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HENRY B. KÜMMEL, STATE GEOLOGIST

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INDIAN HABITATIONS
IN SUSSEX COUNTY
NEW JERSEY

BY

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INDIAN REMAINS NEAR PLAINFIELD,
UNION CO., AND ALONG THE
LOWER DELAWARE VALLEY

BY

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INDIAN HABITATIONS IN SUSSEX COUNTY, N. J.

By

Max Schrabisch, Paterson, N. J.

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PREFACE.

The archaeological investigations commenced in the summer of 1912 were continued during the field season of 1913. Inasmuch as the extreme northern part of the State had not been touched in the first season's work, it was deemed advisable for Mr. Max Schrabisch to spend about four and a half months in a careful exploration of such part of Sussex County as he was able to cover in the time and with the means available. Mr. Leslie Spier spent a short time on investigations near Plainfield, along the creeks of Gloucester and Salem counties and in the drainage area of Maurice River. The results of this work was to add much to our knowledge of the character and distribution of Indian habitations in New Jersey. The discovery by Mr. Schrabisch of twenty-five rock houses in Sussex County and their careful excavation has shown a use by the Indians of these cave-like shelters, which until recently was not even suspected.

The thanks of the Survey are due to all those who have so generously assisted in locating sites and furnishing information, and it is hoped that the results of these investigations as set forth in the following pages will prove of interest and value to those of our citizens who desire to know more of the habits and homes of the prehistoric possessors of New Jersey.

HENRY B. KÜMMEL,
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CHAPTER I.
GENERAL DISCUSSION

INTRODUCTION.

The writer began work in Sussex County early in May, 1913, for the purpose of making as far as time and funds permitted a systematic exploration for Indian camp and village sites and the collection of such material from these sites as seemed worth preserving. During the four months and a half available for this work 234 sites of the aborigines were located, principally in the western and central portions of the county. These were for the most part camp and village sites, but they include 25 rock shelters, all of which were subjected to systematic excavation.

It was most gratifying to find that many persons of the county possessed a lively interest in everything pertaining to Indian lore, as demonstrated by many fine collections, some of which contain specimens representing the highest degree of workmanship of which the Lenni Lenâpé Indian was capable. But as a result of this previous activity of local collectors few surface finds were made by the writer, the ancient Indian fields having practically been denuded of their best treasures years ago. Fortunately, however, the local researches had not been extended to the rock shelters. These yielded considerable material, fragments of pottery, as well as implements of war, of the chase and of domestic use.

Among the private collections that came to the investigator's notice were those of the following persons: Israel L. Hallock, Peter Owen, J. Victor Rosenkrans, J. S. Decker, Sayre Shaw and Lawrence Holmes, all of Newton; Frederick Sliker of Sussex Mills; Frederick Van Blarcom, Lafayette; H. Scudder, Sparta; George Williams and George Tucker, Branchville; Frederick Lawson, Lake Owassa; James McGovern, Franklin Furnace; John Gaal, Middleville; Frank Blackford, Upper Swartswood; Eugene Rosenkrans, Flatbrookville; A. M. Depuy, Layton; Burson Bell, Minisink; Mr. Merring, Tuttle's Corner;

John Martin and J. S. Appleman, Tranquility. All these collections abound in common arrow-points and spearheads, but they contain also some of the more elaborate products of the aboriginal handiwork, such as highly polished celts, tomahawks and banner stones. The material used in the manufacture of the arrow-points is mostly flint, of which there is an abundance in the county, but in some collections were implements of obsidian and chalcedony, material not native to this region. If, as reported, these were found on local sites, we have here evidence of the importation of raw material or of finished products from somewhat distant regions.

The fact that so many people of the county have taken a deep interest in these matters greatly facilitated the location of the sites. Particular thanks are due to Justice Israel Hallock, George A. Smith, Peter Owen, all of Newton; Frederick Van Blarcom and O. E. Armstrong, Lafayette; Charles E. Stickney and Arthur Wilmington, Sussex; Joseph Edsall, Franklin Furnace; S. P. Vanderhoof, North Church; J. P. Beardall, Owassa Lake; Frank Blackford and Garret Pittinger, Upper Swartswood; C. T. Unangst, Swartswood Lake; John J. Van Sickle, Bevans and John Martin, Tranquility. Not only was much valuable information received from these and other gentlemen, but in some instances guidance to places difficult of access. Their services are herewith gratefully acknowledged.

PHYSICAL FEATURES OF SUSSEX COUNTY.

Sussex County, the most northern and mountainous county of New Jersey, is approximately rectangular in outline, its four corners corresponding roughly to the four cardinal points of the compass. Its only natural boundary is Delaware River,¹ on the northwest. On the other sides its limits are arbitrary lines except for a short distance at the south, where Lake Hopatcong and Musconetcong River separate it from Morris County. New York State lies on the northeast, Passaic and Morris counties on the southeast and Warren County on the southwest. Its area is 535 square miles. Its greatest elevation, 1809 feet, is High Point on Kittatinny Mountain in the northern corner of the

¹The Indian name for Delaware River was Lenâpé-whittuck or Kit-hanne, viz., "the main stream in its region."

county; its least, 321 feet, is Delaware River at the mouth of Flat Brook in the western corner. Its extreme range in elevation is therefore a trifle less than 1500 feet.

Sussex County is essentially a land of mountains, hills, streams and lakes. On the northwest is Kittatinny Mountain, sometimes called Blue Mountain and known to the Indians as "Pahaqualong Mountain." With a steep and in places precipitous southeastern slope and an almost unbroken crest line, 1500 feet in elevation, it is a most formidable barrier to travel except at Culver's Gap, through which there is access to the country along the upper Delaware. On the southeast is the dissected tableland known as the Highlands, the summits of whose hills range from 1000 feet at the south to nearly 1500 feet at the north. Innumerable valleys, some broad and shallow, others narrow and deep, separate these hills and obscure the plateau-like character of the region. At the south the Pimple Hills and at the north Pochuck Mountain stand a little to the west of the main mass of the Highlands, of which they are a part, and from which they are separated, the former by the upper Wallkill Valley, the latter by Vernon Valley. Between Kittatinny Mountain on the northwest and the Highlands on the southeast is a broad rolling upland valley, known as Kittatinny Valley, 500 to 1000 feet lower than the bordering mountains, 10 miles wide and a part of the great Appalachian Valley, which stretches from Lake Champlain to Georgia. The floor of this great valley is far from flat; on the contrary, it is hilly in the extreme. Several roughly parallel subvalleys traverse it from northeast to southwest and are followed by the main streams of the region. The most important of these is the Paulins Kill—Papakating Creek valley, from Stillwater, Swartswood Lake and Augusta to Sussex. Another extends from Huntsburg to Springdale, Newton, Lafayette and Beaver Run. Another along the southeast side of the great valley from Tranquility to Andover, Germany Flats, Monroe, Hamburg and the lower Wallkill Valley. The rock along these subvalleys is for the most part limestone whose frequent outcrops often give rise to crags and precipitous ledges. Between these rocky hills are often fertile fields of loamy sand and gravel, the latter containing abundant material, from which the Indian could fashion his arrows, spears and other implements. Lakes and swamps bor-

dered by high, well-drained gravel terraces occur at many points along these subvalleys. The hilly country separating the subvalleys is mostly underlain by slate. Rock ledges are less numerous than in the limestone belts and there are fewer areas of loose sandy soil, except on the borders of some swamps and lakes of the slate belts.

