

HISTORY AND LEGENDS OF N.J. CAVES

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Today, New Jersey has no commercial caves; a New Yorker who has a yen to visit one must travel eighty miles to Ice Cave Mountain, near Ellenville, New York, or to Lost River Caverns in Hellertown, Pennsylvania. But more than one hundred years ago, one could go across the Hudson River and visit a cave in Hoboken. This cave, known both as Sybil's Cave and Castle Point Mine, was excavated in the prominent bluff of grayish-green serpentine rock between Hoboken and the river. The cave was developed by Mr. W. L. Stevens (of the family who founded Stevens Institute of Technology in 1870) as one of the principal attractions of Elysian Park, apparently a forerunner of present-day amusement parks. An old print of the cave entrance depicts a Gothic arch (in the form of an inverted V) about twelve feet high; the cave itself consisted of a room seventeen feet wide, twenty feet from front to back, and about seven feet high. Four large stone pillars were left standing in the center of the room. About five feet within the entrance and enclosed by these pillars, there was a spring of water, somewhat mineralized by magnesium, which was sold as a "pleasant and healing beverage" to thousands of summer visitors at a penny a glass.

The cave is believed to have been first excavated about 1835. It is not known when the Elysian Park went out of business, but it was certainly long before 1943 when it was visited by the editor of *Rocks and Minerals* magazine. He reported in the September, 1947 issue that the cave was then a small tunnel littered with serpentine fragments, cans, bottles, and other trash. When John Fisher of the Northern New Jersey Grotto visited and mapped the cave in 1952, the entrance was almost completely blocked by a rock fall. The only limestone seen in the vicinity was a carved marble head which was last resting in Lawrence Chapman's rock garden in Franklin, New Jersey.

Anyone who is interested in visiting this historical relic can easily find it at the base of the serpentine outcrop on which Stevens Institute is now located. It is located at the level of a railroad siding between Eighth and Ninth Streets.

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PEAPACK CAVERNS

An Interesting Description of the Recent Discovery
Reference was made a short time ago to the finding of a large cavern or series of caverns in the limestone hills at Peapack. The caverns have been more fully explored since, having been visited by a large number of curiosity seekers.

Probably the best description of them was given in the January 9, 1902 edition of the *Newark Evening News*, which is as follows:

A walk of an eighth of a mile from the railroad station at Peapack brings one to the foot of Leyard-Blair Hill, as it is known in the vicinity, and a winding road leads to the lime quarries at its base. The only indication of a cave is a small opening just wide enough for a small man to crawl through, and one enters the main corridor of the cavern.

Before entering the cavern it is necessary to dress in overalls and waterproof garments, and so large has been the demand that the local merchants are entirely sold out and in anticipation of a continued flow of sightseers have ordered large quantities by express. Provided with lanterns, candles, and a guide, a small boy, whose teacher had excused him from school temporarily to reveal the glories of a Peapack mountain, you are pushed and hauled into a narrow passage, the sides of which glisten with the reflected rays of your lantern. After entering the cave you are able to stand upright and walk over broken stone through a tunnel about a hundred yards in length under a vaulted dome.

At the end of the main tunnel a rude ladder has been built from fence rails and after a scramble of twenty feet an upper corridor is reached where two persons can walk abreast for a short distance. Branching off from this tunnel is another, leading about due west, but containing no interesting features. It extends about sixty feet.

At the end of the first upper corridor one finds himself in a circular room large enough to accommodate ten people, and here the cave takes on an arched formation, the roof being nearly 30 feet high. Another improvised ladder and another

scramble leads to what is the third story of the cave. To explore this a steady hand and a sure foot are required, for the difficulties before encountered are slight compared with the ones before you. Crawling like a snake, the highest part of the cave is reached and it comes to an abrupt end. On the right is a large gap leading to a deep well, and a misstep probably would be fatal. You can count twenty slowly from the time a pebble leaves your hand until it strikes the water. How deep the well is no one knows, as no measurements have been taken.

