

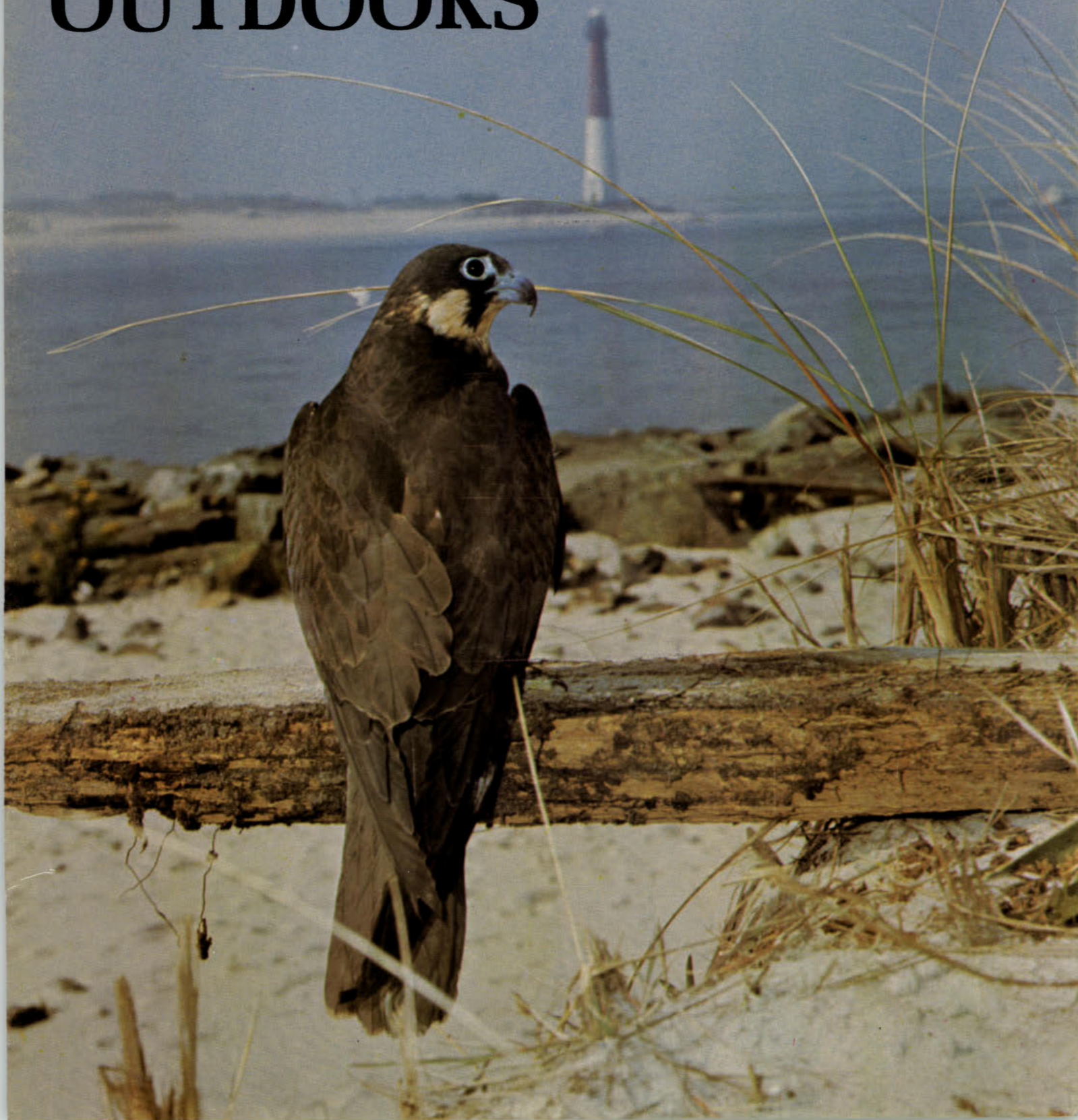
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New Jersey OUTDOORS





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from the editor

show business and network news

Did you watch the CBS News *Guns of Autumn* program on September 5.? Did you notice how the program highlighted several "slob" hunting segments which gave the overall impression that most hunting was conducted in this fashion?

In the *Sequel to the Guns of Autumn* viewed on Sunday September 28, the producer/director defended his overplaying the segment on game preserve hunting by saying that the number of private game preserves was increasing and hundreds of thousands hunters participated in this form of hunting in the United States. In fact, if we estimate *what* percentage of the total hunting population was represented in all of the segments portrayed in *The Guns of Autumn*, the figure would be less than one percent. But that's not the impression the

viewer was left with and CBS News is guilty of presenting an extremely biased propaganda film.

After viewing the first program, I couldn't help wonder what the late Edward R. Murrow would have thought of this program. And I thought to myself — Is this the CBS News that nurtured Murrow, Cronkite and Severeid?

Of course, I realize that network news programs, beset by the pressures of ratings, are becoming more and more akin to show business. But this is a dangerous practice in our form of government. The fragile fabric of democracy requires a responsible news media that informs completely with balance and objectivity—not with show "biz" shockers.

Tell it like it is—but tell it all.

— in this issue —

Broaden your culinary skills with a batch of wildlife cooking recipes by Len Wolgast, Assistant Professor of Wildlife Biology at Cook College, Rutgers University. And if you dig archaeology, read about the giants in New Jersey's past by Raymond Stein, Curator of Science, New Jersey State Museum.

How to hunt that quick and elusive cottontail in mild or extreme weather by Russ Wilson, an avid outdoorsman, is instructive.

An interesting article on recycling wood or how wood residues can be utilized rather than wasted by George Pierson and Ed Lempicki of the Bureau of Forestry.

The young sportsman, city bred or otherwise, can still practice the traditional sport of trapping in New Jersey. Biologist Steve Toth tells you "how" and "where".

And if you're a collector of decoys, the article by Andrew Gennaro is a must. If you're not a collector, the photos will make you one. Mr. Gennaro is the author of a booklet entitled *TROUT FISHING IN THE METROPOLITAN AREA* published by the *NEW JERSEY FISHERMAN* magazine-newspaper. His articles have appeared in the *NEW JERSEY TROUT GUIDE* and the *FLYFISHER*.

Summer is over, but salt water fishing is still on. Bundle up for that overwater chill and enjoy a late autumn day while catching fish. Our author, Al Nunes-Vais, should know. His credits include *FIELD AND STREAM*, *FISHING WORLD*, *READERS DIGEST* and *POPULAR SCIENCE*.

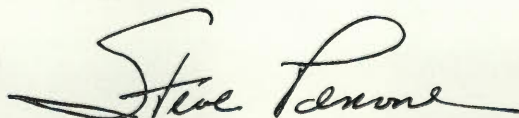
Small, overcrowded New Jersey has a clear, almost pollution-free stream in the Pine Barrens which abounds with wildlife. Our author, John A. Haas, Recreation Superintendent, Ocean County Department of Parks, says Cedar Creek is the cleanest stream in the state and my sources back him up.

Pete McLain and Teddy Moritz of the Endangered and Wildlife Species Project write about the ongoing project to reestablish the Peregrine Falcon in New Jersey.

Let Donald Rolfs of The Down Jersey Marine Historical Society tell you about "Blackbeard, Rumrunners, and Fortescue Fries."

Too soon, this year is drawing to a close. I want to wish all our subscribers and their families the happiest of holidays. And if you're trying to come up with just the right gift for someone special—give New Jersey Outdoors.

New Jersey State Library





Wildlife Cooking

WONDERFUL EATING

BY LEN WOLGAST

*Assistant Professor Wildlife Ecology
Cook College, Rutgers University*

"Boy, that smells great! What is it?"

"It's my favorite pheasant dish. I call it 'pheasant delicious'."

"What are those little birds?"

"They're mourning doves fried in butter."

Similar conversations were repeated throughout the evening as guests continued to arrive at our game dinner. The aromas of a large variety of fish and game dishes mingled temptingly throughout the room. The delicacies being readied for our feast included bear, moose, venison, woodchuck, rabbit, squirrel, wood duck, mallard, pheasant, quail, dove, trout, striped bass, tuna and weakfish. With the exception of the bear, moose, and mourning doves, all these animals were harvested in New Jersey.

Although I supervised the cooking, much of the actual work was being carried out by several apprentice chefs—all graduate students in our wildlife management program at Cook College, Rutgers University. They were following recipes which I have collected over the years and which have been taste tested on literally hundreds of different individuals. Recipes which are not consistently raved about are discarded—the result is a series of recipes guaranteed to please even the most critical palate. That was certainly the case at this dinner, for as each dish was completed and served it disappeared almost immediately. All agreed that it was the best game dinner ever.

*Author browning
the pheasant*

You can achieve similar success in game cooking by following these simple recipes:

MOURNING DOVE FRIED IN BUTTER

Cut the bird in half lengthwise using a poultry shears. Dip the halves in egg, then in Italian-seasoned breadcrumbs; repeat this step. Then fry slowly in butter, turning several times. Drain on paper towels and serve. (This recipe also works well with quail or young rabbit.)

RABBIT IN WINE

- 3 rabbits, cut in serving pieces
- 2 tablespoons butter
- 1/4 cup olive oil
- 2 cloves garlic, crushed
- 1/2 teaspoon rosemary
- 1 cup Burgundy wine
- 1 cup chicken broth
- 1 tablespoon chopped parsley
- 2 cups sliced mushrooms

Saute rabbit in butter and oil until lightly browned. Add garlic, rosemary, wine, and broth; simmer in covered pan until meat is tender. Add mushrooms and parsley then cook 5 minutes longer. (This recipe is also fine for squirrel, woodchuck, or mallard.)

PHEASANTS DELICIOUS

- 3 pheasants
- 1/2 cup brandy
- 2 cups heavy cream
- 8 tiny onions, thinly sliced
- 1/4 cup butter
- 2 cups chicken bouillon
- 6 bacon slices
- 1/4 cup horseradish
- 1 teaspoon salt
- 1 dash pepper

Saute onions in butter. Cut pheasants into serving-size pieces and brown them for 15 to 20 minutes. Pour brandy into a ladle, light, and pour flaming brandy over pheasants. Add chicken bouillon. Place bacon over pheasants and roast for 45 minutes at 375° F, basting frequently. Stir cream and horseradish into pan drippings and use this mixture to baste frequently for 15 minutes more. (This recipe also works well with quail.)

VENISON STROGANOFF

- 1 to 1-1/2 pounds of venison cut into long, thin strips
- 3 tablespoons flour
- salt, pepper
- 1 onion
- 1 cup tomato juice
- 1-1/2 cups water
- 1 teaspoon sugar
- 1 can mushrooms
- 1/2 cup sour cream

Place meat, flour, salt, and pepper in a paper bag and shake until meat is coated. Brown lightly in fat with the onion. Add tomato juice, water, and sugar. Simmer until tender. Add mushrooms and sour cream and simmer for an additional 10 minutes.

(Continued on page 25)



Tuna steaks, dove halves, mallard duck, and venison ribs



Breading doves

PHOTOS BY HARY GROSCH

In modern New Jersey, even though it ranks as the nation's most urbanized state, many small, mostly harmless, forms of wildlife abound; and there are still large tracts of land where wild deer are plentiful. But turn your mental time machine many centuries into the past, and you'll get a picture of New Jersey wildlife that is far, far different.

PHOTOS SUPPLIED BY "N.J. STATE MUSEUM"



Giants of New Jersey's Past

BY RAYMOND J. STEIN
*Curator of Science,
New Jersey State Museum*

Museum taxidermist, Steve Garots, puts the finishing touches on the mount of the mastodon which was excavated from Liberty Township in Warren County in the winter of 1970-71.

Gigantic beasts that would dwarf our largest modern deer roamed our hills, huge winged creatures could be seen in our skies, and sea monsters that were probably larger than the most generous estimates cited in today's Loch Ness saga swam in our ancient seas and crawled on long-gone riverbanks.

We know that these creatures existed because of the records and remains they left in our sands, soils and rocks. Careful removal and preservation of

these fossilized materials—abetted by extensive research—have enabled scientists and technicians to reconstruct the skeletons of many of these creatures that existed long before the dawn of modern civilization. A number of these reconstructions are included in the paleontology exhibit in our State Museum's Hall of Natural Sciences.

This editorial look at the various forms of ancient animal life represented in the exhibit might start with turtles, cer-

tainly one of the Earth's oldest surviving reptile forms. The first turtles appeared at about the same time as the dinosaurs, but they have long outlasted those outsize relatives. Turtles are found worldwide today, with the possible exception of the Arctic and Antarctic regions.

The fossil record shows us that many ancient turtles could be described without exaggeration as "monster size." A specimen of a Giant Sea Turtle (*Archelon*) in the Yale University Mu-

seum has a head a yard long and a total length of more than 12 feet. Though no comparably large specimens have been found in New Jersey, we do have conclusive evidence that huge sea turtles inhabited the great ocean area that once covered the southern half of our state.

In 1957, the major parts of an ancient turtle shell were discovered in a greensand marl pit in Gloucester County, near Sewell. When it had been painstakingly removed, reconstructed and restored, it proved to be the most complete shell on record of the sea turtle *Peritresius ornatus*. Although this shell is only about 30 inches long, the total length of the living turtle must have been almost twice that.

The pit from which the *Peritresius ornatus* remains were recovered has also yielded associated bones of marine turtles *Adocus* and *Agomohus*, gigantic sea lizards *Mosasaurus maximum* and *Ancylocentrum hungerfordi*, the alligator *Bottosaurus* and the dinosaur *Hadrosaurus minor*. The geological formation in which these remains were found is dated as Late Cretaceous, indicating that these various species lived about 70 million years ago.

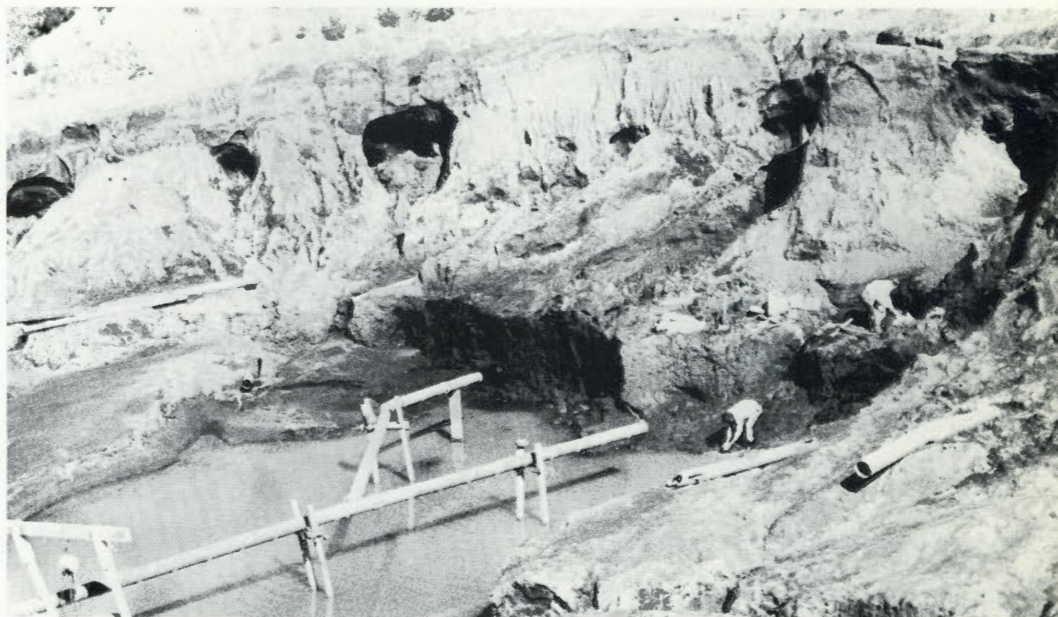
This particular site near Sewell has been producing scientifically significant fossil skeletons since 1934. By way of explanation, it is one of the most commercially important deposits known of the mineral glauconite—commonly called greensand or marl. The raw glauconite is mined hydraulically, refined by the Inversand Company (a subsidiary of Hungerford and Terry, Inc., of Clayton, N.J.) and then used as a filter catalyst in water conditioning equipment to help remove dissolved iron, manganese and hydrogen sulphide.