Northwest of Kittatinny Mountain, between it and the Delaware, is a narrow belt of country, archæologically of considerable importance. Bordering Delaware River here on one side, there on the other, are a series of loamy or gravelly terraces, the lowest 20 feet or less above the river, the highest 50 or 60 feet; their greatest width being less than a mile. On the east a narrow, rocky ridge, Wallpack Ridge, rises 300 or 400 feet above these terraces and separates the Delaware Valley from that of Flat Brook. Sandy gravel terraces form the floor of Flat Brook Valley, to the east of which rise the steep slopes of Kittatinny Mountain.

The chief streams of the county are Delaware River and Flat Brook northwest of Kittatinny Mountain; Paulins Kill, Pequest River and Lubber's Run, tributary to the Delaware; and Papakating Creek, Wallkill River and Pochuck Creek, tributary to Hudson River. The headwaters of Pequannock River drain a small part of the Highlands in the eastern part of the county.

SELECTION OF SITES.

The distribution of camp and village sites apparently indicates that in their selection the Indian was guided by certain definite requirements which in varying degree determined his choice in every case. The chief of these were proximity to water, for drinking, cooking and fishing, good drainage and sandy or gravelly soil. Sunlight, protection from cold winds, ease of access and presence of game were other controlling factors. Many of these requirements appealed also to the white settler, so that it frequently happened that the early pioneer erected his rude homestead upon the very spot which the Redman had vacated but a short time before.

In choosing a home, the Indian labored under great disadvantages. The region was forest-covered and, moreover, when all

the land was an interminable expanse of forest, the Indian had to fight for a place, so to speak, for rarely did he meet with any clearings at the spots where he wished to camp. To clear away the heavy forest growth with his crude stone axes, even with the help of fire, was no small task and there can be no doubt that such clearings once made were greatly prized and were not often permanently abandoned.

Furthermore, the denseness of the underbrush and the interlacing tree tops prevented not only unobstructed views, but shut out to a large extent the sunlight so that many camp and village sites were enveloped in semi-twilight, except where the clearings were large or the wigwams had been pitched on the banks of a broad stream or lake.

Proximity to water seems to have been the first and foremost condition controlling the choice of a camp. It was apparently immaterial to the Redman whether this water was furnished by a spring, a stream, a lake or a swamp, so long as it was near enough to suit his comfort. The larger water bodies and swamps had the added advantage of furnishing a food supply, fish, mollusks and water fowl, so that many camps are situated on their banks.

Next, the camp had to be on elevated ground to preclude the possibility of its being flooded. Hence, we find most indications of the Indian's former presence on knolls, terraces and well-drained slopes. Much in demand were localities where two streams met or where a brook ran into a lake or out of it. At such points the tell-tale marks of an ancient site can often be found, provided other conditions were favorable from the Indian's point of view.

Much consideration was also given to the character of the soil. Since corn formed a large part of the Indian's food, a loose, sandy soil which could be easily cultivated with his crude implements was always preferred to a clayey one or one bestrewn with rocks and boulders. However, the writer knows of a few instances where this rule was departed from and where a rocky soil was utilized as proven by the fact that rocks, which once had evidently covered an otherwise favorable site, had been rolled out of the way and placed towards the outside. Since most of the larger streams and lakes of Sussex County, as well as many of the swamps, are bordered by gravelly terraces,

whose upper surfaces are often loose and sandy, the Indian had no difficulty in finding many places, well drained, easy of cultivation and close to water.

Since many lakes and swamps and all the larger streams of Sussex County lie in the broader valleys and are frequently bordered by extensive level tracts, the majority of camps and villages were so situated that communication between them could easily be maintained. Nevertheless, some camp sites were established high on the mountains in relatively inaccessible localities, but in nearly every instance of this sort a pond or lake attracted the Redman because of the opportunity it afforded for fishing. Examples of such sites are found on the shores of Round Pond on Kittatinny Mountain, of Lake Wawayanda on Wawayanda Mountain and of Sand Pond on Hamburg Mountain. Not to be omitted in this connection are the rock houses and caves to be met with in most districts where rock ledges abound, many of which seem to have been the temporary stopping places of traveling or hunting parties.

As a general rule, the Indian, in choosing a site, located where he could be sure of receiving the greatest amount of sunshine. Therefore most encampments are found on the sunny side of hills or along the southern base of mountains. Such a location afforded also some protection from northerly winds. This may partially account for the fact that camp and village sites are far more plentiful south of Kittatinny Mountain than along its northwestern slope.

DISTRIBUTION OF SITES.

It is quite apparent that the character of Sussex County with its variety of physical features, its succession of hills and mountains, of lakes and streams appealed greatly to the Indians. An endless forest covered all the land and afforded a relatively abundant supply of game to the crafty hunters. The lakes and streams, on the other hand, yielded a profusion of fish, easily obtained by net and hook and allowing an agreeable change from the meat diet. It is not surprising therefore that in portions of the county traces of the Indian can readily be found even though the best specimens of their industry were picked up long ago.