Opposite the well is an opening in the rock not large enough to pass through, but giving a view of a chamber beyond, probably twenty feet square. The roof is circular and hung with stalactites that glisten in the light. This is the largest room so far discovered in the caverns.

The entire cave is Gothic in formation, and no architect ever designed the roof of a building in more graceful lines. The formation of the cavern gives the impression that in past ages the mountain had been rent in twain and fallen together again, leaving a passageway varying in width from two to six feet at its base, a veritable underground Watkins Glen.

Most of the rock on the roof of the tunnels is brown in color and brittle, and the blasting in the lime quarries outside have undoubtedly shattered it and caused it to fall in many places. The formation on the side walls is entirely different and has the appearance of a crystal substance that in past years has dripped and hardened. Veins in the rock stand out blood-red in the light, and the picturesque effect is emphasized by the setting of white crystals.

The appearance of the second upper chamber is weird in the extreme. As you enter with a lantern or miner's lamp, the stalactites flash from the dome as though suspended in air, while the sides of the cavern glow with a mellow-red light. Before you is a formation of reddish crystals, shaped like a pulpit, and above that what looks like a frozen waterfall.

The temperature of the cave is even and the atmosphere fresh. Apparently a current of fresh air circulates toward the opening. The blaze of a match or uncovered flames will always point toward the mouth of the cavern, indicating an opening or crevice yet undiscovered, probably on the other side of the mountain.

This is the earliest known notice of New Jersey's first and only commercial limestone cave, located thirty-five miles due west of New York City in Peapack, New Jersey. Peapack is located in a small belt of Kittatinny Limestone, about seven miles long and usually less than a mile wide, which is bounded to the west by the Martinsburg and Brunswick Shales, and to the east by a thin belt of sandstone and the Byram gneiss. It is one of the closest limestone outcroppings to New York City. Such a favored position ought to have assured the commercial success of the cave, but apparently it was never known more than locally (although groups came to

visit it from as far away as South Orange).

Many residents of the Peapack area still remember this cave. Mr. Charles Jerolaman remembers going to visit the cave as a young man, probably soon after its discovery. Elias Guest, one of the workmen in Todd's Quarry had placed an old door across the cave entrance and was charging a quarter admission to all comers. A little later on, the operation of the cave was placed on a more formal basis. Wooden walks were installed, as well as steps leading up to an iron gate at the entrance. Mrs. Henry Cordes, daughter of Phillip Todd, the quarry owner, remembers that the local Peapack-Gladstone Methodist Church put in the walks and collected admission of a quarter per visitor, but church records were unable to confirm this story. Mr. Vernon Tiger, another Peapack resident, remembers that one of the highlights of the old Smith Family reunions was a trip in a carryall (a large wagon with seats along the sides) over to the cave. Apparently the period of commercial operation was not very long—Mr. Tiger thinks that it was a year or so, about 1907.

All of these visitors to the cave are unanimous in describing it as beautiful; they remember that the ceiling of the first room in the cave was covered with stalactites (before they were vandalized). This room, some distance inside the entrance, was fifty feet or more in diameter and had a high ceiling. Beyond this room a narrow passage led slightly downward to a second room with a lake in the center. Mr. Tiger remembers that the lake was at least thirty feet in diameter, and that one could walk around it. Sometimes he and other Peapack boys would steal into the cave at night and burn flares of colored powder. The cave had crawlable passages beyond the lake room, but no one knows where or how far they went. Originally, the cave had a large number of bats, but many of them were driven out by the smoke of fires which the quarry workmen used to build inside the cave entrance on cold winter mornings.

No one remembers why the cave was finally closed. It seems possible that blasting the limestone in the quarry may have made it unsafe. Or, it may be that the operation of the cave interfered with the more profitable quarrying work. The entrance was filled in many years ago, and the quarry is now owned by Mr. Ferrante.

It is probable that most of this cave is still in existence. The entrance was located in the north wall of the quarry, which has not been mined since the time of the cave because of the presence of a village road just beyond. If so, it may well rank as New Jersey's largest cave—but without entrances. Any systematic exploration and mapping lies in the future.