Fortunately for our Museum—and, ultimately, for educationally oriented people everywhere—Churchill Hungerford, Jr., president of Hungerford and Terry, has a deep and abiding interest in paleontology. Consequently, he has cooperated with the Museum over and over again in recovering important fossil finds from his company's property. His generosity has provided paleontologists with a number of symbolic keys to open doors of knowledge that might otherwise have remained closed forever.

In 1961 the Inversand mining hoses exposed the head and the tail section of a 20-foot crocodile; later that same year it was a 30-foot sea lizard known as *Mosasaurus maximus*. In 1970 the



One of the most fearsome creatures to swim in our ancient seas was *Mosasaurus maximus*. The skull and jaws of this marine reptile are almost four feet long and contain some three inch long teeth which identify it as an efficient predator.



Museum workers uncovering seventy million year old fossils from a greensand marl pit in southern New Jersey.

famed site provided the Museum with more fossils of Cretaceous crocodiles and turtles plus a significant variety of shark and fish remains.

Today this work continues on a regular basis with David Parris, assistant curator of science and a highly qualified paleontologist, acting as chief architect for the Museum's research and exhibition efforts. Once a week, sometimes more often, he visits the Inversand mine to extract specimens from the productive greensand and to appraise the strata being worked for possibility of future major discoveries. Though the Museum's Operation Inversand is aimed primarily at reconstruction of large creatures from the prehistoric past, it's worthy of note that last year we recovered more than 2,000 invertebrate fossils from the site.

If the foregoing presents a simplistic mental picture of a crew of men hosing

great chunks of bone out of the ground, tossing them into a truck and hauling them back to the Museum to be assembled like a huge almost complete jigsaw puzzle—please look again.

In reality, it is a rare occurrence when a bone is recovered intact. Some are broken into several pieces; others are badly fragmented. What's more, most of them are extremely fragile—so fragile that they cannot even be picked up by hand. When a bone is exposed, it will be shattered hopelessly if the high pressure jet of water used in the mining operation isn't diverted immediately.

To recover such fragile fossils, it is necessary to dig a trench around them with a trowel or similar implement. A small bone or segment can then be undercut and lifted gently with the pillow of marl on which it rests, but a large bone or mixed pile of bones must be

(Continued on page 28)

Trapping *City Style*

BY STEVE TOTH

The sportsmen of New Jersey have been affected by the *great urban sprawl* to a greater degree than any other group. Gone are the days of backyard hunting and fishing in the majority of our northeastern counties. Where open land is still available many towns have passed ordinances prohibiting the discharge of firearms within their boundaries.

The questions arises as to where and how the young sportsman can satisfy his yearning to indulge in some form of outdoor recreation. This is especially true in the modern urbanized areas which spread over the landscape.

Although many areas of upland habitat have been destroyed by development, fortunately many areas of marsh and wetlands as well as creeks and ponds have not completely disappeared.

The young sportsman has suddenly become aware that he can still practice the traditional sport of trapping in the marsh areas of our state. The returns may not be as rewarding from the financial point of view, but at least he can match his skills against the furbearers. In addition, these small islands of unspoiled areas offer solitude and the possibility of viewing nature in all its aspects.

Areas of this type can still be found in Essex, Hudson, Bergen, Union and Middlesex Counties. The young sportsman should bear in mind that in these counties the use of steel leg-hold traps are prohibited. In addition, the young trapper must purchase a license to trap and be 12 years old. All "sets" must be made below the waterlevel and all traps must be labeled as to name, residence and county. All traps must be checked every 24 hours. Additional information concerning trapping regulations can be obtained from the New Jersey Division of Fish, Game and Shellfisheries.

young trapper

checking traps

HARRY GROSCH

The location of some potential areas for trapping in the various counties include:

- Bergen** —Hackensack Meadowlands
- Hudson** —Kearny Meadows
- Union** —Upper reaches of the Rahway and Elizabeth Rivers
- Essex** —Newark Meadows, Passaic River and tributaries
- Middlesex** —Marsh lands along the Raritan River, Mill Brook, Lawrence Brook and other small streams.

The principal species found in these areas will be the muskrat, along with an occasional mink; but realistically, the young urban trapper should confine his efforts almost entirely to muskrats. The location of suitable trapping areas should be determined by scouting the areas in late summer and early fall prior to the opening of the season. Most small creeks, rivers and ponds contain muskrats and in this writer's experience, no creek or ditch no matter how small should be overlooked. Even in developed areas, the prolific muskrat will be found in creeks and ponds, where they may become a nuisance to landowners. Contacts with these people, can in many instances provide additional trapping opportunities.

Indications of muskrat populations are easily recognized. These signs include: muskrat houses in ponds and marshes, bank dens, feed beds, scat and footprints. Areas which show a high degree of activity will reward the trapper with the greater catches.

Equipment necessary for trapping is minimal. The young trapper should have at least 12 Conibear traps (small), wooden stakes, and rubber boots. Additional equipment can be added if necessary.

The selling of pelts or trapped muskrats can be done in two ways. If the rats are skinned out, fleshed and dried on stretchers, the pelts may be sold to commercial buyers who advertise in sport magazines or to local buyers. Whole rats can also be sold, at a reduced rate, to the local fur buyers who will skin and process the pelts.

The young trapper should be aware of the following facts: (1) Do not disturb traps other than your own, (2) Place your traps so they will be unnoticed by others, (3) If traps are stolen, report this fact to the local Conservation officer, (4) Traps must be tended daily irrespective of the weather and (5) Respect property rights of others and be sure to obtain permission to trap from the land owner.

It is the belief of the writer, that these unharvested islands of furbearers in the urban areas should be trapped. The skills and knowledge of the outdoors gained by the experiences of trapping will be of great value to the individual and will acquaint him with a little of our past heritage. In addition furbearers along with other wildlife constitute a renewable resource and where managed properly, will provide trappers with annual sustained harvests. □

DON SMITH





Charlotte Hibbetts throws off a quick shot at a fast departing bunny.

Cottontail!

by Russell Wilson

Most articles written about rabbit hunting are usually centered around hunting with hounds. That's fun and I like it as much as anyone, but it's not the only way.

New Jersey is one of the most densely populated states in the country and many places to hunt are small and often times surrounded by roads. This just isn't the place for hunting with hounds. You lose too many dogs when they chase a bunny out across traffic or when they are picked up by someone that sees them running loose. Hunters that used dogs in the past have now changed to jump shooting.

As any hunter knows, cottontails can really move out when jumped from the nest. This is snap shooting at its finest requiring quick reflexes and calm nerves. Some bunnies just won't move until you just about step on them. Then they are off and gone like a shot and usually through the thickest cover they can find. If you are lucky you might get a clear shot but most times all you see is where they went and just that quick.

Those of us that jump hunt for rabbits have learned to cope with the cunning little rascals. Not having hounds to flush the rabbits out, we have to do it ourselves. Since you won't find many bunnies out in the open, most of the time you have to work the heavy cover in order to see any game.

Some type of protective clothing is needed to ward off the briars. I like the new nylon pants that have leather facing down the fronts. They are reasonably light but still keep the briars from making mincemeat out of your legs. I also wear a coat of the same material to protect my arms and chest. A pair of good hunting gloves will take care of your hands.

Next item you will need is a short barreled shotgun with an open choke. I use a 12-gauge pump gun with a 26-inch barrel bored improved cylinder. This type of scatter-gun is quick to the shoulder and right easy to point, and makes snap shooting a real joy. Also, the improved cylinder provides a nice pattern at the range I normally shoot. You won't get too many shots over 15 to 20 yards.

Although a lot of hunters prefer to use high brass shells for rabbit hunting, I like to use the lighter loads. Low brass shells with No. 6 shot will handle almost any shooting you will be doing.

Those of us that hunt in New Jersey are lucky. We have a long season and generous bag limits. Starting early in November and stretching through the first Saturday in February old Peter Rabbit is fair game. Actually there are two seasons: the first half of November and December when the weather is usually mild (and cottontails are found in the open fields and along hedgrows), and late December and January when

cold weather is the rule.

During early November, cover is heavy and a good percentage of rabbits jumped won't even offer a shot. At these times we like to hunt open fields and low growing briar patches. When the weather is mild, the rabbits won't hole up so chances of seeing a lot of game are good.

Almost any edge that surrounds an open field offers at least a few chances at the bunnies. If there are some honeysuckle vines scattered throughout the areas, so much the better. Cottontails seem to show a preference for a honeysuckle patch, especially when it is near a group of trees.

Low growing blackberry patches also provide good hiding places early in the season. Some of our best days have been in areas that had a lot of these briar patches throughout them. Any patch of cover along the edge of a stream is always worth investigating early in the season. In fact, almost any swampy area is sure to harbor a few critters early in the season.

Never overlook the edges around a soybean field either. Last season we had one of our best days hunting the edges around soybean fields in the Hightstown-Princeton area. If the soybeans haven't been harvested, keep out or you will see a fresh crop of "NO HUNTING" the next time you plan on hunting the area.

One of the greatest places we've ever found for early season hunting was an old overgrown apple orchard out in Colts Neck. My father and I hit this spot one opening day and it seemed like there was a rabbit under every tree. Every trip we made to this spot through November and December produced great hunting, but once the weather turned cold the bunnies took to groundhog holes and the hunting ended.

But once cold weather sets in, tactics for cottontails change. No longer will you have to rush to get to the fields early. Sleep late and wait for the sun. The bunnies aren't anymore eager than you to get out and freeze. Don't look in the fields because any that are there will be holed up. This also applies to open area briar patches. Now most of your hunting will be in wooded areas or extremely heavy green briar patches. This is where the hard work of hunting starts, but like anything else success often comes with hard work.

The hardest place to hunt is a big patch of green briars or "cat briars" as some call them because they really chew your clothing up. But, when snow falls and the temperature drops this is the type of cover rabbits seek. Dogs won't move 'em and walking around the edges won't either. You have to get in there and beat the briars to move the bunnies. That's the reason for the heavy pants and coat. Anything else just won't protect you from the briars. This is the toughest kind of cover to move game but if you want them you have to go and get them. There just isn't any easy way.

As the sun rises higher each day toward noon another place we often have good action is along creek banks

or sloughs. The bunnies come out to warm up in the sun and are usually found nesting along the slopes. Again it's tough hunting but well worth the effort. We try to have one person down low and the other up high on the bank. Most cottontail jumped will run ahead and offer one of us a shot.

Log piles are always deserted early in the season but as the weather turns colder the bunnies move into these places. If you hunt an area where there are foxes you will notice they always head for a log pile. They know where their bread is buttered even if they can't get the rabbits out.

We have never enjoyed good hunting in forest areas but there are some spots in Jackson Township that offer good late season hunting. Most of these places are near farms and as the weather gets bad, the bunnies move off into the woods.

There is a certain magic about hunting in snow. Every season I wait for the first snow and there is no power that can keep me from the woods and fields after the first winter snow. To a person not interested in nature it may not mean much but to someone who has lived around wildlife nothing can match the first snow. You may not bag a lot of game but the feeling you get from being in the woods after a new snow makes it worthwhile just being there. The silence is overwhelming and everything seems clean and pure. Try it and enjoy that special feeling. □

Photos supplied by the author



**Author picks up rabbit from cover
along edge of overgrown field.**



Lumber stacked in this fashion allows air to circulate between the boards and keeps the material dry. This helps prevent many grade defects which would decrease product value.

Wood is an article with which we are all familiar. It would be difficult to get through a day without benefiting from the use of wood. After serving as shade to man, food and cover for wildlife and providing quality water, the tree can be harvested and processed into an endless variety of products. In its natural form it provides fuel, posts and pilings. Processed through a sawmill and manufacturing plant, it becomes a home, favorite toy, musical instrument, or the package they came in. The books we read, the clothes we wear and the flavor in vanilla ice cream . . . are all derived from wood.

Wood can also be a pile of debris for which one must pay to have removed. What can be done with the

RECYCLING

BY GEORGE PIERSON AND EDWARD A. LEMPICKI

material left over during the manufacture of a ladder, or the prunings from a shade tree? The sources of wood residues are many and varied. They include: logging residues left after timber harvest, worn out household items, broken pallets and shipping crates, harbor debris including pilings, and materials from land clearing.

Many of these residues retain most of the characteristics of wood that made them valuable in the first place. Why couldn't this material be recycled? The benefits of such recycling are obvious. In an effort to implement such a program, the New Jersey Bureau of Forestry has started a new project in cooperation with the U.S. Forest Service. Its goal is to recover a wood volume equivalent to two million board feet and 20,000 cords from wood residues presently being wasted.

Wood residues can be divided into two main categories. Those that include the tree in its natural form such as those residues resulting from street tree removal, land clearing or logging and those that origi-



Bruce Lietka of Chipar-Land Clearing in New Egypt, operates a Morbark Chiparvestor in a roadway clearing operation. Total trees are being converted into wood chips in a matter of minutes. The chips produced are utilized for mulch in landscaping, raw material for paper pulp or a medium for soil stabilization on steep slopes.



Tons of wood shavings are being loaded by Henry Foechner of American Sawdust Company at the United Stairs Corporation in Keyport. These shavings will be further processed and sold for use as animal bedding and absorbent sweeping compounds.

WOOD

wood residues -
an overlooked
resource

nate when wood in a processed form has outlived its usefulness such as dunnage, broken pallets, debris from building demolition or material left over during the manufacturing process. When determining a potential use for woody materials, it is necessary to know the source, species, type, quality and quantity of the residue in question. Also, the specifications of the user should be known before any equipment necessary for preliminary processing is acquired. The use of wood residue depends to a great extent on the quality of the residue itself. Residues that are free of foreign material, uniform in size and available in quantity on a sustained basis have a much greater potential for use than a mixture of miscellaneous residues. Because of these variables each residue and potential user must be considered separately.

One of the first steps undertaken in the bureau's project was to find uses for materials originating from land clearing. During the 16-year period from 1955 to 1971, over 120 million cubic feet of wood originating



East Indian Rosewood logs shown stacked at J. H. Monteath Company in South Amboy. This wood is used mainly as veneer for many decorative wood products, including furniture and cabinets.

from land clearing was destroyed. Although not in the proper form, this volume is equivalent to the amount of wood found in 650 average houses. This land clearing was during a period when open burning was an accepted method of disposal so most of this material was burned. Since January 1, 1973, when open burning was prohibited, the most common method of disposal has been landfill.