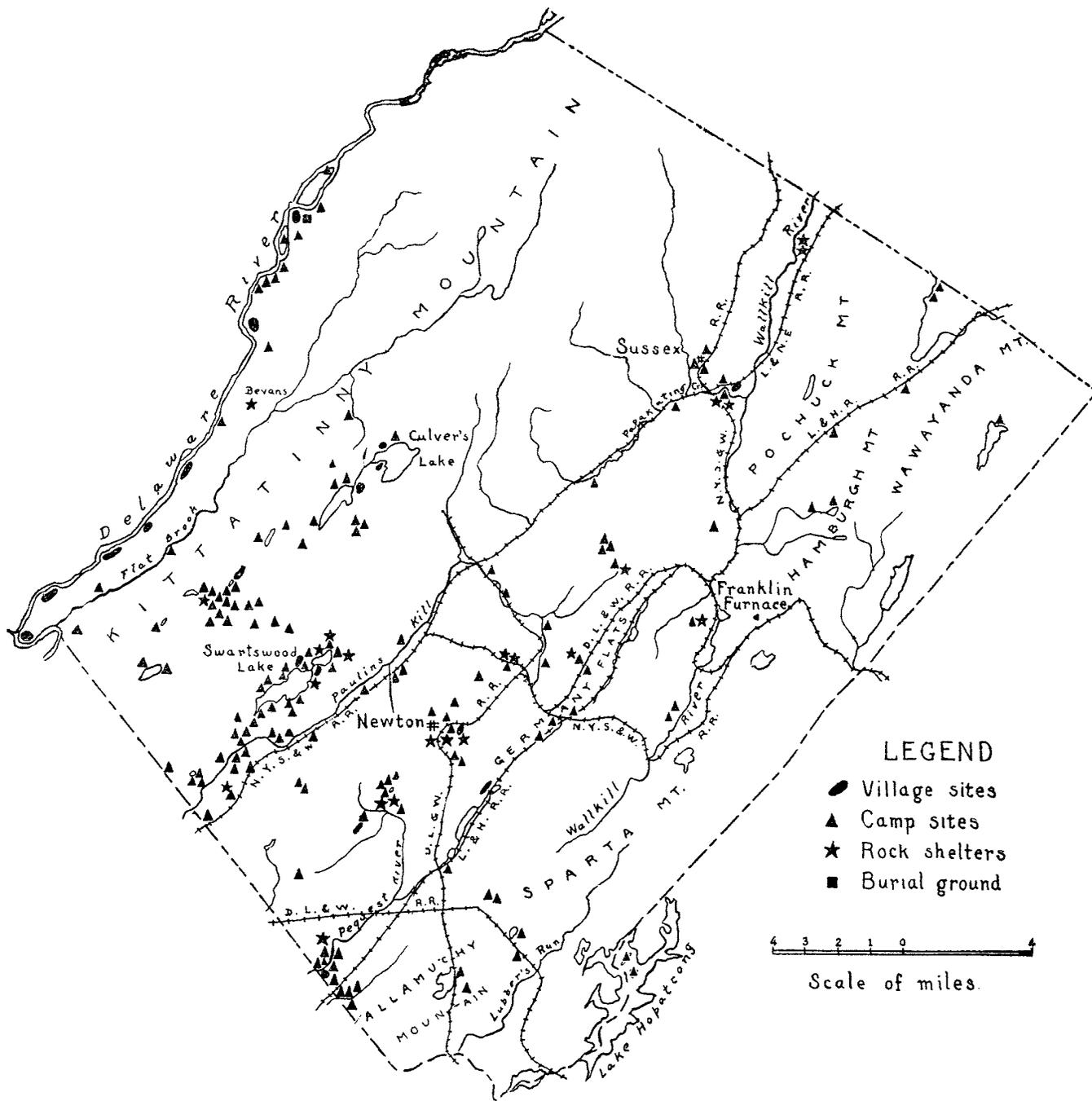


PLATE I.—Distribution of Indian Remains in Sussex County.

Although, perhaps, no part of the county is entirely without some traces of Indian occupation, the survey¹ has shown certain well-defined areas of habitation which in abundance of sites stand in marked contrast to the remainder of the county. Of these the terrace flats along Delaware River, the swamp and lake country immediately southeast of Kittatinny Mountain between Fairview Lake and Culver's Lake, the region around Swartswood Lake, the vicinity of Newton from Big Spring on the southwest to Lafayette on the northeast, Germany Flats and the vicinity of Sussex are the most important (Plate I).

In drawing inferences regarding the number of inhabitants or the length of occupancy of any site several considerations must be kept in mind. A profusion of relics on any site may be the result of long-continued or recurrent occupation by a comparatively few families or for a much shorter time by many families. Concentration of many relics within narrow limits unquestionably means long occupation, either continuously or at recurrent intervals, but their distribution over a wide area does not necessarily mean the presence of a large population at any one period. The Indian was migratory to a certain degree, and while he undoubtedly returned time and again to pitch his lodge in a favored region, the exact location unquestionably varied from time to time, so that in time traces of his occupancy might readily be distributed over an area of considerable size. He was also gregarious, perhaps more so than ourselves, so that their largest towns were large relative to the total population, and there were much fewer isolated dwellings. Yet the presence of many small sites, apparently of a single lodge, indicates that at times, perhaps at certain seasons of the year, the population was somewhat scattered.

Judging from the distribution of relics the New Jersey shore of Delaware River² would at first thought appear to have been the site of one vast continuous village. This, of course, was not the case since the Indians were not numerous enough to establish a settlement of such proportions. But they were of a roving dis-

¹In the limited time available, it was impossible to examine all parts of the county with equal thoroughness. Our statements in regard to the distribution of sites are not final, but represent only the present state of our knowledge. Further exploration will probably increase the number of sites and perhaps modify our conclusions as to general distribution.

²We refer of course only to that section of the river in Sussex County, i. e., that part which lies between Port Jervis and Flatbrookville.

position and pitched their tents now here, now there along the river so that signs of their activities may be discovered at many points on the gravel terraces.

The river itself afforded a broad highway easy of passage by raft or light canoe and probably furnished fish and mussels in abundance. The loose sandy fields adjoining were readily cultivated by the women, and there was an abundance of raw material for stone implements in the gravel banks and ledges of cherty limestone close at hand. It is not astonishing therefore that this region seems to have been the seat of a relatively dense population.

In choosing sites preference was given to points at the mouth of a tributary brook. The main sites are the following: A village site south of Minisink Island on Burson Bell's farm, another north of Dingman's ferry, one near Wallpack south of Shapanack Island on the Burke farm, one opposite Buck Bar Island and west of limeys Mill, and two others near Flatbrookville on the peninsula formed by the great curve of the river. Moreover, many smaller sites, are scattered all along the river, usually close to it, but in some cases as much as 300 yards from it. Stray finds are made almost anywhere between the sites mentioned, probably objects that were lost or discarded. At one place, a short distance north of Wallpack Center, beads were found in large quantities in years gone by and it is not improbable that they were manufactured in that place.

While the terraces flanking Delaware River give many indications of the Redman's former presence, those along Flat Brook a mile or two east are practically destitute of all signs denoting lodge sites, except near its mouth. So too are the western slopes of Kittatinny Mountain. A careful survey of this region and inquiry of the inhabitants brought only negative results. True, isolated finds have been made in this section, as was but natural to expect, and two camp sites were noted, one in the vicinity of Haney's Mill, on the bank of Flat Brook, and the other near Tuttles Corner, on the trail which probably led through Culvers Gap to the Delaware, 5 miles distant, but the valley as a whole is noteworthy for the comparative absence of sites.

Second in importance to Delaware River is the region around Swartswood Lake and southwest to Stillwater. An abundance of fish in lake and stream probably explains the presence of the num-

erous remains still to be discovered about the shores of this picturesque sheet of water. A cluster of about 20 sites 3 miles northwest of Swartswood Lake and near the southeast face of Kittatinny Mountain perhaps marks the spot where the Redmen were wont to pause preparatory to ascending the mountain for hunting. Countenance is given to this assumption by the circumstance that at this spot an easy ascent may be made leading up to Round Pond on the top of the mountain, and by the further fact that half way up the mountain, along the path which they presumably took, a workshop has been noted.

The region about Newton was a third important center of occupation. In addition to many small camp or lodge sites two large village sites have been located, one at Newton, probably the ancient Tok-hok-nok village, the other at Big Spring, southwest of Springdale. Limestone ledges abound in this region, five rock shelters having been located in the immediate vicinity of Newton. The most important of these is Moody's Rock near Muckshaw Pond, 3 miles south of the town. There are other groups of sites near Lafayette, on Germany Flats and farther south in the neighborhood of Tranquility.

