game bag when the season opens, and with fewer cripples escaping.

A bargain is anything or anytime we get what we pay for at a reasonable price and, if you can measure success and pleasure and skill in dollars and cents, then skeet and trap is a bargain. \*\*



# Young Naturalist Sand Casting



Article by Ilo Hiller

Photography by Jim Whitcomb

**Trips to the beach** may be common for some young naturalists, but how many of you have made a sand casting while there?

Sand casting is not only a fun project, but it gives you an opportunity to do something with all those shells, seeds, rocks, bones and other odds and ends you always pick up on the beach. Converting these "treasures" into a plaque that can be hung on your wall or given as a gift somehow seems better than just sticking them in a box in the closet at home and forgetting about them.

With just a few supplies you can create one of these sand cast plaques in an afternoon on the beach.

First, go by a hardware, paint or art supply store and buy a five-pound box or bag of powdered plaster of paris. This should be enough to make several small plaques. Then find something to take along in which to mix the plaster. Buckets, large coffee cans or cut-off bleach bottles and milk cartons make good containers for this purpose. Taking two might prove more convenient

because it would allow one in which to mix the plaster and one to hold extra salt water that might be needed during the mixing process.

A wooden ruler or paint stirrer makes a handy mixer, but if you use your hand, you will be able to feel any lumps or unmixed plaster that may be stuck to the sides or bottom of the container. Any plaster that happens to get on your hands or clothing will wash right off in the surf if removed before it has a chance to harden.

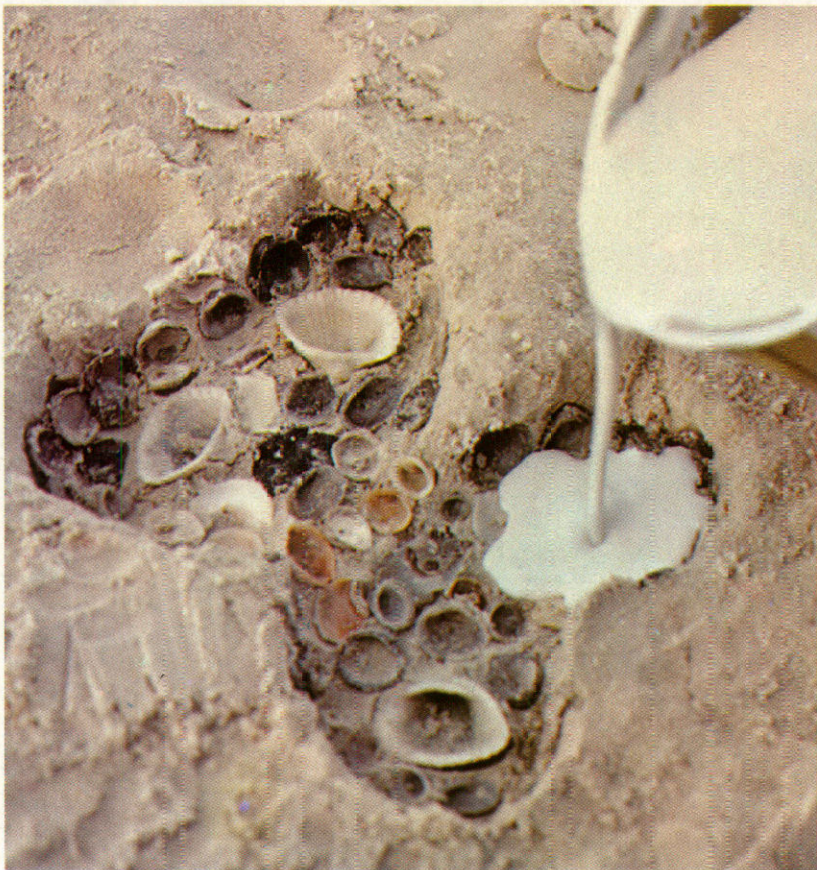
In order to hang your finished plaque, insert something to serve as a hanger before the plaster hardens. Pull tabs from soft drink cans are adequate for small plaques, but may not hold up a larger creation. Plaster is heavy; the larger plaques may need a piece of screening inserted in the plaster before it hardens to reinforce it and a durable loop of wire to serve as a hanger. To simplify things, try to keep your plaque no larger than a plate and it will not need the heavier hanger or reinforcement.

Once you have the basic supplies, you are ready for the beach and a little beachcombing. That mixing container you brought along also makes a good collection bucket, so fill it up with the odds and ends you find. Almost anything can be worked into a decorative design, so take your imagination along as you gather materials. You might be surprised how a little piece of driftwood or rope can work into a design.

Now you are ready to prepare the sand mold. Be creative. Remember, if you don't like your first design, you can always rub it out and start another one. It can be an oval, circle, square, rectangle, animal shape or free design. To make the mold, scoop out the damp sand to a depth of at least an inch or two. Level the sand in the bottom of the mold to make a flat surface for the front of your sculpture, but don't pack it. If you brought along a stirring stick, you can use it to pat the sides of the mold to make them firm and smooth.