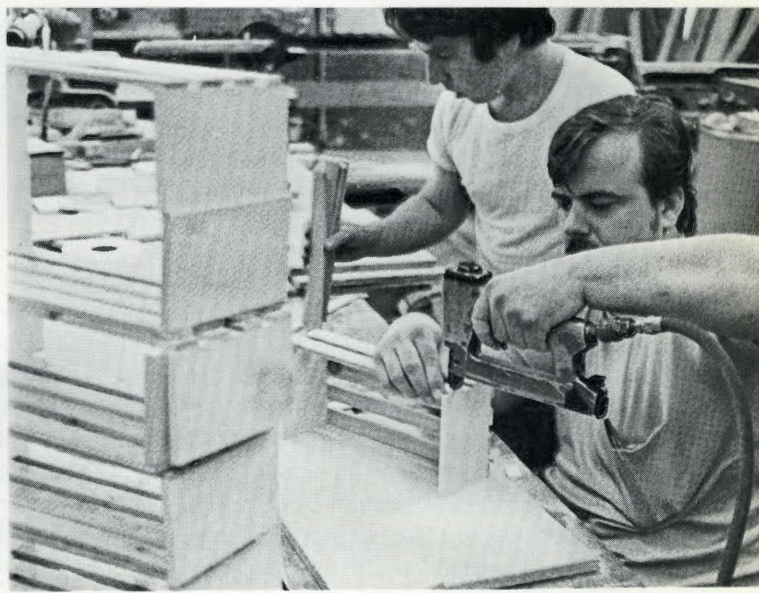
When land clearing residues are of sufficient size and quality, they can be processed through New Jersey's 60 sawmills or veneer plants. Smaller sized and poorer quality trees are used for pulpwood and manufactured into roofing shingles or used as a



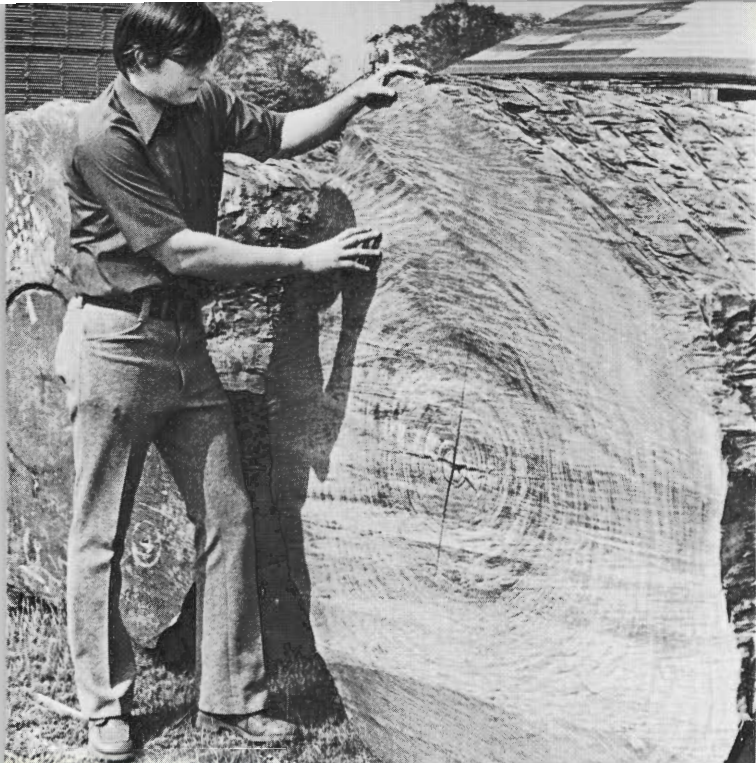
Photos by Harry Grosch



Shoe heels by the thousands are produced daily at Continental Wood Products Company in Old Bridge. A firm believer in recycling wood waste, owner Don Lipp sells his shavings to a wood residue company, and his waste wood to another wood-working company.



David Rubin and Ed Watkins, workers at The Sheltered Workshop in Lakewood, assemble decorative crates made from recycled wood waste. This company is geared to using waste wood as raw material in producing many useful wood products.



Ed Lempicki, Project Forester, inspects Bubinga logs from Africa shipped to J. H. Monteath Company, South Amboy. This decorative wood is used for quality furniture and paneling, primarily in the form of veneer.

reductant in smelting ore. With the energy crisis, there is an increasing market for firewood. Also, there is a growing demand for wood chips to be used as mulch. Wood chips originating from tree maintenance have been available and used for mulch for many years. However, the need for more efficient land clearing has caused several companies to acquire total tree chippers. These machines can convert a tree up to 18" in diameter into chips in about a minute. Total tree chips, although they include all portions of the tree above the stump, are of a better quality than chips produced by the more common "tree maintenance" type chipping machine. The quality of these chips approaches the quality of chips produced at sawmills where slabwood with bark removed is the raw material.

The New Jersey Department of Transportation is one of the larger users of wood chips for mulch in the State. Most of the plantings on State highway right-of-ways require wood chip mulch. Because of the high standards of the Bureau of Landscape and the poor quality of chips previously available in New Jersey, most of the mulch for their plantings was being supplied from out-of-state. A meeting was arranged with Bureau of Landscape personnel and chip samples were shown. It was determined that total tree chips, otherwise meeting the standards, would be acceptable. Letters were sent to the contractors supplying planting stock and wood chips for the Department of Transportation and to the New Jersey producers of wood chips. Presently, New Jersey producers are providing wood chips for this \$200,000 market.



Vincent Bivona (left) of Continental Wood Products, Old Bridge, and George H. Pierson, Project Supervisor, Bureau of Forestry, inspect wood shavings and edgings from the manufacture of shoe heels. Wood waste comes in many sizes and shapes.

Another large source of residues is New Jersey's wood manufacturing industry. There are approximately 1,500 wood manufacturing companies in New Jersey, not including lumber yards. These companies make cabinets, pallets, furniture, boats, pencils, molding, sporting goods, pipe organs, etc., and are considered secondary wood processors since they further refine dimensional wood material into a manufactured wood product. The waste that they produce is astounding; approximately 20 million cubic feet annually. A high percentage of this material ends up in our sanitary landfills and at a substantial cost to the producer. An average company for example employing 25 people might spend in the neighborhood of six to ten thousand dollars per year for the disposal of wood waste. What is really ironic is the fact that quite often this material is saleable. In other words — instead of spending money to dispose of it, companies could sell it at a profit.

Sawdust for instance, has a variety of uses. Sweeping compounds, animal bedding, absorbent compounds, cleaning compounds, metal polishing, and plastic and rubber processing are just a few uses. Not all sawdust is saleable, however, there are many particulars involved. The use and value of sawdust is dictated by species, grade and mesh, moisture content and quantity. One of the things that the Bureau of Forestry is attempting to do is to catalog these sources of wood residue and to locate markets suitable for the particular material.

There are companies established in our State whose business is the processing and marketing of wood



Larry Feldman, Director of The Sheltered Workshop, eases truck out of driveway.

residues. These companies pick up, store, refine, package and deliver sawdust, shavings, chips and other forms of wood residues.

The average residue company we have been in contact with in New Jersey handles about 8,000 tons of wood residue material per year. On a cubic yard basis that is roughly 32,000 cubic yards of material or enough residue to fill 400 of those big tractor trailers you see on the highway. Since our project started we have been working with seven of these residue companies.

About a year ago questionnaires were mailed to industries that were involved in the production of wood products. The questionnaires returned have provided a base for contacting companies with residue problems. Since January 1975 markets have been found for over \$190,000 worth of wood residues, with additional savings resulting from the elimination of disposal costs.

We came in contact with a company that uses over three million board feet of wood annually and generates approximately 1,600 cubic yards of wood residue in the form of sawdust and shavings. Our efforts have helped to create an almost complete utilization of this waste material. In fact, a 1,400 cubic yard pile of shavings and sawdust which had been on company property for years is now almost completely gone, largely due to our assistance. The market price for the material involved exceeds \$10,000 annually. Another company, manufacturing stairs and stair accessories, as a result of contact suggested by us, has been offered what will amount to over \$11,000 per year for their waste material. This amount of money is not going to make

or break a company in most cases, but as a conservation measure it is making better use of a natural resource and it certainly beats spending money to have material taken away to landfills. At a time when economizing is a way of life, it just makes good sense to use what you have to its fullest extent and that includes what is loosely termed "waste".

There is room for utilization increases not only in sawdust and shavings, but also in the kinds of material called cutoffs or fallofs in the wood manufacturing business. This kind of material is a result of sizing and shaping dimensional material. They are the odd pieces of wood that as a result of the milling process cannot be used by the particular company generating it. This kind of material almost always goes out to the dumps.

Through our visits we have been finding out that quite often one company's waste material is suitable for use as another company's raw material. For instance, a wooden shoe heel manufacturer we visited had been selling his sawdust and shavings to a wood residue dealer. However, the company was having difficulty with some of their cutoffs. We were able to direct the company to another business involved in the production of wooden crates for shipping mattress springs. Some of this dimensional material which was once waste is now being recycled and used as a raw material for another product. The situation is of mutual benefit since the shoe heel manufacturer does not have to pay to have material carted away to a landfill, and at the same time, the crate manufacturer is getting raw material for his product at a reduced cost. This kind of possibility has shown itself time and time again in recent months.

As an example, a company located in Lakewood uses a high percentage of dimensional waste materials in the production of their products. It employs mentally and physically handicapped people and produces various wood products such as bird houses, surveyor stakes, flower pot holders and home decoration products out of waste wood. We have been able to direct this company to several sources of supply for raw materials which resulted in a benefit to both the residue producer and the user.

Since its start in February of this year, the Bureau of Forestry's wood residue utilization project has been well received by the firms involved. The potential for recovery of this resource continues to increase. Research by the U.S. Forest Service-Forest Products Laboratory and private industry continue to find new uses for residues.

National demand for wood products have increased 70% in the last three decades. Use of pulp products (made from wood chips) climbed 235%. Wood material that has presented a disposal problem in the past currently has high economic value. With society's increasing requirements for products and energy, wood residues may be in as high demand in New Jersey as they presently are in Europe. □



The Peregrine Falcon Returns to New Jersey

BY PETE McLAIN & TEDDY MORITZ
New Jersey Endangered and Nongame Species Project

PHOTOS BY PETE McLAIN

Peregrine falcons, the first in over 20 years fledged in New Jersey are now free flying and probably on their way to the Gulf States or South America where they will spend the winter months. Hopefully, these birds will help serve as a nucleus for a future breeding population of the endangered peregrine falcon in New Jersey.

This noble falcon, prized by the English royalty for falconry, once nested in New Jersey and in most states east of the Mississippi River. During the past 15 years, there have been no records of peregrines nesting east of the Mississippi. Populations in the Rocky Mountains and along the Pacific Coast are at an all time low. Presently, the peregrine is on the federal and also New Jersey's endangered species list and without some type of positive management program this falcon may soon become extinct as a nesting species in the United States.

The peregrine falcon is about 13 to 19 inches long with a wing span up to 36 inches. The sharply pointed wings, square tail and broad shoulders, in addition to the characteristic black sideburns, distinguishes this magnificent falcon. It once nested on the Palisades on the Hudson River and other rocky areas of New Jersey.

The decline of the peregrine began in the 1950's with the indiscriminate use of DDT and Dieldrin as

pesticides. These persistent pesticides occurred in the falcon's natural prey and were eventually stored in the falcon's fatty tissue. Within a few years, researchers detected infertile eggs and also eggshell thinning which scientific investigation revealed was due to DDT, its derivative DDE, and the deadly Dieldrin. Man had literally poisoned the peregrine falcon along with the bald eagle and several other birds by contaminating the environment with deadly pesticides.

Recognizing the immediate need to try to reestablish the peregrine falcon in New Jersey, the State Division of Fish, Game and Shellfisheries through its Endangered and Nongame Species Project entered into a contract with Dr. Thomas Cade of Cornell University and the "Peregrine Fund" which Dr. Cade was instrumental in establishing in 1970.

The ambitious goal of the "Peregrine Fund" is to develop a captive breeding program for peregrine falcons which will produce sufficient numbers of young birds to allow for a reintroduction of captive produced peregrines into new and old nesting sites in the United States. This program started in 1970 when a few pairs of young falcons were taken from Alaska and with peregrines donated by falconers. In early June, 1975, Dr. Cade and his researchers had produced a total of 25 young peregrines from their 11



Constructing platform and peregrine rearing box



Banding young peregrine falcon

sexually mature birds.

In mid-June, Dr. Cade called the Division's Endangered Species Office in Trenton and asked if New Jersey might quickly erect the facilities and establish a study area for three young peregrines which had to be placed by early July. These were part of the 16 young peregrines which were to be experimentally stocked in Maryland, Massachusetts, and New York. This would be the first major effort in history to reintroduce peregrine falcons back into the wild.

Within a few days, Dr. Stanley Temple of the "Peregrine Fund" visited the New Jersey coastal marshes with project personnel to help select a site where a 35-foot high tower with a rearing box could be erected to house and rear the three young birds which had to be delivered within a weeks time.

The area selected was on a lonely tidal marsh on Barnegat Bay where housing facilities were available for the two man research team to watch and follow the falcons 24 hours a day. The area had to be protected from public interference and have an adequate supply of native prey species available when the falcons took wing.

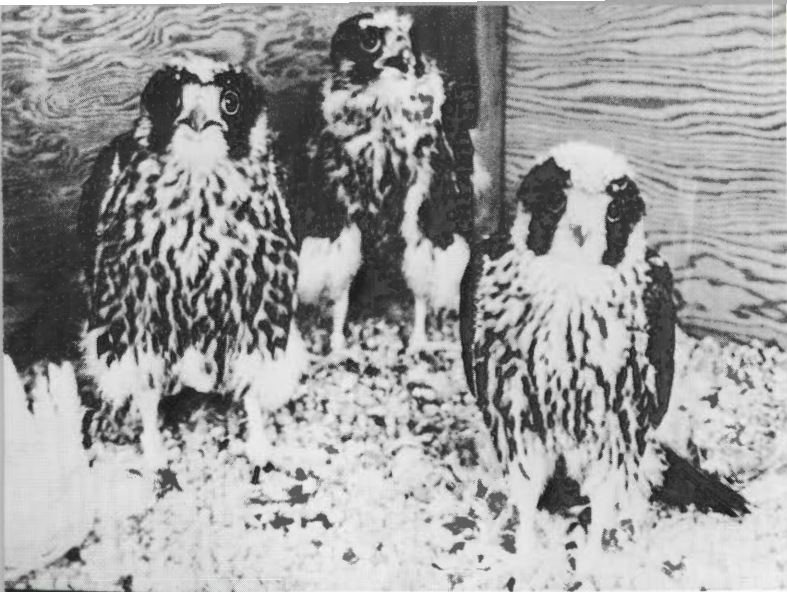
Project personnel enlisted the wholehearted cooperation of the Ocean County Mosquito Control Commission and several members of the Division's Bureau of Wildlife Management. Within three days,

four 40-foot telephone poles, a 12-square section of barn floor and the guide wire, lightning rods, gravel and other equipment was transported to the marsh by the mosquito commission's amphibious crane. At the same time, the division's maintenance crew was constructing the 8 foot by 4 foot plywood rearing box.

Once the equipment was assembled, the telephone poles were set, platform installed and the rearing box was lifted to the top of the 35-foot high tower in less than 8 hours of work. About half a ton of gravel was placed on the floor of the box and a lightning rod was erected to prevent the lightning strikes which occurred at the Aberdeen Proving Ground peregrine nest box in Maryland.