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Perhaps the most fascinating story about a New Jersey cave is the one which tells of pirate gold. Lis-

Milford Caves Riegelsville Quadrangle

On the Delaware River west of Milford, N.J., there are a series of low cliffs formed of conglomerate of Triassic age, which contain several fissure caves up to 30 feet long.⁴

MERCER COUNTY

Mt. Rose Caves 40°22'N;74°43.5'W, Princeton Quadrangle

There are several small caves among talus boulders, located 600 yards southeast of the radio relay tower on Mount Rose, midway between Princeton and Hopewell. Similar caves have been reported in the Sourland Mountains to the northwest.⁵

MONMOUTH COUNTY

Cave Sandy Hook Quadrangle

The following was published in an 1818 geography book:

In Monmouth County, on the side of a branch of Navesink River, is a remarkable cave, in which are three rooms. The cave is about 30 feet long and 15 feet broad. Each of the rooms is arched; the centre of the arch is about five feet from the bottom of the cave; the sides not more than two and a half. The mouth of the cave is small; the bottom is loose sand; and the arch is formed in a soft rock, through the pores of which the moisture is slowly exudated, and falls in drops, on the sand below.¹

MORRIS COUNTY

High Ledge Caves 40°53.1'N;74°39.9'W, Stanhope Quadrangle

These are located three-quarters of a mile northwest of the Route 10-46 traffic circle, and south of Route 46, near the top of a hill crossed by a power line. The caves are a series of fissures in Precambrian rocks.^{6,7}

OTHER CAVES

Fissures Wanaque Quadrangle

There are two small fissures in granite on Change-water Mountain, one-half mile south of Route 24 and one mile east of Butler Park.⁶³

Scott Sinkhole Hackettstown Quadrangle

In the fall of 1959, a fifteen-foot-deep sinkhole suddenly opened in a field on the Scott farm, a mile southwest of the village of Long Valley. There appeared to be passages beyond the rubble at the base of the sinkhole, but the rock was badly fractured and excavation appeared too dangerous. It was subse-

quently filled in by the farmer. The sinkhole was in the Leithsville Dolomite.^{10,60}

PASSAIC COUNTY

Great Notch Cave 40°52.1'N;74°11.8'W, 480, Orange Quadrangle, D, Consolidated Sand & Stone

Great Notch Cave has been quarried away. It was a fissure 120 feet long in the first Watchung basalt flow.⁷⁵

Pines Lake Cave 40°59.5'N;74°16.5'W, Wanaque Quadrangle

In 1943 a small cave was reported by State Geologist, Meredith Johnson, on the bank of the outlet from Pines Lake, just about the stream level. This cave is approximately one fourth of a mile downstream from the dam. It is in the east wall of the gorge. The cave consists of a steeply sloping four foot high passage about 60 feet long. The cave occurs in a calcareous bed of the Triassic conglomerate.^{19,70}

OTHER CAVES

Norvin Green Wanaque Quadrangle

In Norvin Green State Forest, High Point is a bald rocky knob about two miles west of Midvale, N.J. There are a number of small caves formed in the talus boulders just below the summit on the south side of this hill. Several blazed trails lead to the summit.⁵

SOMERSET COUNTY

Dead Man's Cave 40°36.3'N;74°36.7'W, Bound Brook Quadrangle, S

Dead Man's Cave is not a cave, but a copper mine in the First Watchung Mountain.⁴⁴

Peapack Quarry Cave #1 40°42.8'N;74°39.5'W, 230, Gladstone Quadrangle, D, A. Ferrante & Sons

This cave (Fig. 5) was reported to be in the northwest wall of the Ferrante limestone quarry in Peapack, N.J., and has since been quarried away. This cave, along with the other three caves in the quarry, was formed in the Leithsville Formation.