It was somewhat of a surprise to find only a few widely scattered sites in the region between Woodruff's Gap, Hamburg and Sparta, for the region apparently presents many attractive features. The same was true of Vernon Valley, the Wallkill Valley, except near Sussex (Deckertown) and all the hilly country north and west of Sussex. Likewise the Highlands in the eastern part of the county are apparently devoid of sites, save near some of the lakes which dot this region.

All this eastern part of the county was probably chiefly a hunting preserve, a land of passage only, occasionally visited and not well fitted for habitation, owing to its rough and inhospitable character. To appreciate fully its former inhospitality we must bear in mind that it was a forest-clad wilderness, devoid of clearings, the habitat of the bear, wolf, and panther and infested with the venomous copperhead and rattlesnake. Hunting parties came and went, traversing trails used alike by man and beast. Camps were pitched on the shores of some of the lakes, but these were few and small compared to those about the lakes in the central part of the county. The apparent absence of small sites, such as are common elsewhere and denote a single lodge, the abode of one fam-

ily, is significant. Practically all observed in eastern Sussex were of fair size, indicating occupancy, temporary or permanent, for an extended period and probably by numerous families.

Likewise little visited except for hunting purposes was the territory northwest of the village of Sussex toward Kittatinny Mountain and across it. No sites are known here, yet it would seem a likely region for the site of rock shelters. Indeed, a rock of this kind is said to have been noticed somewhere in the neighborhood of Mashipacong Pond.

While 234 sites have been discovered in the course of the survey of the county, the writer is inclined to think that this number represents but about one-half of all the sites to be found in the county. Owing to the short space of time set aside for the survey, it was quite impossible to cover all parts of the county with equal thoroughness. Thus, the section northwest of the village of Sussex and south of the New York state line has hardly been touched. But as this is in part mountainous territory, it is likely to be almost destitute of remains. And, indeed, all information received regarding it tends to bear out this supposition.

ROCK SHELTERS.

While as a rule the Lenni Lenâpé dwelt in wigwams pitched on level ground, evidence is not wanting that under some circumstances he resorted to overhanging rocks and shallow caves when such were available and fitted for his needs. It is only, within comparatively recent years that the attention of archæologists in the east has been directed to these rock shelters, but their existence once recognized, not a few have been found. Thus since 1900 the writer has explored sixty-five rockhouses in northern New Jersey and adjacent portions of New York, of which twenty-five were found last summer in Sussex County.

Manifestly such places can occur only in regions where precipitous rock ledges are common. Here in clefts in the crags, beneath overhanging rocks, in shallow well-lighted caves or in holes under heaps of large boulders the Indian could find the shelter he desired. Portions of Sussex County, particularly the limestone belts which underlie parts of the great rolling valley between Kittatinny Mountain and the Highlands, afforded many opportunities for such abodes of which the Redman was prompt to take advan-

tage. While most of the Indian rock houses found in Sussex County are formed by overhanging cliffs, the roofs of which project from 5 to 20 feet, or owe their origin to heaps of huge boulders with a sheltered space underneath, three of those discovered were caves. These are the shelters at Bevans, Sandyston Township, at Hopkins Corner, Lafayette Township, and one near Owens, on the east bank of Walkill River, Vernon Township.

Many fine rock houses, perfect in configuration and affording protection from the elements were never inhabited by the Indians, if we may judge by the total absence of all traces of occupation. Conversely, some shelters structurally inferior have been in great demand. Evidently the Redman required something more than mere shelter. A rock house to be desirable had to have a water supply in the immediate vicinity, otherwise he passed it by. Again, it appears that he preferred shelters with a southerly exposure, where the genial warmth of the sun's rays could be felt the greater part of the day, from which it is perhaps safe to infer that these shelters were used more in winter than in summer. The writer knows of several rock houses within easy reach of water which had been unused apparently for no other reason than that they opened northward.

Abundant light seems to have been another determining factor, for it has been noted that the redskins in general made use only of the fore parts of the deeper shelters, avoiding all dark and cave-like adjuncts, so often found attached to them.

In Sussex County a number of shelters are referred to as "Indian rocks" because the people were positive that they served at one time as the hiding place and abode of the Redman. Many of these have been investigated by the writer with a view of determining the facts in the case. Yet in every instance it appeared they had been shunned as proven by the total absence of any and all remains. The following may be mentioned as examples: One mile south of Stillwater there is the so-called Dead Man's Cave. It lies in a damp and narrow gully, faces north and water is close at hand. Its entrance is well-lit resembling a rock house large enough to hold about four people, and from its rear a long and low passage leads far into the interior of the ridge. No traces of occupation were found except a few bones gnawed for the marrow and probably carried thither by wild animals. At Hopkins Corners, on the old Beemer farm, Lafayette Township, there is a deep cav-

ernous hole, all dark save near the entrance and terminating in a long subterranean passage. Nothing was found here either. On the summit of Kittatinny Mountain, a few miles east of Flatbrookville, Wallpack Township, a fine rock house occurs amid a veritable maze of cyclopean boulders and perpendicular ledges. It is light and airy, has a northern exposure and the so-called Big Spring is only about 200 yards below it. Exploration of the sub-soil furnished no indication of its having been occupied. Its height above the valley and remoteness are, no doubt, the main reasons why it did not attract any Redman. Lastly, there is the famous Devil's Hole south of Newton. This, too, is a deep hole with a long subterranean passage attached to it. A brook flows nearby, but as it is a dark, wet and cold place, it was likewise found to be destitute of the reminders of Indian days.

The 25 rock shelters which showed traces of Indian occupation are located as follows: 1.—Bevans rock house, on John Schoonover's farm, Sandyston Township. 2.—Upper Swartswood rock house, at the base of Kittatinny Mountain, Stillwater Township. 3, 4.—Two rock houses on Stickle's land, north of Little Pond, Hampton Township. 5.—Hendershot's rock house, $\frac{1}{2}$ mile north of Little Pond, Hampton Township. 6.—Gum Hollow rock house, $\frac{1}{2}$ mile east of Little Pond, Hampton Township. 7, 8.—Two rock houses on Emmans's Grove, on the south shore of Swartswood Lake, Stillwater Township. 9.—Preston Meadows rock house, $\frac{1}{2}$ mile south of Stillwater, Stillwater Township. 10, 11.—Two rock houses on Raymond Snyder's Rock, near Warbasse, Lafayette Township. 12.—Ackerson's rock house, 1 mile south of Lafayette, Lafayette Township. 13.—Snover's Cave, 3 miles northeast of Lafayette, Lafayette Township. 14.—Joseph Edsall's rock house, $\frac{1}{2}$ mile southwest of Franklin Furnace, Hardiston Township. 15, 16, 17.—Three rock houses on Berry's Cove, 1 mile southeast of Sussex, Wantage Township. 18, 19.—Owens rock houses on the east bank of Wallkill River, Vernon Township. 20.—Tok-hok-nok rock house at the southern extremity of the Great Meadows, near the Big Spring, the source of the west branch of Paulins Kill, Newton. 21.—Rock house, $\frac{1}{4}$ mile east of Newton and a short distance south of the former. 22.—Sheep rock, Newton Cemetery. 23.—Inslee's rock house, west of Muckshaw Ponds, 2 miles south of Newton. 24.—Moody's rock house, near Muckshaw

Ponds, 2 miles south of Newton. 25.—Greenville rock house, on Aumick's farm, Greenville Township.