All was ready on July 3 when Dr. Temple arrived with the three young peregrines (two female and one male) which had reached three weeks of age. The birds were quickly placed in the tower rearing box and the vertically barred door was closed. The following day, Cornell researchers, Steven Sherrod and Tom Maechtle, arrived with a supply of half grown chickens, which served as the food for the young peregrine's while they were in the rearing box. Sherrod and Maechtle established a 24-hour a day vigil which lasted for the next seven weeks; from the duck hunting camp houseboat they could closely observe the tower and the young birds.





Three young peregrines in rearing box

The basis of this type of rearing program, known to falconers as "hacking" is to place flightless raptors in nests and feed them daily until they are ready to fly. Human contact with the birds is kept to the absolute minimum to prevent the birds from imprinting or becoming accustomed to humans. Therefore, no one was permitted near the falcon tower during the summer except the researchers who climbed the tower twice daily to drop a chicken into the box to feed the rapidly growing young birds.

By late July, the three young peregrines had developed their flight feathers and after banding them with U.S. Fish and Wildlife Service bands and also attaching small radio transmitters on their legs, the tower doors were opened and the birds were free to fly.

Instantly, one of the females flew from the tower circling the marsh, dropping low over the ground, and then climbing high into the sky as she tried her wings. Birds number 2 and 3 followed and within half an hour, all were perching and resting on poles around the release site.

That evening, the three birds returned to the tower to roost and for the next three weeks the falcons returned every afternoon to the peregrine tower. For the first few days after their release they were fed pigeons, but within a week the birds had learned to hunt and feed on their own and no additional supplemental feeding was necessary.

Utilizing the radio telemetry equipment the Cornell researchers followed the daily movements and feeding habits of the falcons until the battery life of the transmitters was exhausted. In early August, the three birds were trapped and a specially designed battery operated tail feather transmitter and antenna was installed at the base of the tail feathers on each bird.

By mid-August, the falcons were foraging 20 miles up and down Barnegat Bay feeding on shore birds,

blackbirds, swallows, terns and other species. They returned to the tower to roost every night until late August when one by one, they disappeared from the tower site.

Utilizing a mosquito commission helicopter and a four-wheel drive vehicle, project personnel were able to track one falcon 20 miles north of the release site. A second peregrine was located in late August and early September at the Brigantine National Wildlife Refuge about 30 miles south of the Barnegat Bay tower site.

By mid-September, telemetry and visual sighting of the peregrines failed to pinpoint any of the three birds and it was assumed that the New Jersey fledged peregrine falcons had joined the early fall peregrine migration from Canada and Greenland to the Gulf States and South America.

What will become of the three Jersey fledged peregrines is not known? We hope they will survive the fall migration and the hard life on their wintering grounds. Possibly in two or three years, when the birds are sexually mature, they will return to the Barnegat Bay falcon tower from which they fledged to nest and raise their own young.

Because of the success of the 1975 peregrine falcon introduction in New Jersey, New York, Massachusetts and Maryland, Dr. Cade hopes to expand the program in 1976. Young peregrines will again be introduced into the falcon tower on Barnegat Bay and additional New Jersey reintroduction sites now being evaluated. Dr. Cade is quick to point out that it will take a sizable introduction of numbers of young peregrines into the wild before an adequate breeding stock can be established. The normal mortality rate for wild young peregrine falcons is about 60 percent annually.

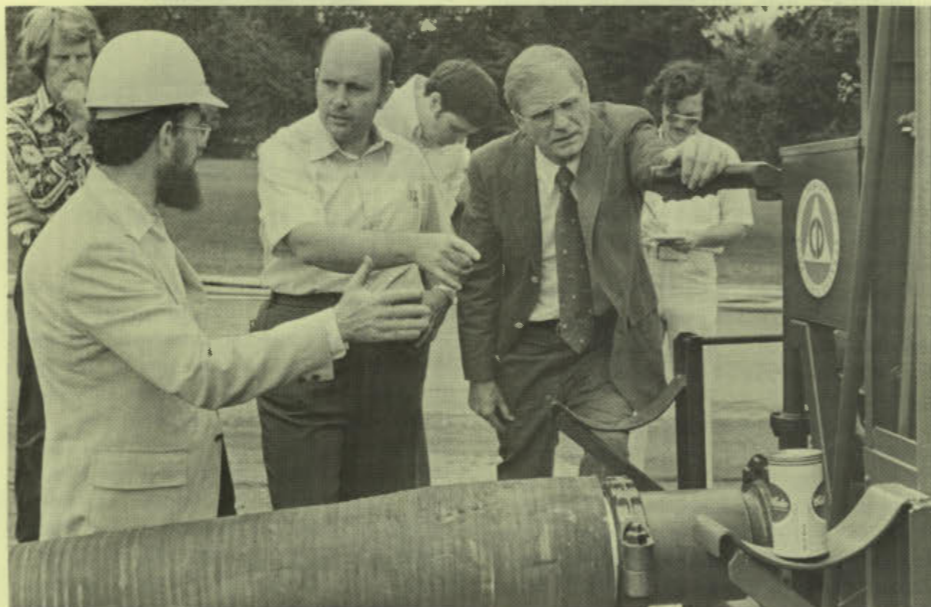
One of the most significant aspects of the 1975 New Jersey peregrine program is that a state fish and game agency, through a functioning endangered species project, participated with universities and private conservation organizations to finance and actively engage in endangered and nongame species management.

The Cornell "Peregrine Fund" working in co-operation with New Jersey, the Massachusetts Audubon Society, the U.S. Army Material Command and private conservation organizations could well be responsible for the major breakthrough in managing endangered species. The time has arrived when we are now doing more than lamenting and simply talking about endangered species. This action program may result in the peregrine falcon being removed from the endangered species list before it reaches the extinct list! □



Environmental News

PHOTOS BY JOE KLEIM



BARDIN, HOFMAN AND BYRNE ON THE SCENE. Dirck Hofman, (center), who headed the pipeline operation, explains its intricacies to Environmental Commissioner David J. Bardin (left) and Governor Brendan Byrne (right). Hofman is pointing to one of the 14 pumps installed along Princeton Pike (seven on each of the twin pipelines) to bring water from Princeton into the Trenton water service area, a distance of 2.5 miles.

Coping with Trenton's Water Disaster

By Edi Joseph and Cliff Ross

Looking back on the "Summer of '75" will evoke feelings of both pain and pride for the people in the Trenton area (Mercer County). Pain, because an unprecedented series of disasters—including the worst flood since 1955 and then, strangely, a "No Water" crisis—caused discomfort and hardship. Pride, because of the way governmental agencies (state, county, and local), private citizens, and service organizations all joined in to overcome the adversities. Cooperation combined with "know-how" was the key to success.

The story which follows is of the "Water Disaster" and though by no means comprehensive, it will show how a calamity (so rare that radio, television and newspapers across the country gave day-by-day coverage of Trenton's plight) was efficiently dealt with and reversed, with no serious harm to anyone involved, resident or worker.

The beginning

The disaster which eventually left over 200,000 Trenton area residents with little or no water, began on Saturday, August 30 (Labor Day weekend), when a valve didn't close at Trenton's filtration plant located on the banks of the Delaware River. More than a million gallons of water poured into the plant to literally drown the premises. The main pumps were under water and would have to

be hauled out, dismantled, repaired, baked dry and reinstalled before the filtration plant could start operating again. By Wednesday afternoon (September 3), the city's 110-million gallon reservoir was virtually dry. As the Trenton filtration plant's water service area includes the townships of Ewing, Hamilton and Lawrence as well as the city, the magnitude of the emergency became apparent.

(Continued on page 16C)

Bicentennial Project

LIBERTY PARK UPDATE

The development of Liberty State Park, which will be New Jersey's largest urban outdoor recreation area and a prime bicentennial project, has come closer to fruition as the result of recent actions taken by DEP. A recap of those actions is given below.

- In late August Texas Instruments, Inc., Dallas and New York, was chosen to conduct an ecological assessment of the biological resources (fish, animals, plantlife) on a near the site of the proposed park site, along the Hudson County waterfront near Jersey City. The one-year study will provide DEP with a detailed inventory of the living things on the land and in the water in the vicinity of the park. The consultants will also assess the short-term effects of construction on these organisms and also how alternate park designs might improve the biological resources in the area. The consultants' work will not slow down the current planning and design; it may forestall potential problems later on.

- Tests conducted at the U.S. Army Waterways Experiment Station at Vicksburg, Mississippi during August and September, indicated that the Liberty Park design would not cause adverse velocity changes in the vicinities of Ellis and Liberty Islands. The tests also show that the retention of a wildlife habitat in the southern area will be serviced by the tidal flow. (The entire New York Harbor was reproduced to scale on a model of mortar and clay at the Vicksburg facility. Tides and currents were reproduced by means of generators.)

- The Central Jersey Railroad Terminal on the northern boundary of the park (adjacent to Johnston Avenue) was placed on the State Register of Historic Places on September 11 and listed on the National Register of Historic Places on September 23. Such designation helps to protect historic properties by requiring project reviews and consideration of alternatives for any proposed governmental project that might adversely affect the site. National designation also makes the property eligible for matching restoration/preservation grants from the National Park Service, Department of the Interior. The terminal was an important American transportation and

(Continued on page 16D)



GRAHAM HEADS MARINE SERVICES

Donald T. Graham, 37, of Brick Town, was sworn in as director of DEP's Division of Marine Services on September 22. Graham had been serving as acting director since April 1, 1974. His elevation to director follows 13 years of state service. He was supervisor of permits and licenses in the division he now heads from 1971 to 1974. Previously, he was in charge of inspections and investigation of riparian complaints in the old Bureau of Navigation and an inspector of coastal protection facilities in that bureau. □

Under new tax exemption law:

8,800 ACRES OF LAND OPENED TO PUBLIC USE

More than 8,800 acres of open space land in New Jersey owned by nonprofit organizations have been certified eligible for local property tax exemption. These lands are now available to the public for recreation and conservation purposes.

Environmental Commissioner Bardin said, "This project along with the Green Acres land acquisition programs, will help decrease the statewide deficit of 185,000 acres of public recreation lands as described in the 1974 Statewide Comprehensive Outdoor Recreation Plan."

The certifications announced by Commissioner Bardin on September 18 are the first granted under the Tax Exemption Law (NJSA 54:4-3.63 et seq.). This law permits landowning nonprofit organizations who choose to open their lands to the public for recreation and conservation purposes to apply to the commissioner for tax exemption. (Interested parties should write to DEP, Green Acres Tax Exemption Program, Box 1390, Trenton 08625, for further information.)

Bardin certified applications from 23 organizations in 37 municipalities, resulting in a three-year exemption from property taxes estimated at \$180,000 per year. After three years, organizations may apply for recertification provided no change is made in the nature of the organization, the ownership of the land, or the public access. □

First energy facility under CAFRA;

DEP CONDITIONALLY APPROVES HOPE CREEK NUCLEAR PROJECT

Acting under the authority of the state's Coastal Area Facility Review Act (CAFRA), Environmental Protection Commissioner David J. Bardin on September 3 signed a permit approving with conditions the construction by Public Service Electric and Gas Company (PSE&G) of a two-unit nuclear power plant to be located in Lower Alloways Creek Township, Salem County.

Known as the Hope Creek Station, the power plant will eventually supply over two million kilowatts of power. It is located next to another two-unit nuclear plant now under construction, known as the Salem Station. One unit of the Salem plant is scheduled to begin operation next year.

Bardin stressed that DEP's monitoring program is designed to protect area residents and agriculture by checking for any continuing radiation emission during the course of plant operation.

Artificial Island is located within the 1377-square mile coastal zone and Hope Creek is the first energy facility proposed for location within the regulated zone since the passage of CAFRA in 1973. The initial Salem station was exempted under CAFRA's "grandfather clause" because it was already under construction.

In announcing the approval, Bardin said, "New Jersey's coastal zone will of necessity be used for many purposes over the years to come. A balance must be struck among the various uses, including a recognition of the need for energy facilities."

In a report accompanying the permit, the department explained 22 requirements imposed by DEP as to the permit.

Among the conditions are:

- the development by PSE&G of a program to use this and other power plants more efficiently, and thus keep rates lower. This load-management plan (including any tariff provisions to discourage waste of electric power) will be submitted to the State Public Utilities Commission for review and approval.

- a ban on the use of plutonium-containing fuel rods, because of the very hazardous nature of plutonium and the possibility of theft.

- monitoring of fish and other aquatic life and chemical discharges to ensure no toxic effects occur in the vicinity of the plant, and reporting the results of these studies to DEP and the public.

- a requirement that PSE&G develop a plan to dismantle the station after its useful life is ended and restore the site roughly to its earlier state.

Bardin said that this approval signifies from DEP's view that construction on the facility can now begin.

According to the CAFRA law, any appeal to this decision had to be filed within 21 days. □



JOE KLEIM

PAUL H. ARBESMAN DIVISION DIRECTOR

Paul H. Arbesman, 29, of West Trenton, recently was named director of DEP's Division of Environmental Quality by Commissioner Bardin. Arbesman came to DEP from the federal Environmental Protection Agency (EPA), Region II, New York, where he served for the past five years (1970-1975). Since 1972 he had been responsible for EPA review of environmental impact statements submitted under the National Environmental Policy Act (NEPA). From 1970 to 1972 he was in charge of the air programs section of EPA covering New Jersey. Prior to joining EPA, Arbesman served as a chemical engineer with the U.S. Naval Ordnance Laboratory at White Oak, Md. and as a lieutenant with the U.S. Public Health Service.

Arbesman holds a master's degree in chemical engineering from the University of Maryland and received his bachelor's degree in the same subject from New York University. □

GOVERNOR ANNOUNCES GREEN ACRES 'FIRSTS'

The first state grants under the 1974 Green Acres Local Assistance Program—including the first grant ever for development of open space—were announced by Governor Brendan Byrne in late summer.

The first development grant, in the amount of \$177,500, went to the City of Burlington (Burlington County) for an extension of John F. Kennedy Park located south of the Burlington-Bristol Bridge. The park development will include an eight-acre lake, a bike and jogging trail, playground equipment, and courts for basketball, tennis, bocce, shuffleboard and horseshoes. The city will contribute a matching dollar amount to complete the financing of the \$355,000 project.

The first acquisition grant, in the amount of \$436,000, went to Rockaway Township (Morris County) to assist in the purchase of a 285-acre park site to be known as Lake Ames Park. The township will match the state grant to complete the \$873,600 project cost. □

Trenton's Water Disaster

JOE KLEIM



UNNAMED HEROES. The four-man work crew pictured above was so intent on getting the job done that it didn't even realize its picture was being taken. The dedication of the labor crews, who worked night and day, was largely responsible for the massive job being completed in just 48 hours.

Emergency measures

For the more than 200,000 thirsty consumers in the Trenton-Ewing-Hamilton-Lawrence area, limited water distribution was being supplemented from supplies tapped from suburbs with temporary lines of pipes and hoses. Of the four so-called "lifelines," the most noteworthy consisted of a 2.5 mile chain of hose and fire trucks (pumpers) down the Princeton Pike between Princeton hydrants and Lawrence township hydrants in front of the Union Camp building (at I-295 Highway), part of the Trenton water system. The effort involved men and trucks from over 150 fire companies (volunteer), spaced 700 feet apart and pumping at a rate of 1,000 gallons a minute from the Elizabethtown Water Company supply at the Princeton end. Rudy Fusel of the Slackwood Volunteer Fire Company (Lawrence Twp.) organized the fire pumping brigade.