Peapack Quarry Cave #2 40°42.8'N;74°39.5'W, 230, Gladstone Quadrangle, D, A. Ferrante & Sons

Peapack Quarry Cave #2 was discovered by quarrying operations in July of 1958; it was located about 20 feet up on the east wall. The opening was about six feet wide and three feet high, and was approximately 20 feet long. It contained snow-white flowstone, many stalactites and some reddish-colored draperies, but the cave has since been quarried away.^{4,51}

Peapack Quarry Commercial Cave

40°42.8'N; 74°39.5'W, 230, Gladstone Quadrangle,
S. A. Ferrante & Sons

This cave, perhaps the largest one in the State of New Jersey, has been closed since about 1907 and its location in the quarry is now uncertain. The cave was first entered in December of 1901 by workmen of the Todd limestone quarry.^{4,72}

See the section entitled "History and Legends of New Jersey Caves" for a complete description of this cave.

SUSSEX COUNTY

Andover Pit 41°00'N; 74°44.8'W, 590, Newton East Quadrangle

This pit, in the Allentown Formation, is 10 feet wide and 30 feet deep. At the base of the pit, on the northern side of the room, there is an opening in the rubble leading downward. Exploration has not occurred up to this time.

Arch Roof Cave 41°10.8'N; 74°32.5'W, 520, Hamburg Quadrangle, C, Playboy Club

This cave is located high in the wall of the limestone quarry just north of McAfee. It is about 20 feet long and is formed in the Franklin Marble.¹⁰

Bevans Caves (Fig. 7)

Rock House 41°11.6'N; 74°51.7'W, 580, Culvers Gap Quadrangle, O, Mr. Cummington

Indian Cave 41°11.6'N; 74°51.6'W, 580, Culvers Gap Quadrangle, O, Mr. Cummington

The Rock House is located midway between the Delaware River and Bevans Post Office. Proceed two-thirds of a mile west of Bevans on an asphalt road, two-tenths of a mile south on a gravel road, and about 200 yards east on a woods trail to an eastward-facing rock ledge. There are three rock shelters in this ledge. The trail leads directly to the largest, the so-called Bevans Rock House. One hundred yards north of the Rock House is the shelter known as "The Indian Cave," and 50 yards south of the Rock House is another smaller shelter.

These shelters were much frequented by Indians because of their convenience. They are less than 400 yards from the great Indian trail which later became the Old Mine Road. A tributary of Big Flat Brook runs right in front of the cave, and a fine spring issues near the Indian Cave, so that water is at hand. These rock shelters have yielded rich archaeological remains. A diorama in the State Museum at Trenton depicts an Indian family inhabiting Bevans Rock House.

These three shelters are in the limestone facies of the Oriskany Formation (Glenerie member).^{40,74}