In addition, two rock shelters have been reported 2 miles east of Andover near Michael Powers's farm, in Andover and Byram Townships respectively. Another is said to lie on Robert Mill's farm, midway between Andover and Sparta, 1 mile east of the Clinton schoolhouse, Sparta Township, but these have not been examined.

Most of these are relatively close to other camp sites and are easily accessible except for a little rough climbing. A few are more remote and in one or two instances no other sites are known anywhere in their neighborhood. Some of these shelters were perhaps places where single families or small parties lived more or less continuously, particularly during the winter, while others were permanent camps well known and resorted to from time to time by hunters and fishermen or periodically occupied by families during their seasonal migrations.

Exploration of the shelters showed that they possessed many features in common, but enough of variation in the materials found to prevent monotony. The well-nigh ubiquitous arrow-point was found in nearly all; scrapers and chips are also of common occurrence, a fact showing plainly that the ancient inhabitants spent much of the time passed there in replenishing their stock of tools and weapons. Strange as it may seem, not a single tomahawk or axe was discovered in any of the Sussex County shelters explored, but some comparatively rare artifacts were found, such as awls, drills and arrow-points of bone, an unfinished ceremonial stone, pestles and pitted hand hammers for cracking nuts. Fragments of pottery were found in all shelters except two or three where other signs of occupancy were meager, but the amount varied greatly, in a few cases amounting to 1000 pieces or more. In most of the shelters bones were also found, in some instances in very great profusion. Where they occur abundantly, there are always many indications of ancient fires such as hearth stones, heat-cracked pebbles, bits of charcoal and smoke-stained rocks. Bones of the deer seem to predominate, but those of the bear, opossum, rabbit, woodchuck, muskrat and wild turkey have been found. Usually the bones are cracked, presumably for the marrow, and many show traces of fire. Shells of a fresh water mussel—*Unio*—are very common and turtle shells are not infrequent,

showing that both these animals were part of the Indian's diet.

While most of the prehistoric objects are found buried in the subsoil, covering the floor of the shelter, to a depth of 3 feet or more, stone chips and other articles of Indian workmanship are not infrequently met with on top of the accumulated debris, plainly exposed to view.

To one fond of prying into the mysteries of the past the exploration of an aboriginal rock shelter is a most fascinating undertaking. To such a one these places are invested with an irresistible charm, for it is here, on the well-defined space underneath the rock, that he fancies to come nearer to the Redman and to enter into greater intimacy with him. In contrast with field work, which necessitates the search of ancient camp and village sites, of ploughed fields along the banks of lakes, rivers and brooks, he finds here everything in one spot, narrow and circumscribed. There is no doubt as to the place to search. Often the searcher wishes the rocks could speak and tell the story of the happenings which once took place under their hospitable roof. But, alas, all he can do is to draw his conclusions more or less correct from the meager evidence extant, aided, though he be, in his conjectures by the insight born of long experience.

BURIAL GROUNDS.

The Indian was wont to bury his dead on low hills or ridges of loose sandy soil which could be readily excavated with their crude implements of stone, horn and bone. Where this was impracticable, as was sometimes the case in extremely rocky regions, the bodies were covered by great piles of stone. Rarely in this region caves were used. Indian graves were usually shallow, only 1 to 3 feet in depth, as was to be expected in view of the difficulty they must have had in digging even in light soil. In many cases burials were apparently made immediately adjacent to the lodges or even in the very heart of the villages, if we may judge from the various kinds of refuse found on the surface. Yet this mingling of relics of the living with the bones of the dead may mean that the lodges and villages of a shifting population happened to be located on the unmarked graves of an earlier generation.

Few Indian graves and burial grounds have been discovered, compared to the thousands of bodies probably buried in this region

during the centuries of Indian occupation. Doubtless, many of the skeletons have entirely decomposed, yet there must still be large numbers more or less well preserved in unknown graves, the discovery of which will always be largely a matter of accident. Occasionally a few bones turned up by the plough or found in digging wells or cellars reveal the site of an ancient burial, but there are comparatively few. Moreover, it must be remembered that probably not a few of the early white settlers rest in unmarked and forgotten graves, so that not every human skeleton thus found can be perforce referred to the Indians. Nevertheless Indian burials often possess certain characteristics by which the remains can now be certainly identified. The bodies were frequently buried in a bent position with knees drawn up close to the chin, and weapons, tools or utensils of different kinds were placed in the grave, presumably for the use of the departed, when his spirit reached the Happy Hunting Ground.

Although our knowledge of the location of primeval burial places in Sussex County is limited, at least one great Indian cemetery is known in Sandyston Township along the Delaware, south of Mink Island on high level ground belonging to Burson Bell. Scores of skeletons are reported to have been found here and probably many more are still to be found. The soil is light and sandy and so permitted easy digging.

A large village is known to have existed here and the graves are scattered over an area of several acres intermingling with the lodge sites on the edge and in the very heart of the village. Many beautiful specimens of Indian workmanship as well as the omnipresent arrow-points and fragments of pottery have been found in the graves which have been opened. From information received it would seem that some of the bodies were buried in a flexed position with the knees drawn up to the chin and face turned toward the rising sun. The bones of others, it appeared, had been thrown into the graves pell-mell. If this be the case, it would suggest that the bodies had been carried hither from far away to be buried in home soil, in pursuance of a custom once commonly observed by the tribes along the Atlantic seaboard.

A second burial ground of smaller proportions was located a short distance south of Dingman's ferry. Bones have here been ploughed up repeatedly and during the torrential rains and freshet of October, 1903, several skeletons were laid bare.

Another prehistoric cemetery is said to be situated on Ryerson's farm, 1 mile north of Newton, and still another on Germany Flats, 2 miles east of that town. Furthermore, a burial ground is claimed to exist at a point 1 mile west of Swartswood station, near the intersection of two roads, a short distance south of Spring Lake. In addition, cairn burials—a mode of burial where large masses of rock were piled on top of the dead in lieu of the ordinary interment—have been reported from Montague Township; however, nothing definite could be learned in regard to these.

Lastly, the writer has authentic information respecting a so-called cave burial at Berry Cove, near Sussex (Deckerton), where the corpse was placed in a small cave, which was afterwards walled up, a custom frequently met with in some parts of the western United States and in Central and South America, but not usual in this region.

TRAILS.