In addition, from over the Delaware River in Morrisville (Pa.), water pumped into lines of fire hoses was brought over the Calhoun Street bridge; a third supply came from a chain of hoses about 500 feet long connecting the system to the Garden State Water Company in Hamilton Square, and a fourth "lifeline" connected a Bordentown pumping station to a hydrant at South Broad Street near Barclay Village. All provided essential water supplies to the water service area.

DEP given leadership role

Governor Brendan Byrne, having been apprised of the water emergency by state Director of Civil Defense Morgan Van Hise and Environmental Protection Commissioner David J. Bardin, named Bardin to lead the state's operation.

(Continued from page 16A)

A DEP team was quickly organized under the direction of Bardin and deputy DEP commissioner, Rocco D. Ricci, who also serves as acting director of Water Resources.

—Dirk Hofman, chief, Bureau of Water Control, and DEP liaison with Civil Defense, was put in charge of laying the pipelines to bring water into the Trenton area.

—John Wilford, an assistant director of Water Resources, was put in charge of the potable water operation: water sampling program to check for pollution, and finding large wells that could be used as backup water supplies.

Strategy

After an early morning meeting on September 2 in deputy commissioner Ricci's office to review the situation, Ricci, Hofman and Wilford conferred at the Trenton filtration plant and set up priorities for action. These included: bringing in emergency pumping equipment; making arrangements for Civil Defense surplus field service water purification-chlorination systems, planning emergency waterlines, to replace the volunteer fire lines from outside areas to feed water into the city system; checking out Trenton area's known major wells that support large demands (schools, colleges, heavy water-using industries) to cover any backup needs; and setting up a water system sampling operation to cover the city to keep a check on any pollution points that might be developing in the water service area.

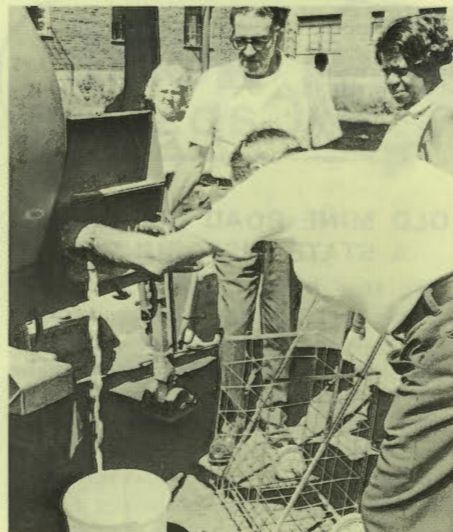
At the same time, Trenton's water department was working quickly to remove the submerged pumps which then had to be taken to a factory, dried out, repaired and tested before being installed.

The city's reservoir supply lowered very quickly and by the afternoon of September 3, for all practical purposes, was dry. Government offices, schools and industries in the water service area closed down (schools were closed for three days). Municipal, county and state Civil Defense units provided emergency water supplies for critical life-supporting institutions and placed 500-gallon water tanks at strategic supply points throughout the area. Industries with private water supplies offered it to residents, businesses brought in water from as far away as Connecticut and gave it out to anyone who needed it, private citizens and organizations helped serve at the neighborhood locations of the water tanks.

The pipeline

Ricci and Hofman designed the pipeline and decided where it should go. The number of trucks, equipment, men and supplies needed to do the job quickly and properly was more than DEP, the county and the municipalities could supply alone. Environmental Commissioner Bardin called Com-

JOE KLEIM



WONDERFUL WATER. This was a typical scene during the water crisis. The man is filling a pail with water from one of the 500-gallon tanks stationed at strategic areas throughout waterless Trenton-Ewing-Hamilton-Lawrence by Civil Defense units.

missioner Alan Sagner of the state Department of Transportation (DOT) to solicit help in the massive undertaking. DOT responded fully and immediately—manpower, equipment, trucks and supplies were available upon request. The arrangements were made by Hofman of DEP with James Schuyler heading up the DOT operation.

Hofman meanwhile had been ordering supplies of 8-inch cast iron pipe, pumps and fittings, to replace the line of emergency fire trucks between Princeton and Trenton, and to replace the temporary hose connections with Bordentown.

At 7 a.m. on Thursday, September 4, employees of DEP, DOT, and the public works department from Mercer County, Trenton, and Ewing, Hamilton and Lawrence townships, as well as men from East Windsor and Princeton were assigned to crews supervised by the staff from the Bureau of Water Control and began the around-the-clock job of laying the twin pipeline down the Princeton Pike between Princeton and Lawrence Township. The two interconnections were constructed by crews from the Elizabethtown Water Company; their expertise, assistance and advice helped smooth the operation.

By Friday afternoon (September 5) the last of the fire "pumpers" had left the scene and the semi-permanent, above-ground pipeline was fully laid and beginning to deliver water. By Saturday night, both lines were in total operation pumping in excess of four million gallons of water daily into the Trenton system.

While the above operation proceeded, the Garden State Water Company and the Bordentown Water Company replaced the fire pumpers on those emergency lines with permanent or semi-permanent pipelines.

(Continued on page 16D)

OLD MINE ROAD OFFICIALLY A STATE HISTORIC SITE

Old Mine Road in Warren and Sussex Counties, possibly the earliest commercial highway in the Eastern United States, has been placed on the State Register of Historic Places, and nominated for National Register status. Old Mine Road runs along the Delaware River from about two miles north of Tocks Island to Kingston, New York. Only the New Jersey section, extending to Port Jervis, is placed on the State Register and nominated to the National Register. Built by the mid-17th century, Old Mine Road represented an amazing feat of frontier engineering. The road was built primarily for the purpose of transporting valuable minerals—mostly copper—from Warren County to Kingston (then called Esopus) in New York. The road also provided access to forts built along the Delaware to protect early settlers. During the Revolution, Old Mine Road frequently was used as a supply route for the Continental Army. □

KEEP A LITTER BAG IN THE CAR—IT MAY SAVE YOU MONEY

A new law, Chapter 154, P.L. 1975, says: "No person shall throw or drop any bundle, object, article or debris of any nature from a vehicle whether in motion or not when such vehicle is on the highway..." The law further provides that violators "shall be subject to a fine of not less than \$25 nor more than \$200 for each offense." So, use a litter bag and the ashtray in your vehicle—the highway environs will benefit and so will your wallet. □

SUMMER YOUTH PROGRAMS A SUCCESS

Two DEP-administered summer programs for young people provided happy memories for thousands of New Jersey youngsters. The **Youth Conservation and Recreation Development Program**, in which state grants are given to youth-serving agencies throughout the state to give disadvantaged youngsters the opportunity to participate in summer recreational and cultural day outings, this year gave 168,000 children (3,300 bus trips) a summer to remember. The Youth Conservation Corps residential camp program at Stokes State Forest in Sussex County operated for seven weeks (July 13-August 29). Forty high-school-age boys and girls from 17 counties participated in the work/study program. The federal government provided 80 percent of the program's cost and the state's share was 20 percent. □

(Continued from page 16C)

WATER DISASTER

Wells and water sampling

At the same time as the above project was in progress, Wilford's men determined through DEP's Potable Water bureau's records the private or public local well sources that might be tapped and connected into Trenton's mains. The wells at Trenton State College and DOT (Ewing Twp.), Greenacres Country Club (Lawrence Twp.) and the Champale Beverage Company (Trenton) were ultimately connected.

The water sampling program, which continued until safe readings occurred regularly, was carried on by the potable water employees, under Wilford's direction. More than 470 bacteriological samples were taken from water sites selected on the basis of analysis of the city's transmission and distribution system.

When the sampling results indicated that the water was absolutely safe to drink, Commissioner Bardin lifted the "Order to boil water". This occurred at 10 a.m. on September 10; the order had been in effect for five days.

Water facilities

Work crews from DEP's Water Facilities operation, under the direction of Michael Galley, chief, installed four emergency pumping units near the filtration plant. The pumping units (capacity of each: 1,500 gallons a minute) were set up to take raw water from the Delaware River and pump it into the plant's equipment in case the low lift pumps failed when the plant went back into operation.

'Back in business'

Water continued through the pipelines until Monday evening, September 15, at which time the city's reservoir was full and the system was able to take over the job with conservation efforts still in force.

The temporary connection with the Elizabethtown Water Company system and that with the Garden State Water Company system are being replaced with permanent interconnections to be used in the future, as needed.

Water inquiry

On September 11 Governor Byrne named Environmental Commissioner Bardin to conduct an investigation into the Trenton water disaster. By September 20 Bardin had assembled a board of experts in the field of water technology to "try to develop quickly a factual record and a set of conclusions." The state wants to know the causes of the water crisis and ways to avert such problems in the future. □

'Operation Readiness' a success

FEDERAL AID FOR CLEAN WATER PROJECTS REACHES NEW HIGH

DEP processed and approved water treatment projects valued at \$318 million between March and September—surpassing by \$18 million the goal set at the "Operation Readiness" meeting held in Trenton on March 17. The approval of a \$49.5 million expansion program at the Bergen County Sewerage Authority treatment plant in late September put the "Operation Readiness" program "over the top." The federal government provides 75 percent of the funding of such projects.

In a related, but separate, matter, DEP reported that almost \$246 million in federal grants were awarded for wastewater projects in New Jersey during the fiscal year ending June 30, 1975—six times more than last year's amount of \$38 million. The grants from the federal Environmental Protection Agency (EPA) will fund 75 percent of the cost of 35 water pollution control projects. Almost \$238 million will be used for actual construction work on 18 projects, creating approximately 14,000 jobs. The remaining \$8 million will fund feasibility studies and design work for local sewerage projects.

DEP's Division of Water Resources administers the program in New Jersey. □

(Continued from page 16A)

LIBERTY PARK

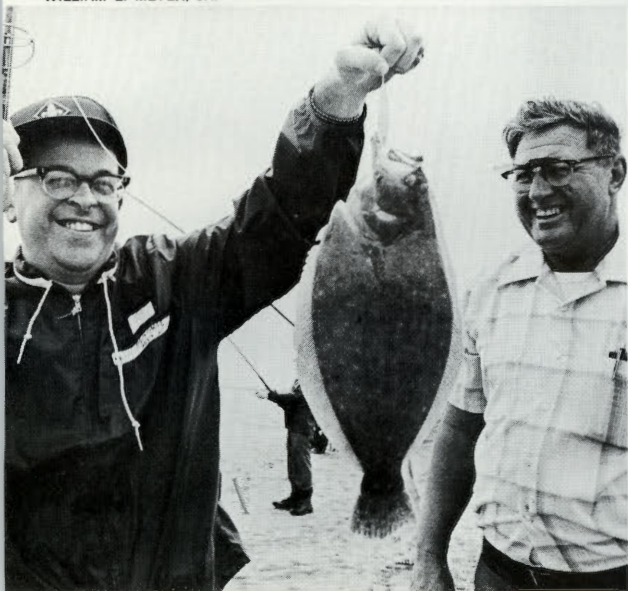
immigration center in the late 19th and early 20th centuries. Of the three major ports which received immigrants processed at Ellis Island—New York, Hoboken and Jersey City—many chose Jersey City, the closest to Ellis Island and the Statue of Liberty.

- DEP has under design by the state Department of Transportation plans for access road, parking and cleared area to provide a vista nearest the Statue of Liberty at the southern area of the park. This will provide access and parking for approximately 200 cars and 20 buses; and provide an area for visitors to enjoy the views of New York Harbor and the Statue of Liberty. Minimal landscaping will be done. Construction should begin early in 1976 and be completed in time for the nation's 200th anniversary on July 4, 1976.

- At the same time as the above project is in progress, the Army Corps of Engineers has agreed to clean out the debris in the harbor in this same location as first priority in the long-range project to cleanup New York Harbor. The corps announced in mid September that contracts for cleaning up approximately two miles of New Jersey shore-front near Ellis and Liberty Islands would go out to bid shortly after the first of the year. The work should be completed during the summer of 1976. □

National Hunting & Fishing Day 1975

WILLIAM E. MEYER, JR.



Scout Alan Perskie displays fluke he caught after receiving instructions from Whitney Myers (right) of Laurel Springs, a member of the New Jersey Beach Buggy Association. This yearly event is sponsored by the N.J. Beach Buggy Association.



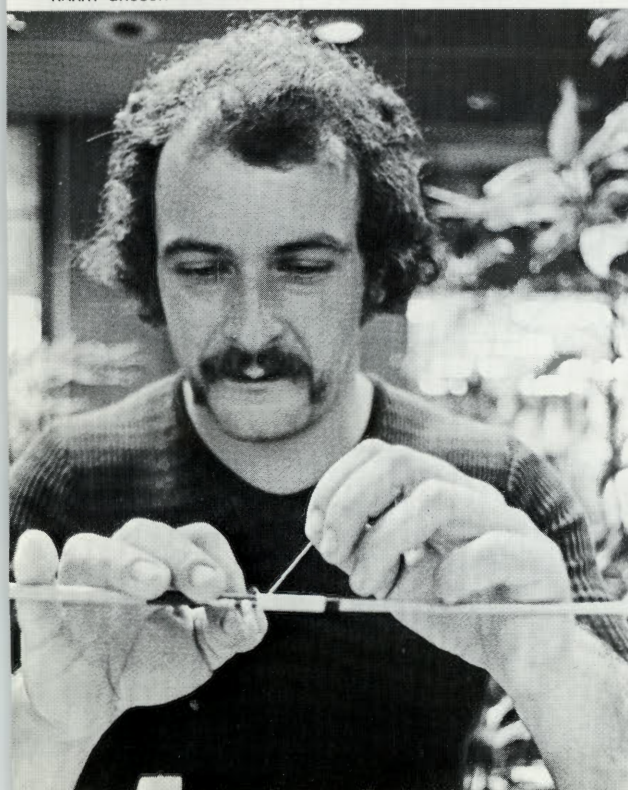
The N.J. Beach Buggy Association parade passes the lighthouse at the entrance to the City of Brigantine. The procession started the day at 9:30 a.m., and the scouts were met at the beach entrance parking lot about one hour later.



Mrs. Evelyn Procida, Collingswood, a member of the New Jersey Beach Buggy Association, serves lunch to the scouts.

AT BRIGANTINE BEACH

HARRY GROSCH



Tom Arnowitz of Wortendyke Rod & Gun Club demonstrating the art of fish-rod making.

AT WILLOWBROOK MALL



Robert Lund of N.J. Fish & Game & Shellfisheries giving lecture "Deer in New Jersey."



United Bow Hunter Jim Beach answering questions from Kathleen Noll of Fairfield.



The old redhead decoy that started the author in collecting is pictured here with a more conventional contemporary counterpart by New Jersey carver Hurley Conklin.



Contemporary carver Charles Moore of Illinois carved this handsome pair of mallards.