Big Spring (North Church) 41°07.8'N; 74°37.3'W, 535, Hamburg Quadrangle

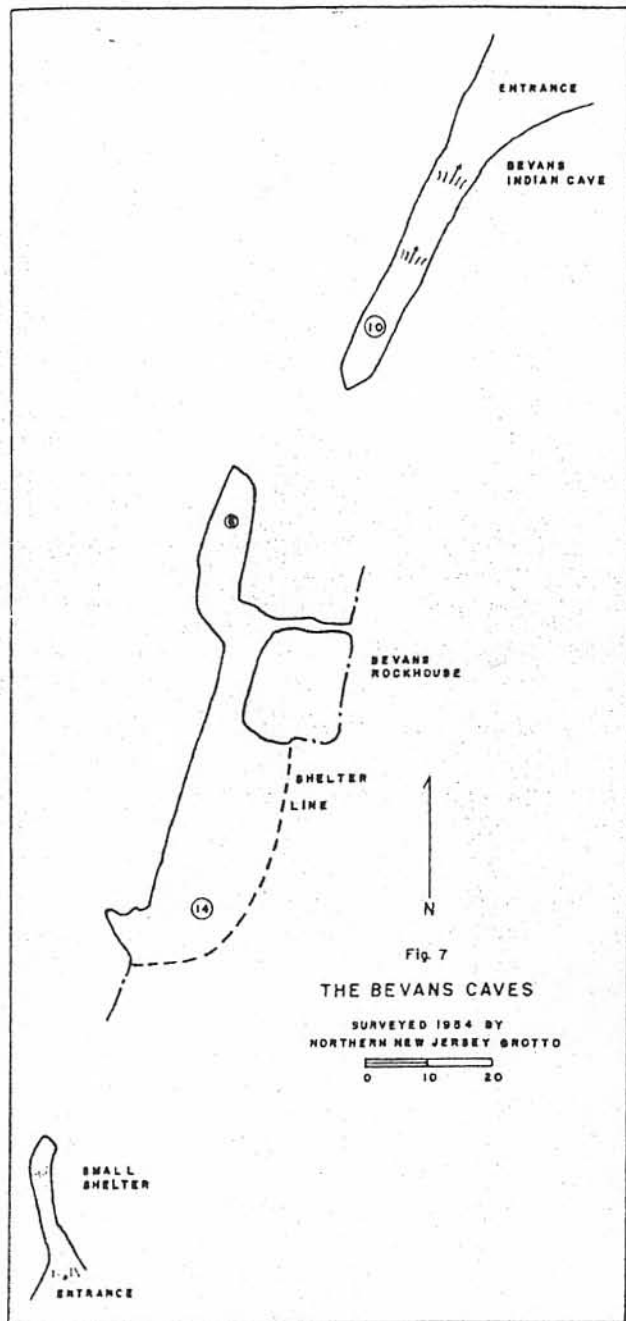
This spring has a one foot opening, from which the water flows at a rate of approximately 700 gallons per minute. The spring is in the Allentown Dolomite.

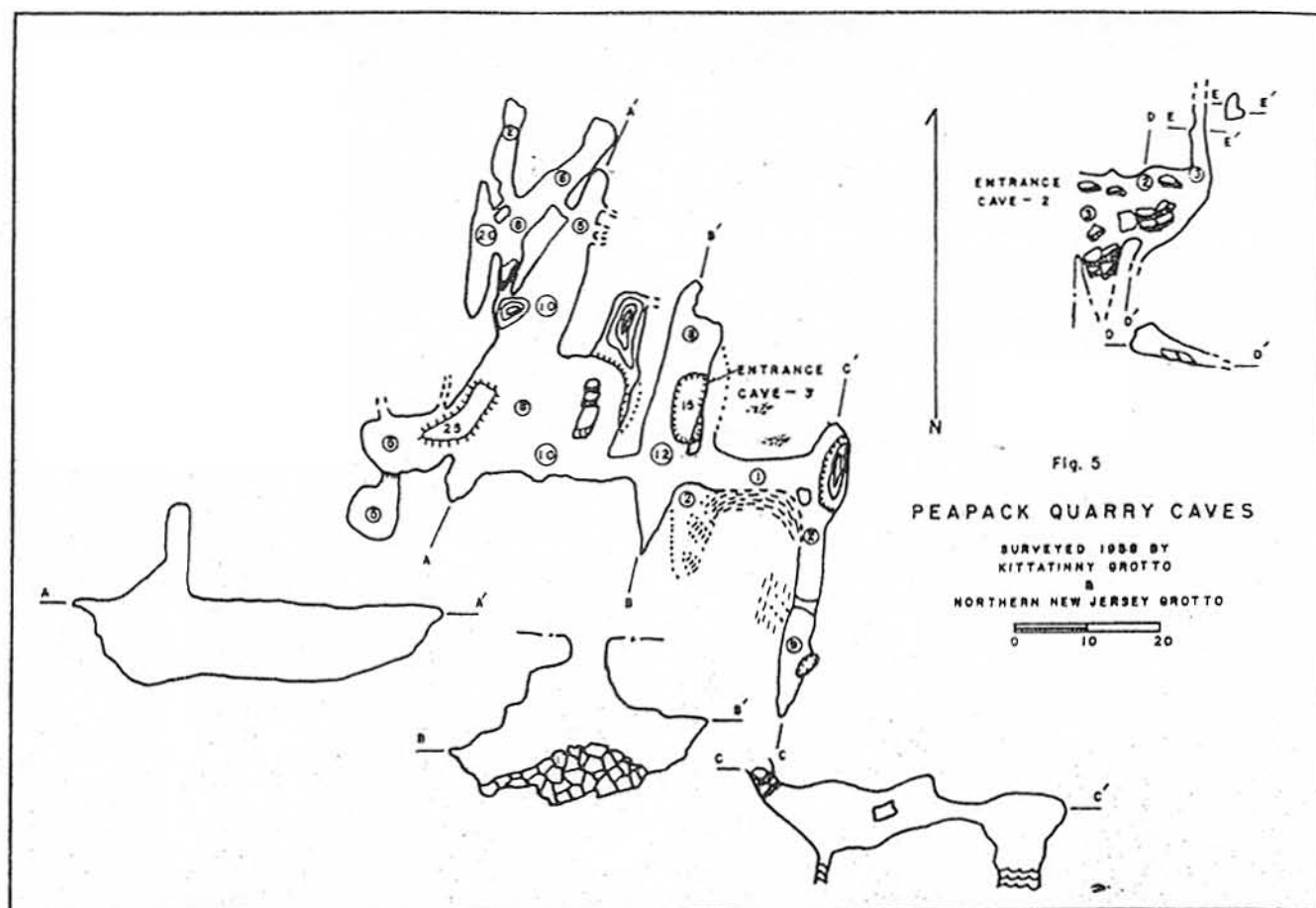
Big Spring (Springdale) 41°00.6'N; 74°47.8'W, 590, Newton West Quadrangle