The probable location of ancient trails is, on account of their evanescent character, one of the most difficult subjects with which the archaeologist has to deal. In the absence of authentic records or reliable oral traditions relating to prehistoric highways, the investigator finds himself compelled, in a large measure, to enter the domain of hypothesis and speculation. However, he is not entirely helpless in his efforts to ascertain their approximate site, for it is known, and indeed it stands to reason, that some of our modern roads, particularly those which in a striking degree are controlled by natural features probably correspond roughly with the paths of the Redmen and may be, in fact, a development of them. It is known that in a level country they would lay their paths in such a manner as would insure both ease and directness. But in a rough territory they were inclined to sacrifice everything to comfort, preferring to make a long detour around a mountain rather than climb it, and here they were in marked contrast with the white settler, who was more inclined to build his road across.

Factors that help us to determine, with some degree of accuracy, the location of Indian trails are, first, the topography, or, as we may say, the lay of the land, and second, the distribution of ancient camp and village sites. Obviously, their settlements were connected by well-trodden paths, whose location would in large

measure be determined by position of hill and valley, stream and lake. And since their camps were always situated along the banks of rivers, brooks, swamps and lakes, many of these primitive avenues followed these water courses, now hugging them closely, now bearing away from them, when too tortuous, to take a shorter cut.

In the valleys and plains all traces of trails have practically been obliterated by the settlements and agricultural pursuits of the white man. But in a rough and mountainous country, where his activities have wrought far fewer changes, it is certain that there are to be found to this day many localities where portions of the Redman's trails are still fairly discernible. Such trails followed the lines of least resistance and so far as possible avoided natural obstacles, as is to be expected. On Kittatinny Mountain the writer has travelled several of these primitive highways, which lingering tradition ascribes to the aborigines. In most instances they are well-trodden and deeply worn, except where the ground is rocky, and while, as already said, long stretches of them can no more be distinguished, there are parts in a good state of preservation. These paths are popularly referred to as Indian warpaths, because it is believed that the aborigines were in the habit of following them in order to swoop down unawares upon the settlements of the pioneers in the valleys below.

It is probable that an ancient thoroughfare ran from Beemer-ville or thereabouts up the mountain to Mashipacong Lake, following in part the valley of Big Flat Brook. Again, there can be no doubt that an important prehistoric highway passed from the settlements on Culvers Lake and Lake Owassa through Culvers Gap, thence by way of Tuttle's Corner to the villages along Delaware River. Less than 2 miles west of it another trail occurs, crossing Kittatinny Mountain north of Owassa Lake and leading directly into a camp site in a valley at the northwestern base of the mountain. Still farther west is the Quick Pond-Wallpack trail passing through a high gap in the mountain crest which is now followed by the mountain road between these points. The Swartswood Pond-Point trail was, no doubt, another important path, which was once much traveled because it afforded an easy access to the lakes on top of the mountain.

A study of the eastern portion of Sussex County leaves no doubt as to the existence there of ancient trails crossing the mountains, skirting their bases or following the valleys. The rock shelters

west of Owens were perhaps connected with the camp sites east of Glenwood by a trail across Pochuck Mountain, approximately along the line followed by the road which now connects these places. Another path may be supposed to have run from the camp sites at Vernon to Lake Wawayanda, making use of one or the other of the several ravines cutting deeply into the mountain side. A trail no doubt led up Hamburg Mountain from near Rudeville to the angling places along the shore of Sand Pond. We are unquestionably safe in concluding that the Indians used the pass across Hamburg Mountain east of Franklin Furnace, now followed both by railroad and highway, to reach the great transverse valley of the Pequannock at Stockholm, whence the road was comparatively easy across the Highlands to the numerous Indian settlements on Pompton Plains. Woodruff's Gap, south of the Pimple Hills, afforded an easy line of communication between the sites on Germany Flats and those in the upper Walkill Valley. Lastly, we may perhaps infer from the distribution of camp sites that a trail ran from Cranberry or thereabouts to Wright's Pond near Roseville and thence to Lake Hopatcong, one of the great headquarters of the Lenni Lenâpé.

In addition to trails traversing the mountain passes, we may safely assume that ancient paths ran along the Vernon and Walkill valleys, and also along the southeastern base of Kittatinny Mountain, particularly southwest from Culvers Lake. A famous prehistoric thoroughfare skirted Delaware River between Delaware Water Gap and Port Jervis. On the discovery of the copper mines in old Pahaquarry by the earliest white settlers about the year 1700, the so-called "Mine Road" was constructed mile after mile along this ancient trail. Other trails probably flanked the banks of Paulins Kill and Pequest River or circled the lakes where fishing was good and where numerous camp sites can still be recognized.

Our modern roads, while not exactly coinciding with these old paths, probably cross and recross them in many places, being perhaps on the whole straighter than they. But whenever we travel through a narrow valley, we may be sure of treading almost along the same trail which the aborigines used for untold centuries prior to the advent of the whites, but now changed into modern highways.

RAW MATERIAL.

By raw material are meant those rocks and minerals which the Indian employed in the manufacture of his stone implements. Although many of his most important tools were of stone and he was therefore a true stone-age man, he made extensive use of other substances. Among his household utensils many objects were carved out of wood such as cups and mortars; the shafts of his arrow-points were mostly from the dogwood tree and his fish-nets and mattings were woven out of stout grasses and bulrushes. Then, again, bone was worked into a variety of artifacts, such as needles, harpoons, awls and arrow-points, and the skins of animals he hunted furnished him the material for his moccasins, blankets and clothing. On the other hand, the use of metal was almost unknown and aside from a few spears and a celt, made from copper and reported by Dr. Abbott, there are no records of metallic articles employed by the aborigines of New Jersey.

Sussex County furnished a wide range of material from which the Indian could fashion his stone implements. Many of the limestone beds, which underlie portions of Kittatinny Valley, as well as some of those which outcrop along the upper Delaware contain nodules and masses of flint. Flint pebbles are also more or less common in many gravel deposits of the county, so that there was a great abundance of this mineral which was highly prized by the Indian and much used particularly for arrow-points.

In this respect Sussex County afforded superior advantages to the Indian as compared to counties farther east, where flint is relatively scarce or altogether absent. It would not be surprising if the inhabitants of these regions often visited Sussex County to secure supplies of this much prized material.

Next to flint, jasper was largely used all over the county for arrow-points, spearheads, scrapers and knives. While not so abundant a raw material as flint, it occurs in the glacial gravel of the county and in some of the rock formations. Artifacts of quartz are not common, although quartz veins cut many of the slate beds which underlie the greater part of Kittatinny Valley. Pebbles of quartz are also more or less common in the gravel beds of the county. Argillite was employed to a large extent in fashioning arrow-points and spearheads. This rock is very abundant at many places along the Delaware below Riegelsville, both in Hunterdon

and Mercer counties, and its extensive use in Sussex County may indicate that the Indians there traveled considerable distances up and down the Delaware. Yet we cannot lay too much stress upon this point since a hard dense rock much resembling the argillite of the middle Delaware occurs in Sussex County a few miles northwest of Beemerville, near the base of Kittatinny Mountain, and the argillite implements of Sussex County were perhaps made from this rock.