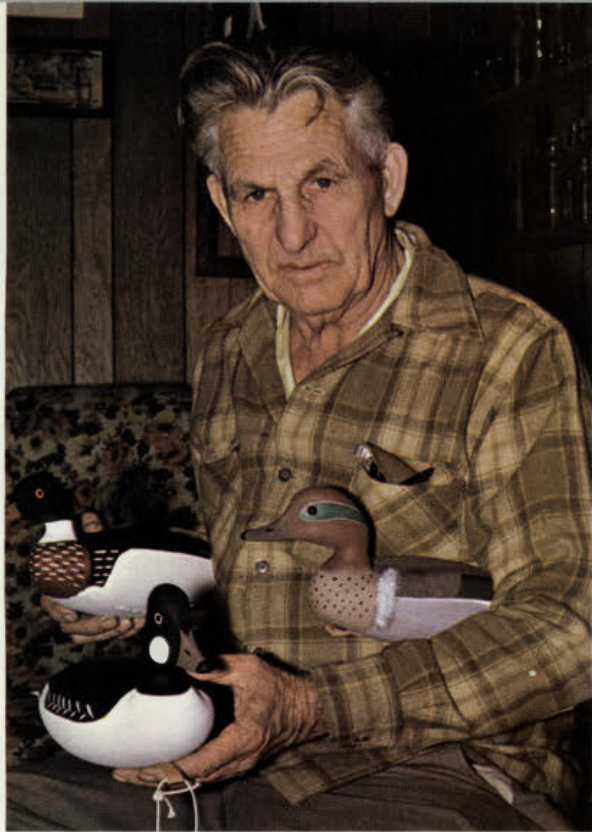
Curlew, plover, dowitcher and yellowlegs stick-up decoys forage for food along a stretch of beach. All are the work of master carver Hurley Conklin of Manahawkin.

THE COLLECTIBLE DECOY

BY
ANDREW A. GENNARO
PHOTOS BY AUTHOR

The wooden redhead decoy peered down from its perch on one of the high antique shop shelves. Many years of hard use in extreme weather conditions had nicked and checked the finish adding to the decoy's character and hinting as to its age. A closer examination disclosed several small round holes marking a hit with stray number 6 lead shot. I liked the decoy at first sight.

Perhaps the thing that attracted me most was the unusual shape of the body. It was different than any other



Hurley Conklin is often called "the king of contemporary New Jersey decoy carvers." His decoys are highly prized by collectors and bring high prices at auctions.

decoy I have ever seen by having an arched back and short, stubby tail. Faded lettering on its flat bottom indicated the redhead was made in Warkworth, Ontario, and it was probably used near the Canadian hamlet. God only knows how it found its way to New Jersey. Visioning the decoy as the base of an interesting lamp, I paid the marked price of twenty five dollars and took my prize home.

Thus, I became started in and addicted to the hobby of decoy collecting. Joel Barber, author of the book *WILD FOWL DECOYS*, which is published by Dover Publications, became interested in collecting when he found an antique merganser decoy in a Long Island, New York sailing loft. Another well known decoy collector and author, Adele Earnest, was launched into this hobby under similar circumstances when she found a long forgotten shore bird representation sticking in the sand while on a trip to Cape Cod. Mr. Barber is deceased, but I have had the opportunity to meet Adele Earnest who lives just over the New Jersey border in Rockland County, New York. She has one of the most beautiful decoy collections I have ever seen.

My redhead decoy never became a



Factory made decoys are also collectable. These mallard drakes were produced by the famous Wildfowler and Mason decoy companies. Both have been beautifully repainted.



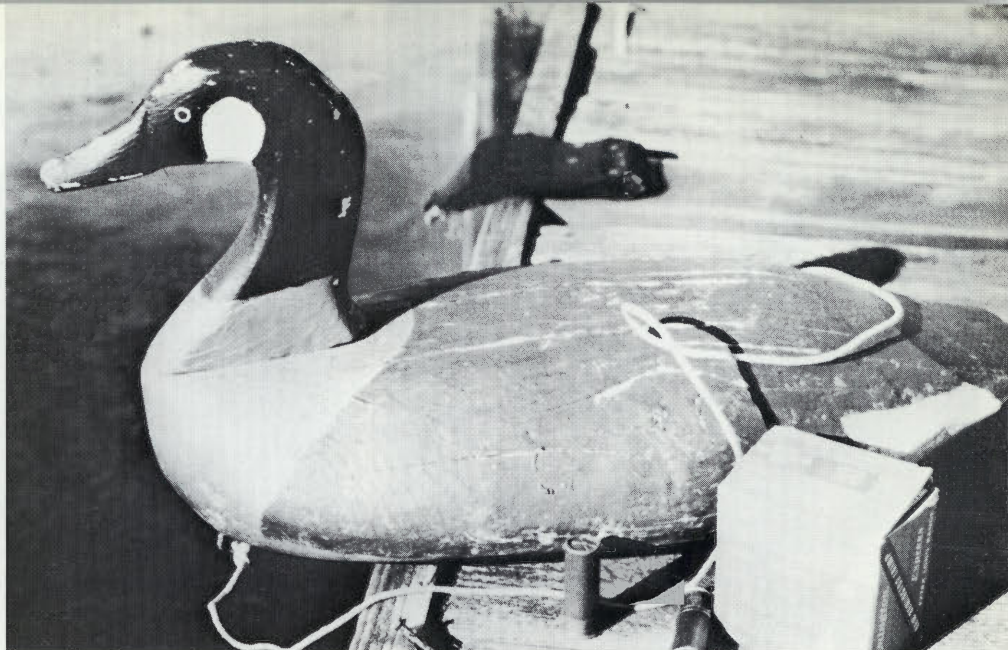
What collector wouldn't be pleased to own these decoys? Pictured here are a pintail, redhead and whistler by Hurley Conklin.



An old black duck and a broadbill decoy decorate a duck hunter's mantle piece.



This old, weathered Chesapeake Bay goose was the first of that species added to my collection. Because of the great number of relatively unknown carvers, it is often difficult to trace the origin and date of decoys made for individual use.



lamp, and now peers down from the top shelf of a bookcase in my home. It has since been joined by many other duck decoys of assorted species, some geese, and a few shore birds. Each decoy is unique in its own way and worthy of a place of honor.

Why collect decoys? I guess a waterfowl hunter collects them for the same reason a trout fisherman collects the classic writings of Halford, Skues, Walton, or other patron saints. In short, they are interesting and add new dimensions to the sport. Then, too, not everyone who collects decoys hunts ducks or geese. Many people have a nostalgic eye for handcrafted beauty and appreciate this fast disappearing example of folk art in an age of plastics and machines. Decoys are great for decorating a home, den, or office as they add charm and seldom fail to attract attention. Many collectors are even finding that decoys are a better investment than today's stock market!

New Jersey has been the home of many noteworthy decoy carvers over the years. Names like Harry Shourdes, Taylor Johnson, Tom Gaskill, Henry Grant, Lloyd Parker, Chalkly Cramer, John McAnney, Charles Black, Rhoades Truax, Mark English, and Cpt. Jess Birdsall have become legend. And these are only a few! Every carver had his own style, and this has accounted for hundreds of different looking decoys. What a person collects depends on what he likes and what he wants in the way of a collection. You may like the work of one particular

carver and specialize in his decoys. My favorite is Hurley Conklin of Manahawkin, who still turns out works of art in spite of a recent stroke. Then again, you may specialize in unusual decoys, old ones, miniatures, shore birds, representations of each waterfowl species, or examples of each carver or area. I have a little of everything.

Before embarking on a decoy collecting hobby, I suggest obtaining one or more of the following books: *THE ART OF THE DECOY* by Adele Earnest and published by Bramhall House; *AMERICAN BIRD DECOYS* by William F. Mackey Jr. and published by Dutton (Mr. Mackey, who is now deceased, lived in New Jersey); *DECOYS AT THE SHELburne MUSEUM* by David S. Webster and William Kehoe, published by the museum itself; *CHESAPEAKE BAY DECOYS* edited by R. H. Richardson and published by Crow Haven Publishers; *DECOYS OF THE ATLANTIC FLYWAY* by Dr. George Ross Starr Jr. and published by the Winchester Press. There are more books on decoys, but these cover this area, are well illustrated, and contain a wealth of information for the beginner. They will become your "bibles" giving you an idea of the many different decoys available and assisting you in their identification.

Since New Jersey is in the Atlantic flyway, many good decoys turn up in our antique shops. Antique shops and antique shows are perhaps the most convenient sources of decoys for the beginning collector. Other sources

are newspaper and antique publication ads, garage, attic, and basement sales, flea markets, other collectors, decoy shows, or the waterfowl hunters themselves. Searching for decoys is an interesting way to spend a weekend or part of a family vacation. This is one hobby where the missus can accompany her husband and have a ball looking for decoys or knickknacks of her own.

Generally speaking, decoy prices will depend on their age, condition, whether or not the paint is original, desirability, rarity, and the reputation of the carver. During your collecting trips you will probably encounter decoys costing a few dollars to several hundred. Most of my own were priced in the neighborhood of \$15 to \$50, and I would consider this to be an average price range for a collectable decoy. Geese, swans, and sought after decoys by past or present masters can cost quite a bit more. Let me forewarn you that decoy collecting can become expensive, and you can become addicted very easily.

Part of the fun of decoy collecting is in trying to trace their past. Was that Chesapeake canvasback part of a market gunner's rig in the 1880's? Could it be that black duck decoy was carved by a lonely lighthouse keeper of yesteryear? Is it possible the body of that goose decoy was carved from the mast of a wrecked clipper ship? In a great many cases you never know for sure and your imagination will run wild. But that's part of the fun of decoy collecting... so let it! □

1975 HUNTING

On Bureau of Parks and Forests Lands

The following State Parks and Forests will be open for hunting during the 1975 hunting season subject to Fish, Game and Shellfisheries laws.



STATE FORESTS

	Acres	Counties
Bass River	8,935	Burlington and Ocean
Belleplain	11,178	Cape May and Cumberland
Abram S. Hewitt	1,890	Passaic
Jenny Jump	967	Warren
Lebanon (including Whitesbog area)	25,739	Burlington and Ocean
Penn	3,318	Burlington
Norvin Green	2,296	Passaic
Stokes (including Valley Farm, Belle Ellen, Jarby, and Newbegin)	14,598	Sussex
Wharton	99,036	Atlantic, Burlington and Camden
Worthington	5,711	Warren
Sub-total	173,668	

STATE PARKS

	Acres	Counties
Allaire	500	Monmouth
Bow and firearm deer hunting only. "The area of Allaire State Park bounded on the north by the Manasquan River, on the east by Hospital Road, on the south by Herbertville Road, and on the west by County Route 547" (excluding the privately owned golf courses and the State owned pig farm lying within the described premises).		
Allamuchy	5,700	Morris, Sussex, and Warren
Hunting on that portion of the recent Stuyvesant acquisition, south of Route 80, is limited to deer hunting only on a controlled basis. Hunters will be required to enter from Allamuchy Road and register at the gate. Approximately 150 hunters per day will be admitted until the harvest limit has been reached.		

	Acres	Counties
Double Trouble	1,614	Ocean
Duck Island	177	Mercer
Farny	803	Morris
Great Sound	198	Morris
Only that State owned land which is within the following areas: North of Stone Harbor Boulevard South of Avalon Boulevard West of Intercoastal Waterway East of Garden State Parkway		
Greenwood Lake	2,525	Passaic
That State owned property west of East Shore Road including the former Wehran Tract.		
Inskip	2,012	Gloucester
Millstone	792	Somerset
Rancocas	850	Burlington
Hunting permitted for the period November 8 through December 6 inclusive for game which is in season during that period.		
Ringwood (Skylands)	1,700	Passaic and Bergen
As posted on Skylands section only.		
Swartswood	513	Sussex
That State owned property south of Newton-Swartswood Road and east of East Shore Road.		
Voorhees	437	Hunterdon
Wawayanda	9,000	Sussex
Sub-Total	26,821	
GRAND TOTAL	200,489 ACRES	

The grand total comprises approximately 81 percent of the total forests and park lands in New Jersey. □

* * * * *

MAPS
AID
HUNTERS

DEP's Bureau of Geology and Topography reports a brisk sale of the U.S. Geological Survey Topographic Quadrangle Maps, and of the State Topographic Atlas Sheets to hunters. An example of what is available is Atlas Sheet #32 which covers nearly all of the Wharton Tract in South Jersey in one convenient map. Also available from the bureau are prints of aerial photographs, mosaiced to cover the area of each of the U.S. Geological Survey Quadrangle Maps. For a publication and price list write to Publication Sales, DEP Bureau of Geology and Topography, Box 2809, 1474 Prospect Street, Trenton 08625.

New Jersey State Library

BUNDLE

There was once upon a time—and not too many years ago, that the majority of the salt water boating and fishing crowd considered Labor Day as the end of Summer. It was time to hang up the boat and the rods for the season. However, as the popularity of angling has grown along our coast, more and more anglers are partaking in the thrills of late fall fishing. Others who have never given it a late season try really should, as you can continue to have fun out there until it starts to interfere with the Christmas shopping season—and beyond, if you like.

Why fish the late fall? Well, the crowd has gone—the beaches are peaceful and beautiful, the ocean is no longer paved with wall to wall boats—and you have plenty of elbow room aboard the party boats that continue to sail. Many of the days are crisp and clear with deep blue skies, and Autumn at the shore has a rather particular charm. Above and beyond all these niceties,



A fall party boat scene at Barnegat Light



Fall scenes aboard a party boat, with bundled up anglers. The fish coming aboard, and being cleaned are small stripers.

UP / for fall saltwater fishing

BY AL NUNES-VAIS

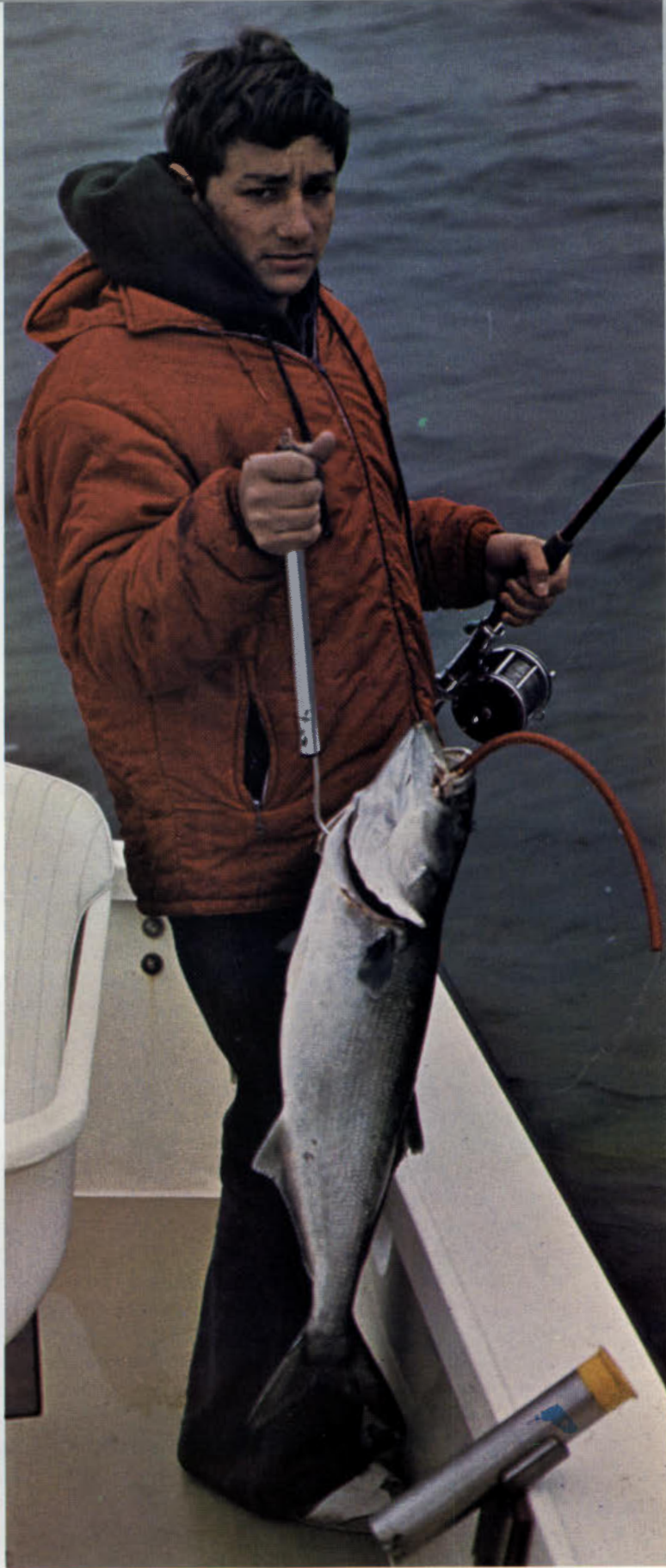
the fish are there—and the fishing pressure is off.