There is reported to be a cave entrance near this spring, but it has not been located. The spring has a flow of over 1000 gallons per minute. It is in the Allentown Dolomite.

Bonnie Brook Spring 41°01.7'N; 74°53.2'W, 460, Flatbrookville Quadrangle

This is one of the largest springs in the state with a flow of over 5000 gallons per minute, which issues





Peapack Quarry Cave #3 40°42.8'N; 74°39.5'W,

230, Gladstone Quadrangle, S. A. Ferrante & Sons

The cave was discovered at the base of the west wall of the quarry in November of 1958 when some 600 tons of rock disappeared into a hole opened by blasting.

The cave is entered through a small hole about 15 feet deep in the middle section of the cave. This room is about 40 feet long and eight feet wide (Fig. 6). East of the entrance and parallel to the entrance room, a fissure passage connects with a filled sink. There are two pits leading to the water table and a natural bridge in this passage.

To the west of the entrance room is a large room over 50 feet long and 30 feet wide. The floor is very uneven and slippery; behind breakdown in one corner is a deep pool and there is a dome pit in the ceiling. At the northern end of the room a small hole called the "peephole" was enlarged and access was gained to a small rough-walled upper level.

The cave is closed at the present time and no permission to enter it has been given for many years. ^{4, 21, 55}



Figure 6

Peapack Quarry Cave #3—Big Room
(Photo courtesy of Richard Anderson)

Natural Setting

GEOLOGY AND PALEONTOLOGY

GEOLOGISTS divide New Jersey into three provinces. The first, the Appalachian Highlands Province, contains the highest ground and extends northwest from a line connecting Suffern, Morristown, and Milford. Extending 20 miles south of the Ramapos to US 1 and lying between the Delaware and Hudson Rivers, is the Triassic Lowland, a less elevated section. South of US 1 is the lowest land in the State, the Coastal Plain Province.

Each section has been shaped by the interplay of sub-crustal forces and external agencies such as erosion by surface water and invading ice. And the character of each has exercised physical control over man's cultural history within its boundaries. Cities, farms, and factories are placed today largely from the results of geological processes.

The Appalachian mountain ridge, on the northwestern boundary, resulted from tilted-up layers of hard rock that have withstood erosion while the less durable rocks were gradually worn away to form the Kittatinny Valley. The lower Highlands ridges are largely composed of hard rocks of granite, gneiss, limestone, slate, sandstone, and siliceous conglomerates.