When you have shaped the mold, push your treasures into the sand one









Once the shells or other "treasures" have been collected, it's time to dig the sand mold. Place shells around the sides to give the finished plaque a decorative edge. Carefully pour the plaster into the mold. In about an hour, remove the finished plaque from the sand and wash it in the surf.



by one. If they are not pressed firmly into the sand mold, the plaster will flow under them and they will not show. Place the side of the object you want to show on the front of your plaque down into the sand because the side facing toward you as you look into the mold will be covered with plaster. Shells can also be pressed into the sides of the mold to make a decorative edge on the plaque. Lines can be drawn with a stick or with your fingers to add detail where needed.

Once everything is in place, you are ready to mix your plaster. Put a couple of inches of salt water in the bottom of your container and add some plaster. The mixture should have the thickness of pancake batter—thin enough to pour, but thick enough to harden in an hour or so. Additional salt water can always be added if the mixture is too thick, so do not use too much water in the beginning.

Pour the plaster into the mold, being careful not to rearrange or disturb the decorative design. If you want your plaque to be about an inch thick, fill the mold to that depth. As soon as the plaster is firm enough to hold the hanger, insert it in the upper center

area of the back. It should be inserted deep enough to hold the weight of the plaster, but not deep enough to come out the front.

Allow the plaster to dry for at least an hour in the hot sun before trying to remove it from the sand. When the casting has hardened, use your hands to remove the sand from the edges. Then dig deep enough around the sides and under the edges so you can take hold of the whole sculpture to lift it free. Trying to pry it out by one side may break it in half. Now take it down to the water and wash it off. When completely dry it is ready for the wall.

If you do not have a chance to visit the beach this year, you can still make a sand casting in a backyard sandbox or a cardboard box full of sand. The procedure is the same, but you will have to substitute fresh water for salt water and buttons, rocks, tree bark, bottle caps and other such things for the beach treasures.

Gather up whatever you can find, wherever you may be, and try your hand at sand casting. It's an activity that can be enjoyed year round, and is not limited to "young" naturalists alone. \*\*



# LETTERS TO THE EDITOR

## Water Safety Drill

My purpose in writing is to relate a little story which might put some water safety thoughts into some of your readers' minds.

While mowing my yard one afternoon, I observed my neighbor's two sons, ages five and four, playing in a flat-bottomed boat their father had in the yard. I noticed that the older one put on a life jacket which was in the boat, and then in a few minutes, fell out onto the grass. He was about three feet from the boat, lying on the ground slinging his arms just as if he were thrashing in the water. He called out to his brother, and without any instructions from anyone, his younger brother picked up a rope that was in the boat and threw one end of it to him. He grabbed the rope and his younger brother pulled him back to the side of the boat and helped him climb back into it.

It was a very good simulation of falling into a body of water and being rescued. These little boys had either

been instructed what to do by their father, or they had seen something similar on television. In any case, it was a very good lesson for them to learn.

T. A. McPherson  
Beaumont

## Good Riddance

I live in a wooded area with a large copperhead population. My wife and son have already been bitten, and I would appreciate knowing what to do to rid my property of these snakes and lessen the danger to my other children.

K. P. Kerr  
Telephone

**Most snakes, and especially copperheads, prefer to stay under brush piles, piled lumber, junk cars or farm machinery where they are safe from intrusion and weather. Our first suggestion is that you clear away all types of materials which are capable of harboring snakes.**

Once your yard and general area of residence have been cleared, you may

want to fence it with hardware cloth about 15 inches in height. If your yard is presently fenced, simply attach hardware cloth to the bottom and put soil on all uneven areas to prevent leaving gaps between the bottom of the wire and the ground. This close-woven wire prevents copperheads from coming into the yard.

Because copperheads normally live in secretive places, your children and all visitors should be warned about placing their hands or feet into close places before careful inspection. Although children like to go barefoot in the summer, we would advise against this in your area.

## Waterproof Valve

We have been studying about animals and are puzzled by one thing. What keeps water from going into the hole in a whale's head when it is under the water?

Jill Justus  
San Antonio

A flap of skin or valve closes the opening to keep water from entering when the head is below the water's surface. You have probably learned that all cetaceans (whales, porpoises and dolphins) have a blowhole or spout of some type on top of their heads through which they expel air from their lungs. Contrary to popular belief, cetaceans do not blow liquid water out of their lungs. The visible spout formed when the creature exhales is caused by the condensation of water vapor from the lungs as it enters the air.