Crystalline limestone which outcrops at many points in Vernon Valley and along the upper Wallkill was likewise used and elaborated into beautiful objects. Specimens made of hematite have been recovered principally on Germany Flats and in the neighborhood of Sparta. Even such poor material as slate was utilized and specimens of this kind are familiar to all collectors of this region. Fragments of soapstone pots, undoubtedly an importation, have been picked up along the bank of Delaware River. The tomahawks and hatchets found in the county consist mostly of granite and gneiss, the common rock of the Highlands and present as cobble stones and boulders in many gravel beds in the eastern part of the county.

In conclusion we must not pass by the most interesting fact that arrow-points made of obsidian and chalcedony are reported to have been recovered near Lafayette and Middleville on the site of ancient villages. Since these materials that lent themselves so admirably to the highest workmanship of the arrow-maker do not occur or are extremely rare in New Jersey and neighboring states, we find ourselves face to face with an interesting problem which seems to demand for its solution an extensive barter with distant tribes.

CHAPTER II.

DESCRIPTION AND LOCATION OF SITES.

GENERAL STATEMENT.

In the following pages all the sites noted during the survey of the county in the summer of 1913 are located and described. Four kinds of sites were recognized, namely, camp sites, village sites, burial grounds and rock shelters. The distinction between a camp and a village site is not a hard and fast one as the main difference is merely one in size. There is also the added distinction that artifacts are more common and more diversified on the site of ancient villages than on camping grounds, because the former have been more permanently occupied.

In describing the sites arrangement is along physiographical lines, that is, according to their distribution in relation to natural features such as river valleys and lakes. To group them according to townships would be arbitrary and artificial and result in a confused mixture of ancient with modern geography.

The following groups have been made: 1.—Along the upper Delaware; 2.—On and near Kittatinny Mountain; 3.—Near Swartswood Lake and Stillwater; 4.—Vicinity of Tranquility; 5.—Vicinity of Andover; 6.—Near Newton and Lafayette; 7.—Germany Flats; 8.—The Walkkill Valley; 9.—Vernon Valley and the adjoining Highlands.

ALONG THE UPPER DELAWARE.

Minisink Island.—This island lies about 15 feet above normal water level of Delaware River and is practically level. There was a camp site and fishing place at its northern end, where arrow-points of flint and jasper as well as net sinkers of a type quite common in Delaware Valley and usually consisting of flat oval pebbles notched on opposite sides were once fairly abundant. Situated as it is in the immediate neighborhood of the Great Minisink village and separated from it only by the river channel, it may seem strange

that it was apparently the site of only one camping ground, although the fact that it is flooded wholly or in part in periods of high water probably accounts for this. (21-14-3-2-5).

However, scattered relics were found in at least two places, namely, at (21-14-3-4-3; 4-5.)

The Great Minisink village was situated directly south of Minisink Island on high level land overlooking Delaware River. Artifacts of every description have been found here, and many of them are now in Burson Bell's collection. Even now the fields are littered with flint and jasper chips indicative of primitive workshops. From the evidence extant we may infer that this village was one of the headquarters of the Minsi division of the Lenni Lenâpé. That it was, moreover, a great fishing place, may be taken for granted. (21-14-2-9-2, 5.)

A burial ground adjoins the village site, many of the graves encroaching upon and intermingling with the lodge sites. Dozens of skeletons have already been removed but probably many more still lie buried in the easily excavated sandy soil. Some of the graves are near the edge of the high bluff, 30 feet above one channel of the river and as the bank is undermined by freshets, the ancient graves and their contents are occasionally exposed to view. The burial ground itself is covered with the refuse of implement-making and many fine artifacts have been found on the surface or turned up by the plough. Lodge sites and graves appear to be more or less closely intermingled over several acres, so that it is impossible to draw any clearly defined line of demarcation between village and cemetery. Yet it seems certain that the larger number of graves lay east of the village.

In many places the writer has found bones, potsherds, flint chips and occasional arrow-points close to where graves had been opened, but it cannot be assumed with any degree of certainty that these

¹The system of numbering followed is that described in the Administrative Report of the State Geologist of New Jersey for 1911, bulletin 6, pp. 13-15. Persons having the published topographical maps of the State Geological Survey, Nos. 21-37, can locate on them the exact sites by applying these numbers as there described. In brief, the system is as follows: The first number refers to the topographical atlas sheet; the second number to the major subdivisions of this sheet, each measuring 6 minutes of latitude and 6 minutes of longitude, the numbers commencing in the upper left-hand corner of the sheet, the first tier being 1 to 5, the second 11 to 15, the third 21 to 25, etc.; the third number refers to one of the nine 2-minute rectangles making up the 6-minute subdivisions, the numbers commencing in the upper left-hand corner; the fourth number refers to one of the 9 equal subdivisions of the 2-minute rectangles; each of these subdivisions is still further divided into 9 parts similarly numbered, to which the last number refers.

had any connection with the burials, since graves and lodge sites were so intermingled.

One grave discovered accidentally by Mr. Bell while ploughing, contained some extraordinary rare objects, exhibiting the highest degree of workmanship ever attained by the Lenni Lenâpé. Along with a piece of burnt mica, a piece of zinc, a stemmed jasper

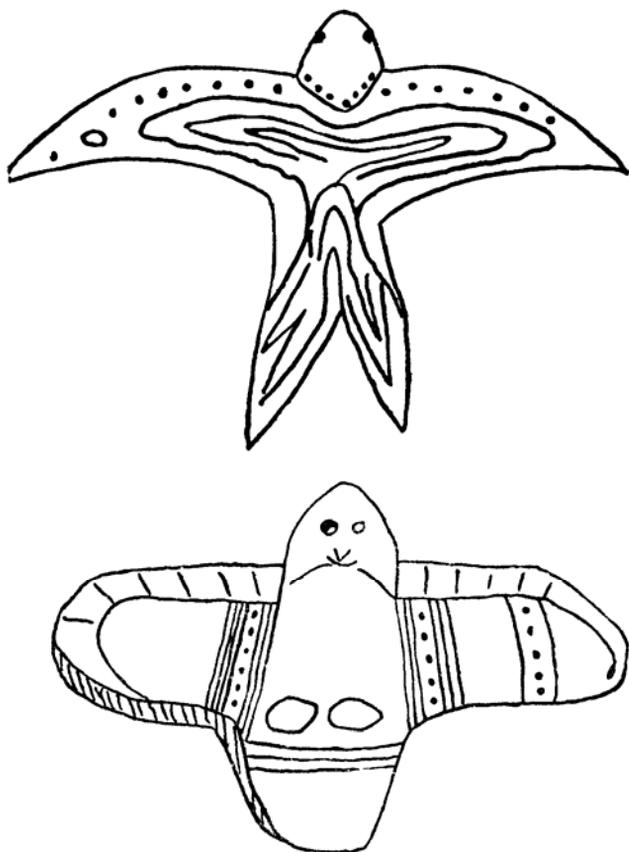


FIG. 1.-Bannerstones from the Minisink Burial Ground.

scraper and twelve dark blue beads, he found eight white stone tubes, one-quarter of an inch in diameter and from 2 to 4 inches long, used perhaps by the medicine man to draw disease from the sick. But the pièce de résistance were two exquisitely carved ornaments of an immaculate white color, representing hawks or eagles. (Figure 1.) These ornaments, designated as ceremonial

objects (bannerstones), mark perhaps the grave of a chief and are now in Bell's collection. (21-14-2-9-3, 6; 3-7-1, 4.)