These rocks are the oldest in the State, consisting largely of pre-Cambrian and Paleozoic types. Along the Ramapo Mountains on the southern border of this region is a great fault, or fracture, dating back many millions of years to the time when a vast block of rock-crust broke away and settled. Although the hard sandstone ridges carry a soil sufficiently hospitable for forest growth, the only productive soil is found on the soft shales and limestones of the well-settled valleys.

The Triassic Lowland, a long strip barely 20 miles wide, is the urban and industrial center of New Jersey. The underlying rocks of this section are chiefly red sandstones and shales, which through decay have given their color to the soil. Although not conducive to extensive farming, this formation has provided excellent sandstone for building and roadmaking.

Several ridges in this province, notably the Watchung Mountains, have successfully resisted erosion because of their hard volcanic rock. The Watchungs may owe their origin to one of New Jersey's geologic oddities, Snake Hill, which is probably the eroded stump of an ancient volcano. This rough rock-pile has a lonely site in the Hackensack meadows, just north of the former Pennsylvania main line, where it is one of the first things seen by outbound travelers from New York as the train leaves the Hudson tunnel.

The most spectacular sight in this area is the Palisades of the Hudson. Rising in places to more than 500 feet, these great stone columns are the edge of what was once a thick sheet of molten rock that, forced upward from great depths in the earth's interior, spread out horizontally between layers of sedimentary sandstone and red shale. Cooling slowly, this layer acquired its perpendicular columns through shrinkage and cracking. Erosion removed several thousand feet of sediment in the layer above, finally exposing the Palisades. Because of greater hardness they have survived countless centuries of erosion.

The broad Coastal Plain region is the center of New Jersey's market gardens, pine forests, and beach playgrounds. Along the Atlantic coast south of Point Pleasant, a long broken row of sand ridges rises above sea level. These ridges have been built up offshore by the action of waves and ocean currents. Similarly, tidal marshes and beaches extend around the State from Raritan Bay to Camden.

Fertile soils are found upon the inner coastal plain. An inner belt of Cretaceous greensands and marls, valuable as fertilizer, extends across the State from the Raritan to the Delaware. As a whole, the area is one of sedimentary rocks. Contrasting with the fertility of the farming district is the great pine forest that covers more than 3,000 square miles in the southeast.

Age of Invertebrates. Tests involving radioactive minerals indicate that crystalline rocks in the Highlands region are at least one billion years old. Geologists have pieced together a story of New Jersey that antedates the dinosaur by many millions of years. At the earliest time in geological records, the northwestern section of the State was the floor of a long and narrow inland sea. This gulf was separated from the open Atlantic by a mountainous barrier on the site of the present continental shelf. Erosion gradually wore down the mountains, the soil and debris being distributed on the floor of the sea. Ultimately this sediment converted an arm of the sea into dry land.

The animals of this inland sea were all invertebrates; shellfish and trilobites were dominant. The shellfish superficially resembled those of our present sea, while the trilobites were peculiar animals, smaller but otherwise not unlike the king crab or horseshoe crab of the New Jersey coast today. Fossils of these animals are occasionally found in quartzite and limestone which in the form of sand and limey ooze formed the sea-floor during this period. Perfect trilobites are very rare in New Jersey. Quarries near Blairstown and Columbia have yielded fragments.

During the Ordovician period, which followed the Cambrian, limestones and shales were being deposited. The animals of the Ordovician sea were more numerous than those of the Cambrian, but again they were all spineless. Sponges, corals, shellfish, and trilobites are occasionally found in the rocks deposited in this sea, for instance near Jacksonburg, Newton, and Branchville.

Age of Reptiles. Millions of years later, during the Triassic period, came the Appalachian revolution, when the earth's crust shivered and made mountains. The eroded mountains near the sea were pushed bodily northwest, wrinkling the layers of sediment that had filled this ancient