Fall is a fishing transition period. As we go into November fish species that have been there since spring are still around—and the cold water varieties start to show. Take the bluefish, for instance, that pleases all during the summer. It usually can still be found off the north Jersey coast until almost Thanksgiving day—and longer to the south, where the water cools off a bit more slowly. The peak migration of striped bass heading south from Long Island Sound and points north usually does not occur until mid-November along the north coast, and they are caught there well into December, and like the bluefish, even later, as we start to head down towards Cape May.

Overlapping the departure of the blues and bass, we find the arrival of the frostfish—the whiting, the mackerel as well as the winter flounder. The mackerel arrive in tremendous schools that are usually not too far off-shore and the party boats in particular do well for these. They can be a ball on light tackle, and catches of 100-200 fish per angler are not unusual. Even a half day trip aboard a party boat can be productive and



Tommy Olski, and his brother seek protection from fall wind on bridge of their father's sportfisherman.



Andy Nunes-Vais with a fall blue





PHOTOS BY AUTHOR

**portrait
of a
fall blue.**

give you a freezer load to carry you through the winter.

Thus, with all that excitement out in those blue waters, you should consider a trip or two for a last fling. As we have said, it could be to the surf, on your own craft—or on a party boat.

There are a couple of secrets to enjoying that late fall bonanza—and they are not very sophisticated at that. The first secret is to dress properly, so that you will keep warm—and the second is to pick your day. While that season offers many beautiful days, it also dishes out some rather damp and rotten ones. Unless you are a “die-hard”, best you remain near a comfortable fire on one of those. After you start to enjoy fall fishing on the better days, you can then consider adventures under less than ideal conditions. If you come back from a first late fall adventure with bad luck, in miserable weather, you may never give it a try again—and that would be a shame.

Follow a few common sense precautions and you will come to enjoy fall fishing at it's best. Wait for a good weather forecast—and you don't need to be a hero and get out there before the sun rises, when the thermometer is hovering around 20 degrees. Wait until it warms up a bit—for if you get chilled, you may never recover later in the day. Consider the wind chill factor, if you are to ride in an open boat to the fishing grounds at 20 miles an hour. Under those conditions, be sure to stay dry, as a quartering chop can douse you with spray—and once wet, you will feel the cold that much more.

The clothes that you wear are critical and it is particularly important that you keep your head and feet warm. If those extremities get cold, you have lost the battle and you could spend a miserable day as a captive audience on a boat somewhere. Actually, the

advent of lightweight insulated clothing has gone a long way towards popularizing cold weather fishing. There is plenty of such gear around. Snowmobile suits are but one example, and many anglers are found bundled up in such outfits. Alternatively, you might consider insulated underwear, a sweater—and some foul weather gear which will act as a windbreaker. A parka hood is usually not enough to keep the ears warm on colder days as the wind has a way of finding its way under it. Consider a wool pull-on cap as insurance.

For the feet, consider a pair of hunting boots, or after-ski boots, perhaps even with a couple of pair of socks—although these should not be too tight. Also, don't forget a pair of gloves or mittens.

You may think that I am making too much of this keeping warm bit. Don't underestimate the situation. It is better to be prepared, and you can always shed garments—rather than be without them. The presence of water increases the chill factor over that found inland. I have taken improperly dressed friends to sea and had to cut trips short—as they were in sheer agony. And remember, a nice thermos jug full of coffee or soup can help.

What about fishing gear, bait and tackle for the late fall season. Well, what you used earlier will continue to do well. For instance, in the bluefish and striper trolling department surge tubes, bunker spoons, jigs, bucktails and artificial eels like the Alou and Mr. Twisters will do well. So do the monstrous umbrella and gorilla rigs—and more conventional plugs—like the Rebel sort of thing.

Reconsider that decision to hang up your gear then, and make a couple of late fall trips. It is a long way until spring, and you can still enjoy our coast—if you keep warm. □

WILDLIFE COOKING

(Continued from page 3)

VENISON STEW

- 3-4 pounds of venison
- 4 cups Burgundy
- 4 medium onions
- 2 cloves garlic, crushed
- 3 carrots
- 2 bay leaves
- 3 juniper berries
- 1 teaspoon salt
- 1/2 cup flour
- salt, pepper
- 2 teaspoons bacon fat
- pinch of thyme
- 2 tablespoons butter

Place meat in large bowl. Cover with marinade made from 2 cups of wine, 1 onion, 1 garlic clove, 1 bay leaf, 3 juniper berries and salt. Refrigerate for 24 hours. Cut meat into 1-1/2-inch cubes and shake in a paper bag with flour, salt, and pepper until meat is coated. Sear meat in 2 teaspoons of bacon fat. Add 2 cups Burgundy (cover meat with it), 1 garlic clove, 1 bay leaf, pinch of thyme. Cover tightly and cook slowly for 3 hours, adding more wine if necessary. One-half hour before serving, add 3 carrots and 3 onions which have been sliced and sauteed in butter. (This recipe is also delicious for bear.)

FISH CASSEROLE

- 4 cups of fish fillet (any species from black drum to yellow perch) cut into small pieces
- 1 cup milk
- 4 slices whole or cracked wheat bread, crusts removed
- 1/4 pound butter
- 3 tablespoons chopped parsley
- 1-1/2 tablespoons grated onion
- 3/4 teaspoon salt, dash pepper
- Dash of Tabasco sauce
- 3 tablespoons Worcestershire sauce

- 1 teaspoon dry mustard
- 1 green pepper, thinly sliced
- 2 stalks celery, sliced
- 1 pimiento, finely cut

Drop pieces of fillet into boiling water, bring to boil again, remove from heat and drain. Cook everything except the fish for 10 minutes, stirring. Then add the fish and cook five minutes. Transfer to a flat casserole dish and sprinkle crumbled corn flakes lightly over the top. Brown in a 350° oven for 10 to 15 minutes. □

* * * * *

New Pheasant and Quail Stamp Available

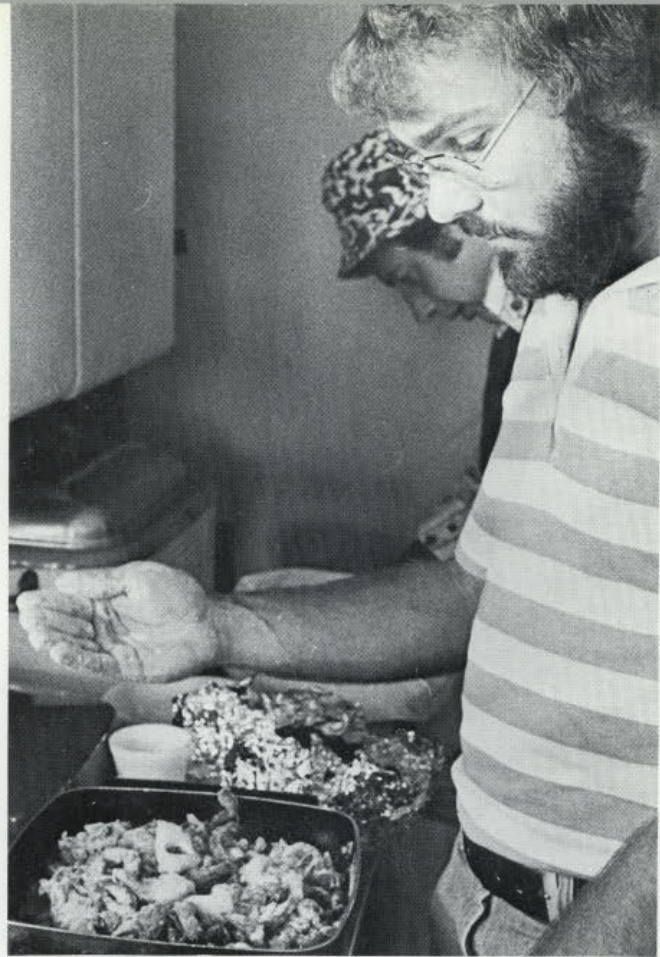
The new pheasant and quail stamp required on designated wildlife management areas is now available at license agents throughout the state.

The stamp is in full color showing a male pheasant in full plumage against a wire fence background. The Division of Fish, Game and Shellfisheries feels that this first issue of this stamp could possibly become a collectors item.


Those who hunt pheasants and/or quail on the following management areas, will be required to have the new \$5 stamp.

Assunpink, Berkshire Valley, Black River, Clinton, Collier's Mills, Dix, Flatbrook-Roy, Glassboro, Greenwood (including Pasadena-Howardsville), Hainesville, Heislerville, Mad Horse, Manahawkin, Medford, Bevan (Millville), Nantuxent, Peaslee, Port Republic, Rancocas, Stafford Forge, MacNamara (Tuckahoe-Corbin City), Turkey Swamp, Walpack, Whites Bogs, Whittingham, and Winslow.

Even though the stamp is required it does not guarantee a hunter priority on Saturdays and holidays when controlled hunting is in effect on Black River, Clinton, Whittingham, Assunpink and Port Republic. □



Joe Penkala, graduate student, preparing Venison Stroganoff



*Schooner "Cormorant"
masquerading as
a British vessel
at Greenwich, N.J.
at the Bicentennial
Tea Burning.*

Photos supplied by the author

Blackbeard, Rumrunners and Fortescue Fries

BY DONALD H. ROLFS
The Down Jersey Marine Historical Society

There's a hard-core, little known, radical movement, lost among the other groups which tend to dominate the news media today, that's working hard to convince the state of New Jersey to secede from the Union. This group even has a new name for our beloved state: The Middle Atlantic Maritime Commonwealth.

Actually that little known movement mentioned above is not radical and is not really interested in secession, but it is interested in all that three sided water which has helped to shape the history and character of New Jersey. The movement is called The Down Jersey Marine Historical Society and its objective is to preserve New Jersey's Maritime heritage: Past, Present, and Future!

To that end, the ways have been greased, the wedges knocked out, and the Society has been

launched into all the creeks, rivers and bays of Southern New Jersey. In any man's daybook that is a major voyage. But her timbers are sound and the people who launched the Society believe they can weather the trip.

If you love the smell of salt, the rattle of an old ship's block, yards of billowing canvas aloft, then you'll love this Society. Down Jersey Marine believes that the graceful lines of a tall ship under sail represents an authentic symbol of Southern New Jersey and her magnificent maritime heritage.

For over two years, a small group of interested persons has worked behind the scenes to make the Historical Society a reality. Just over a year ago the Society was incorporated by the state as a non-profit educational corporation.

The Down Jersey Marine Historical Society hopes

to find new meanings in old roots . . . the roots of hard work, of song and story, of neighborliness and enjoyment, of the heartbreak and achievement that have made us proud of our seafaring ancestors. The Historical Society is committed to the preservation of the folklore and history which surround this salty saga. And this is especially pertinent on the 200th birthday of our nation.

It is not the Marine Society's purpose merely to dwell upon yesteryear but in fact to redevelop those values, skills, and the creativity of the past to assist in a safe passage across the rather scary present.

The greatest goal of the Society is to establish within the State of New Jersey a working Maritime Museum to house artifacts, paintings and nautical displays. Such a museum would of necessity be located near the water where a collection of restored vessels and small craft from New Jersey's past could be displayed. The working Museum would sponsor an apprenticeship program which would assist in the restoration and preservation of maritime antiquities and small craft.

Nautical Arts and Crafts such as ship's carpentry, scrimshaw and spar-making have already been demonstrated using ancient tools which have been collected by Down Jersey Marine.

At present, The Marine Historical Society is engaged in a grand project of restoring a small sailing Schooner called *The Cormorant*. The Schooner is a half century old and is a replica of an American Pilot Schooner. Over a year of work and approximately 5000 man hours have been spent on her refitting and restoration. The experience can be illustrated by the words of Mulhauser who once said:

"A small sailing ship wants as much looking after as a harem and there is always something to do about her decks"

Cormorant carries about 2000 square feet of canvas including a fisherman's staysail and a square rigged topsail on the foremast. The members have raised funds and toiled long hours to see her set sail once again. The vessel will be sailing in various Bicentennial events in and around New Jersey. So, look for her topsails on the horizon and listen for the roar of her naval cannon in the days and weeks which surround our nation's birthday.

Current projects of the Marine Historical Society include the restoration of a Tuckerton Garvey with a sailing spritsail rig and a small cedar skiff. There are also plans to expand the "Ship's Log" which is the quarterly journal of the Society. Material is also being gathered in anticipation of publishing a maritime yearbook for the Bicentennial. Currently, negotiations are being carried out with several water-



Mr. Richard Stitcher of Down Jersey Marine demonstrates the use of the Broad Axe at the Batsto Crafts Fair.

front communities as to the possibility of beginning a Museum on their waterfronts. Membership in Down Jersey Marine continues to expand and many persons have identified with the goals and aims of the Society.

It wasn't very long ago that several generations of Down Jersey craftsman wrought from raw pine, oak, pitch and iron the worthiest most appealing sailing ships the world has ever seen. With one eye to commerce and one to wind and wave, they built vessels that deflected harsh forces to human directions and attained a level of art in the process. Not overnight but one keel, one mast, one good ship at a time.

The Down Jersey Marine Historical Society is committed to preserving the skill of these shipwrights and the memory of those who sailed these vessels through such an "elemental strife". Such an undertaking in this moment of history may indeed be radical. So be it.

If you identify with Blackbeard, Rumrunners and Fortescue Fries, then write to The Down Jersey Marine Historical Society, Box 1031, Delran, N.J. 08075 for further information. □



A two hundred plus pound cast containing fossil bones is hauled from the marl pit by State Museum and Inversand Company workers.

GIANTS OF NEW JERSEY'S PAST

(Continued from page 5)

trenched carefully so as to rest eventually on a marl pedestal.

Standard procedure calls for this entire pedestal and its fossil or fossils to be coated with burlap strips which are then coated with plaster of paris to form a cast that resembles a large white cocoon. After this cast dries, we undercut it, turn it over as gently as possible and then apply more wet newspapers and plaster of paris to the original bottom. If the greensand inside the cast is permitted to shift position during this procedure, the fossils we are trying to recover will usually shatter. To help understand the magnitude of the problem involved, remember that our people are working merely with hand tools and that a large cast may weigh as much as 200 pounds.

Completed casts are taken to a Museum workshop where they are opened carefully with a saw or scalpel so that the greensand inside can be removed gingerly with a soft brush. As each bone or bone fragment is exposed, it is soaked with a preservative, then removed with utmost care.

Next begins the monumental task of classifying the preserved bones and assembling them in their proper perspective—a task that might be likened to working with a three-dimensional jigsaw puzzle conceived by Satan as an ultimate punishment. A dedicated paleontologist, though, seems to revel in it. I have seen Dave Parris recreate a 70 million-year-old crocodile skull from a mess of bone chips and fragments that appeared originally to be little more than coarse gravel—apparently attacking the task as a pleasurable challenge.