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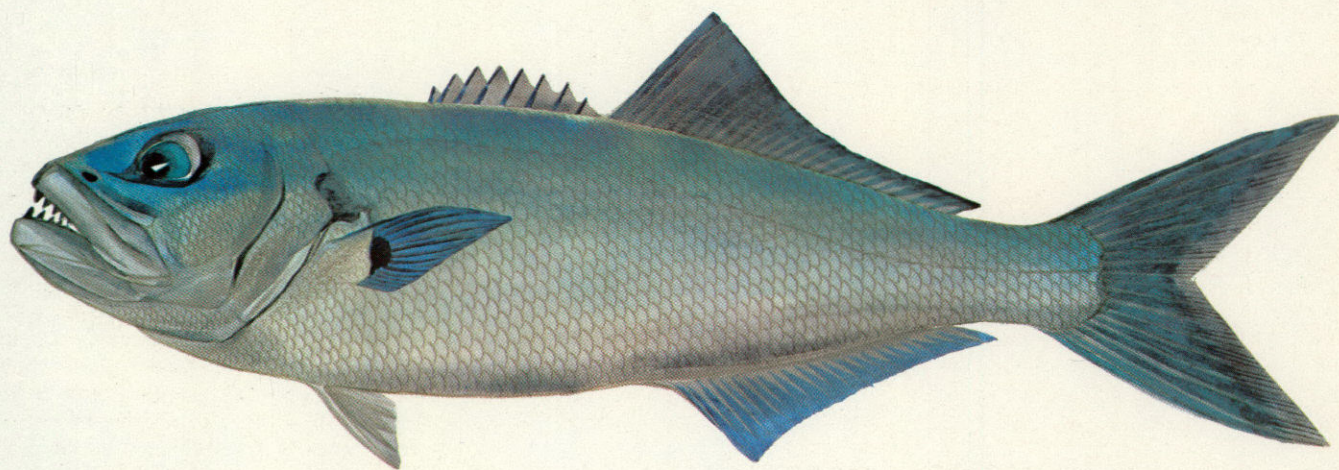
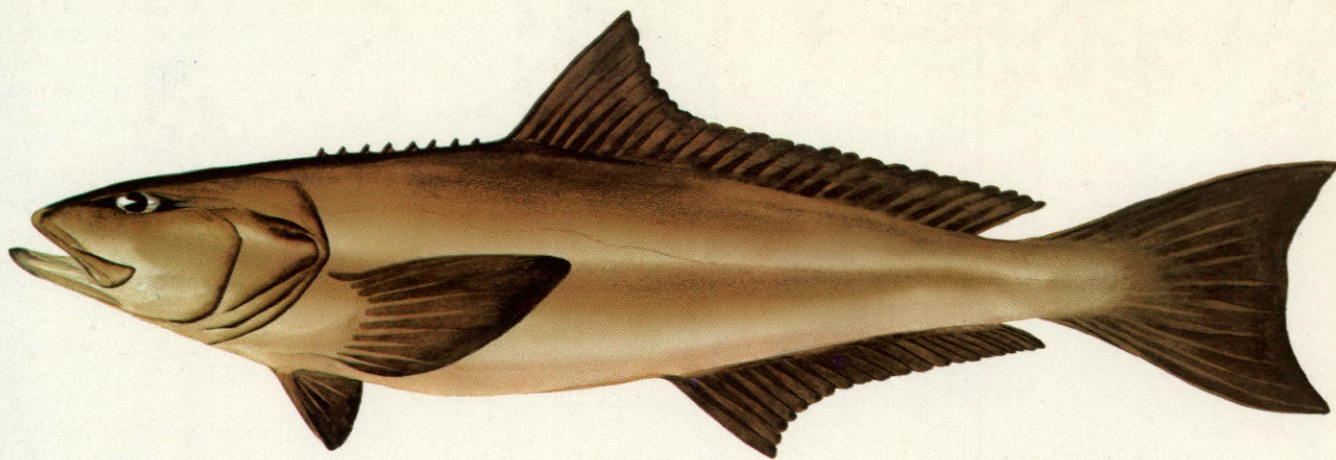
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## TEXAS SALTWATER FISHES

Known as the ling or cobia in Texas, the cabio (top) is found in most warm seas throughout the world. It averages 15 to 30 pounds; however, a 102-pound specimen was recorded in Virginia and the Texas record is 90 pounds. The cabio has a habit of swimming under or near floating logs and debris, old piers, buoys, oil rigs and anchored or docked boats. It is a superb fighter and a special treat on the dinner table. The meat is white and firm which makes it excellent for charcoal broiling as well as deep frying.

Cabio feed on squid, crabs, shrimp and small fish, especially bottom-dwelling fish such as the flounder, and are frequently caught as they follow shrimp boats to pick up scrap fish thrown overboard. They are present off the Texas coast from May to October, but most abundant from June to September. Shrimp, squid, spoons, plugs and jigs can be used to catch this scrappy fighter.

Also found in warm seas is the bluefish (bottom)

which averages from one to two pounds, but may reach 25 pounds. Few if any saltwater game fish can match the fury and stamina of this migratory fish on a pound-for-pound basis.

Bluefish travel in dense schools, voraciously feeding on small fish, squid and shrimp. They have been compared by some fishermen as "animated chopping machines" as they race through a school of bait fish cutting and chopping them to shreds. Once the bluefish is full, it often regurgitates all it has eaten and resumes the slaughter.

In Texas, the bluefish is generally found offshore with best fishing occurring from April to June. Shrimp, spoons, plugs or jigs make excellent bait, but when the blues are in a feeding frenzy, almost anything which resembles food will be taken. The state record for this fish is still open with a minimum size of five pounds needed to qualify.

Artwork by Henry Compton.