Fortunately, all fossil bones are not as fragile as the ones that are typical of Operation Inversand.

As a case in point, about three years ago a Gloucester County fruit farm owner named Oscar Damminger notified the Museum that his nephew and grandson had found some unusual fossil bones in marl that had been dredged during construction of a new irrigation pond. If these bones had been as fragile as typical bones from the Inversand pit, it is highly doubtful if they could have survived their "discovery." But they weren't. And thus another key was provided for the continuing effort to unlock New Jersey's paleontological mysteries.

Examination showed that the seven bones found by the youngsters were actually vertebrae of a plesiosaur, another giant marine reptile associated with the Cretaceous Period. These bones were donated to our Museum, and Mr. Damminger granted permission for our people to search further on his property for more fossil remains. During this search, several more vertebrae and a single tooth of the long-necked, fat-bodied monster were found by Parris and his crew. The total find wasn't sufficient to permit a complete, exhibitable reconstruction, but it did provide the Museum with the best specimens yet recovered. New information about the species was obtained because of these specimens.

Of course, not all of New Jersey's past behemoths were indigenous to the tropical seas that dominated the geography of our state's southern regions. Great slabs of Triassic sedimentary rock excavated in Morris County's Lincoln Park area more than a dozen years ago bore the footprints of *Eubrontes*, a large, meat-eating dinosaur, and *Andrisaurus*, a smaller species of dinosaur about eight feet long. Two hundred million years ago when the footprints were made, the slabs of rock were soft mudflats. Through the generosity of Erling Larson, they are now part of the Museum's collection.

Possibly the last truly huge beasts to inhabit our state shared it with man—not the man of telephones and turnpikes, of course, but the man of tom-toms and primitive dugout canoes. For early Indians lived in New Jersey during the period when giant mastodons and mammoths foraged over our hills and meadows.

Our Museum exhibits two skeletons of mastodons—huge, elephant-like creatures that lived about 10 thousand years ago in the hilly regions known today as Sussex and Warren Counties. The climate during that period (the Pleistocene or Ice Age) was tempered by the last receding glaciers, and temperatures then were probably considerably cooler than they are today.

The remains of both of the Museum's mastodons were recovered from muck deposits that were interspersed with short lengths of rotting punky wood and peat on top of a layer of hard blue clay. This would seem to indicate that both of them died in shallow bogs, or, perhaps, wet depressions.

The bones of these mastodons, while

not as delicate and friable as those of the much older turtles, crocodiles, dinosaurs and sea lizards recovered from the greensand pits, nevertheless presented their own unique problems of removal and preservation. Since the saga of the Museum's oldest mastodon — found in Sussex County near Vernon in 1954 — is described in detail in Museum Bulletin No. 6, it can be omitted here; but a brief recounting of the discovery, exhumation and reconstruction of our newest specimen might be meaningful.

In October 1970 in Liberty Township, Warren County, Mrs. Ludwig Wiederschein and two of her grandchildren (Robert and Doreen Robeski) found some large, dark bones that were uncovered by a bulldozer in an area where a neighbor (Stanley Bojak) was constructing a new pond. They took them home and notified Mr. Bojak who, when he saw that they were much too large to be the remains of a horse or cow, called the Museum. We identified them as mastodon bones and immediately requested permission to attempt to recover additional bones from the same area. Mr. Bojak was most agreeable, and our crew went to work.

The dig lasted for two months, during which time the search area was expanded from a shallow, three-foot-diameter puddle to a pit 40 feet wide and eight feet or more deep. This pit was continually pumped. It was also continually wet, dirty and cold.

How do you dig up a mastodon? With shovels and muscles, people and picks, bulldozers and backhoes. Mostly you move bucket after bucket of wet dirt from one place to another and lift out the bones as they are uncovered.

Generally the newly exposed bones are water saturated, so the first step in the re-assembly operation is to permit them to dry. Then, when they are thoroughly dry, they are soaked and impregnated with preservative to keep them from splitting, cracking and/or warping. After the preserved bones are sorted and classified, the next step is to patch broken or damaged areas and to fabricate replacement models for missing members. Then assembly can begin.

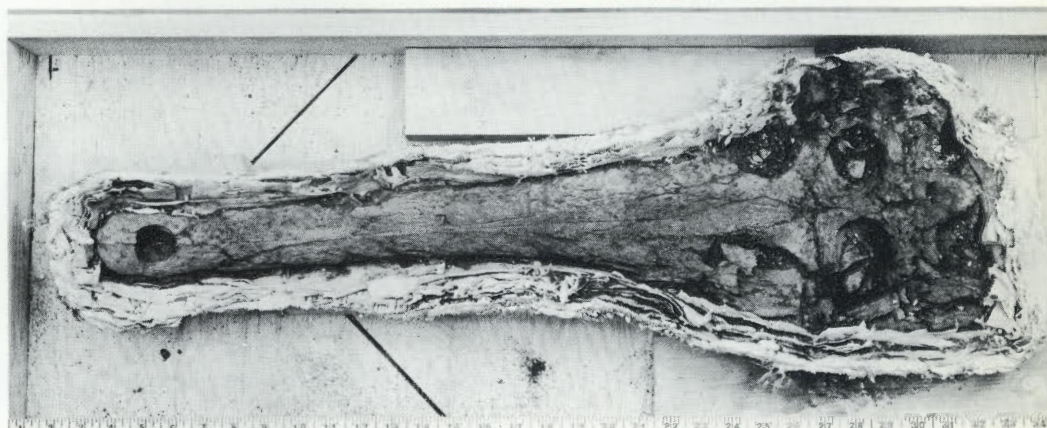
It should be mentioned that an articulated museum reconstruction that is 100 percent complete is exceedingly rare. In almost every instance, a certain number of bones are never recovered, but this should not be interpreted as an end re-

sult of careless recovery methods. Perhaps these bones were carried off by scavengers or hunters soon after the creature died. The passage of thousands of years provides opportunity for numerous other possibilities. At any rate, almost every reconstruction requires the fabrication of missing pieces.

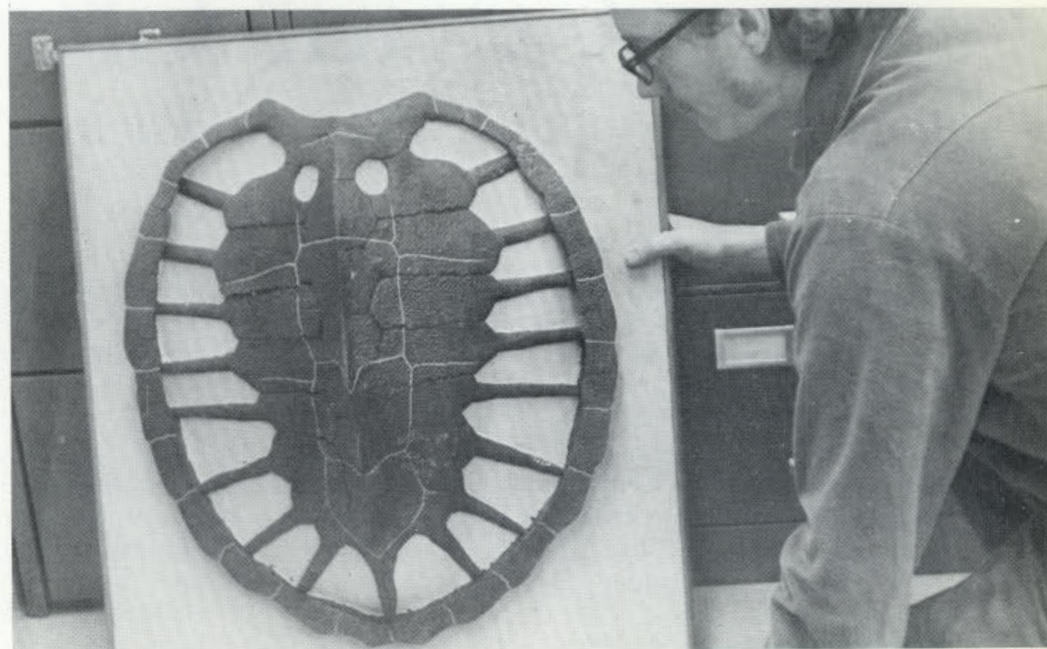
During the actual assembly, the skeleton is erected in a lifelike pose, using the welder's torch and 20th century steel. Larger bones are fitted painstakingly with steel bracing, and the whole is unified with rods, bars and wires. Finally the assembly is completed.

The foregoing, of course, refers almost exclusively to paleontology efforts

of the New Jersey State Museum and provides only an extremely limited census of our state's past giants. Others can be found in other museums across the country, some are in public or private collections, and some, represented by merely random bones and fragments, are stored in paleontological vaults for scientific record and reference purposes. Finally, there are those that cannot be accounted for by any of our museums or collections or laboratories. Where are they? They're still hidden by New Jersey sands, soils and rocks. Perhaps our State Museum will be able to exhibit some of them next year or the year after or the year after that. We hope so. □



At the State Museum laboratories many weeks are required to carefully cut off the plaster and burlap jacket and dry and preserve a fossil crocodile skull and snout.



Dave Parris, the State Museum paleontologist, examines a completed restoration of *Peritresius*, a fossil New Jersey sea turtle.



PHOTOS BY A. MORTON COOPER

Cedar Creek

A Unique Wild Area

BY JOHN A. HAAS

Cedar Creek, the second largest stream in Ocean County, is almost free from the pollution caused by man. The Cedar Creek basin, with its numerous stands of large dense southern white Cedars, is still a natural wildland. The creek's 56 square mile drainage basin generates an average daily flow of 69 million gallons per day. (Cedar Creek is the only major river system within the Atlantic Coastal Basin which is almost entirely free from pollution.) The creek is renowned for its pure water.

Wildlife Abounds

The Cedar Creek basin is a haven for a variety of wildlife. The basin contains both types of Pineland

forests; the upland and lowland forests. The lowland forests occur in areas where the water table is high and stable. In these areas, three basic types of forest occur: 1) maple-gum swamp, 2) pitch pine lowland and 3) Atlantic White Cedar swamp. The upland forest is found in those areas in which the water table generally remains at least 1.5 feet below the surface. The upland forest is composed of various types of pine-oak combinations. Dominant trees are the pitch pine, blackjack oak, post oak and black oak. Other characteristic plants are low bush blueberry, huckleberry and members of the "heath" family. The variety and diversity of the ecosystems of the Cedar Creek basin produces a wildlife habitat with lots of "edge"



Insect-eating round leaf sundew

or transition areas. These transition areas provide homes for many species of wildlife.

Whitetail deer are plentiful along Cedar Creek and many deer use the dense stands of cedars as a source of protection and food in winter. The common mammals found in the basin are rabbit, grey and red fox, and red squirrels in the uplands areas; and raccoon, weasel, some beaver and occasionally mink and otter in lowland areas.

During the fall and spring migration, numerous song, wading and shore birds visit the area. In addition, good numbers of waterfowl rest along the stream corridors and lakes. Waterfowl hunters are likely to encounter wood ducks and Canada geese, and black ducks and mallards later in the season.

The creek and lakes of the river system provide good fishing. Pickerel perch and catfish are the most common fish sought, and many anglers talk of pickerel being caught "as long and thick as a man's arm".

This wild area also supports a variety of amphib-



Common egret wading in Cedar Creek

ians, reptiles and snakes such as the Pine Snake and on rare occasions, a timber rattlesnake. The Cedar Creek basin serves as a productive natural area for wildlife and wildlife oriented recreation activities.

Endangered Species

Currently, within the United States there exists a number of plants and animals which are rare and endangered. Cedar Creek presently serves as the habitat for several rare and endangered species. The area contains such rare plants as Curley Grass Fern, Broom Crowberry, Sand Myrtle, Turkey Beard and eight uncommon varieties of orchids. The area has also been identified as being one of the breeding areas for the endangered Pine Barrens Tree Frog.

Forest Trails

Walking, hiking and bicycling are simple yet rewarding pleasures in this natural area. The existing network of trails and unimproved roadways in the Cedar Creek area are used quite heavily for these activities.



A Cultural Heritage

The Cedar Creek area is rich in the history of Ocean County. Many evidences of Indian habitation exist along the bay from the north bank of the Metedeconk to the southern boundary of the county. These habitations were scattered along the rivers and creeks of the county. The Indians were interested, as in modern man, in harvesting the bounty of the land.

The resources of the Cedar Creek area were exploited and intensively used in colonial times. Many towns and industrial sites, their location now marked by ruin, were established during this period. Prior to 1740 John Eastwood maintained a sawmill on Cedar Creek. Southern white cedars were cut in the lowland forests and used for lumber and posts. By 1750 the sawmills were specializing in the production of shingles. The lumbering industry also prospered on Bamber Lake.

In 1809 General John Lacey built the Ferrago Forge on Bamber Lake and the same year W. L. Smith built Dover Forge also along Cedar Creek. These forges used the bog iron found along the Cedar Creek and the tributaries.

In the period from 1830-1840 the pinewood and charcoal trade flourished along Cedar Creek and Bamber Lake. In more recent history the Cedar Creek area has served as sites for the cranberry industries. Wild berries have been collected for sale since colonial times, but techniques for cultivation on a commercial scale were developed only about 1916.

A Rare Natural Area

Society benefits from the preservation of natural environments where natural processes predominate and such areas also serve research and educational needs. Cedar Creek is indeed a unique natural area. It is the northern limit for certain plants and animal life which are more common in Southern States and it

is the southern limit for certain plants and animals which are found in the Arctic tundra regions of northern Canada. This unique transition zone offers an opportunity for the study of unusual plants and wildlife.

Access

Presently, access to the Cedar Creek area is "open". Although much of the creek area is in private ownership, access has generally been permitted. Most of the persons using the creek simply want to enjoy a day in the outdoors, engaging in some type of outdoor recreation. Generally most people are courteous of the landowners' property and don't cause problems, damage or litter. Additionally, the creek area west of the Garden State Parkway is virtually undeveloped.

The Division of Fish, Game and Shellfisheries presently maintains the 9,000-acre Greenwood Forest Wildlife Management Area. This area preserves the critical head waters and watershed of the Cedar Creek basin. The tract, which is maintained by sportsmen's license money, is used by upland, waterfowl and deer hunters, fishermen, sportsmen, campers, hikers, bird watchers and photographers.

The Division of Parks and Forest maintains the 1600-acre Double Trouble State Park on Double Trouble Road in Berkeley and Lacey Townships. The area is a popular sport for naturalists, fishermen, hikers and canoeists.

To those who know Cedar Creek, it is a place of refreshment and revitalization; especially since it has remained wild, natural and unpolluted by man during a period when Ocean County has been the fastest growing county in the Nation. To those agencies who have become involved with the Cedar Creek basin, we appreciate and compliment your efforts in preserving this unique area for the enjoyment of all New Jerseyans, present and future. □

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FRONT COVER

Peregrine Falcons in New Jersey—photographed at Island Beach State Park by Pete McLain with a single lens reflex Kowa using Ektachrome Professional film. Read article on page 14.

BACK COVER

Woodcock illustration by Debbie Ruggiero. This illustration was used for our 1976 Woodcock Stamp.

INSIDE BACK COVER

Autumn Scene—along the road from Blairstown to Millville—photographed by David A. Bast with Kodachrome II.