A fishing place and workshop opposite Minisink Island, north of a small brook and near its confluence with the east branch of Delaware River. (21-14-3-7-3.) Close by is an old fort or block house erected during the French-Indian wars for the protection of the settlers against the Indian incursions.

Namanock Island.—A fishing place on the east shore of Namanock Island, where arrow-points, scrapers, netsinkers and unio shells are fairly abundant. (21-14-5-3-4.) Flint chips and rejects are scattered all over this island.

A camp site 1 mile south of the great burial ground, on a sandy knoll north of a small brook, east of Namanock Island. Pitted handhammers and other remains of aboriginal handiwork have been here found. (21-14-5-3-2.)

Scattered relics on a very high bluff, 60 feet above the river, opposite the southern end of Namanock Island. (21-14-5-3-8.)

South of Namanock Island, on the flats next to the river, there are four fishing places in a distance of 1½ miles. These flats yielded all manner of relics, among them netsinkers, slickstones, hammers, tomahawks, hatchets and potsherds, and fragments of pottery have been found all along the river bank. The most northerly site (21-14-5-5-6), has yielded few relics, but from the two on A. M. Depuy's farm a large collection of multifarious objects has been made by Mr. Depuy in years gone by, and a fresh archæological harvest can be still garnered after every ploughing. (21-14-5-5-6; 5-8.) The most northerly site, opposite the so-called fishroad, although fully 15 feet above the river, was inundated during the great flood of October, 1903. Scores of arrow-points, mostly of jasper, heaps of unio shells and heat-cracked pebbles, the latter revealing to us the sites of ancient hearths, were thereby uncovered. (21-14-5-4-9.)

An interesting find was made on A. M. Depuy's farm, at the foot of Wallkill Ridge, one-half a mile from the river. While grading the barnyard a large cube-shaped rock was dug out and under it, about 2 feet below the surface, lay a stemmed flint scraper and a soapstone ring, an inch in diameter. There were no traces of bones, chips or charcoal near the hole such as would denote a camp site, nor had any other relics been found within 500 yards of the spot. (21-14-5-6-7.)

Dingman Ferry.—An Indian village once occupied the fields on the Morgan farm, a short distance north of the Dingman Ferry bridge, at the mouth of a brook, locally known as Skunk Run. This spot has yielded objects of every kind in large numbers and while visiting it, the writer picked up several pitted handhammers, a crude celt, arrow-points and a number of rejects, i. e., articles that had not been finished, evidently because of some flaw in the raw material. (21-14-8-1-4, 5, 7, 8.)

A smaller site lies less than 1 mile southeast of this village on higher ground near a brook, about 600 yards from the river. Some tomahawks have been here found along with the more common implements. (21-14-8-5-4.)

About 300 yards south of Dingman Ferry a small burial ground has been noted on a high sandy ridge flanking the river. The great flood of October, 1903, swept over this bank and laid bare numerous human bones. (21-14-8-4-5, 8.)

Bevans.—Scattered relics occur on top of the high ridge overlooking the river, 1 mile west of Bevans. (21-14-8-7-7 and 21-24-2-1-1.) At some point on this ridge a beautiful flat-based monitor pipe decorated with chevron moldings was discovered a few years ago.

Bevans rock house.—A fine rock shelter, rich in archæologic remains, was found on the ridge, 300 feet above the level of the river, on John Schoonover's farm, one-half a mile west of Bevans. It is probably the only Indian rock shelter between Flatbrookville and Port Jervis. An eastward facing rock ledge, trending N. N. E. and parallel to the river, limits a shallow depression on the west, through which flows a small brook, tributary to Flat Brook. The rock house is at the foot of the ledge, facing the basin, which is usually swampy in times of heavy rains. It has an eastern exposure and consists of three parts; to the left a typical overhanging rock, 24 feet long, with the roof from 10 to 14 feet above the floor and projecting 8 feet; in the center another overhanging rock, 22 feet long, with roof 8 feet high and projecting 6 feet, but protected in front by two detached masses of rock, one small, the other large, lying 5 feet from the rear wall; at the right a cave-like compartment, 16 feet long, 4½ feet wide and 6 feet high. All three parts lie in an approximately straight line at the foot of the low cliff and their total length is about 62 feet. (Figure 2.)

The open shelter to the left yielded the most aboriginal remains and the middle section the least. The dirt floor underneath the rock was level and composed of light sand mixed with rocks. The rear wall was smoke-stained and discolored by ancient fires but no relics were noted on the surface. The first tell-tale marks of the Redman's former presence under this rock were, as usual, chips found about 3 inches below the top. After that relics came to light to a depth of 2 feet, where the rock floor was reached. A trench was dug along the rear wall towards the extreme left revealing the well-known signs of a fireplace, about 12 feet long, 14 inches wide and 20 inches in depth. Immediately below the

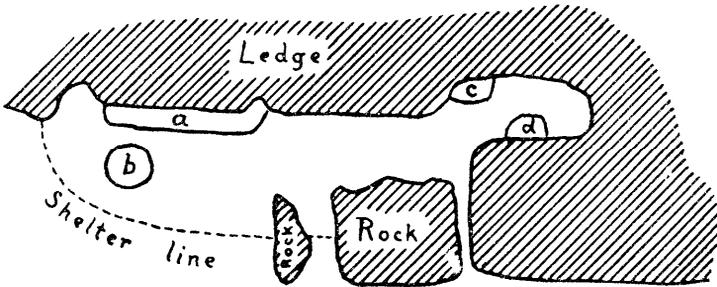


FIG. 2.—Diagram of Bevans Rockhouse.
a, b, c, d—Fireplaces.

surface the earth was impregnated with the dark stain of charcoal and in it there were found innumerable potsherds, both plain and ornamented, bones, mostly of deer, chips, 3 notched arrow-points, 1 triangular flint point, 1 lozenge-shaped point, 3 straight-stem points, 1 of them of quartz, 4 straight-stem spearheads, a number of broken points, 1 drill, 3 pestles, an unfinished banner stone, 1 crude celt, 1 large triangular blade roughly pecked, 2 pitted handhammers, 1 netsinker, flat and oval in shape and notched medially, and another netsinker egg-shaped and also notched in the middle. This was identical in type with those found in an Indian cave at Owens on Walkill River.

Three feet from the rear, at the extreme left of the shelter, there was another fireplace, indicated by smoke-stained earth and charcoal. It contained many mussel shells of a species of the genus *Unio*, very common in the streams and lakes of New Jersey, and highly prized by the Redmen as food. Then there came to light flint and jasper flakes, bones, 3 triangular

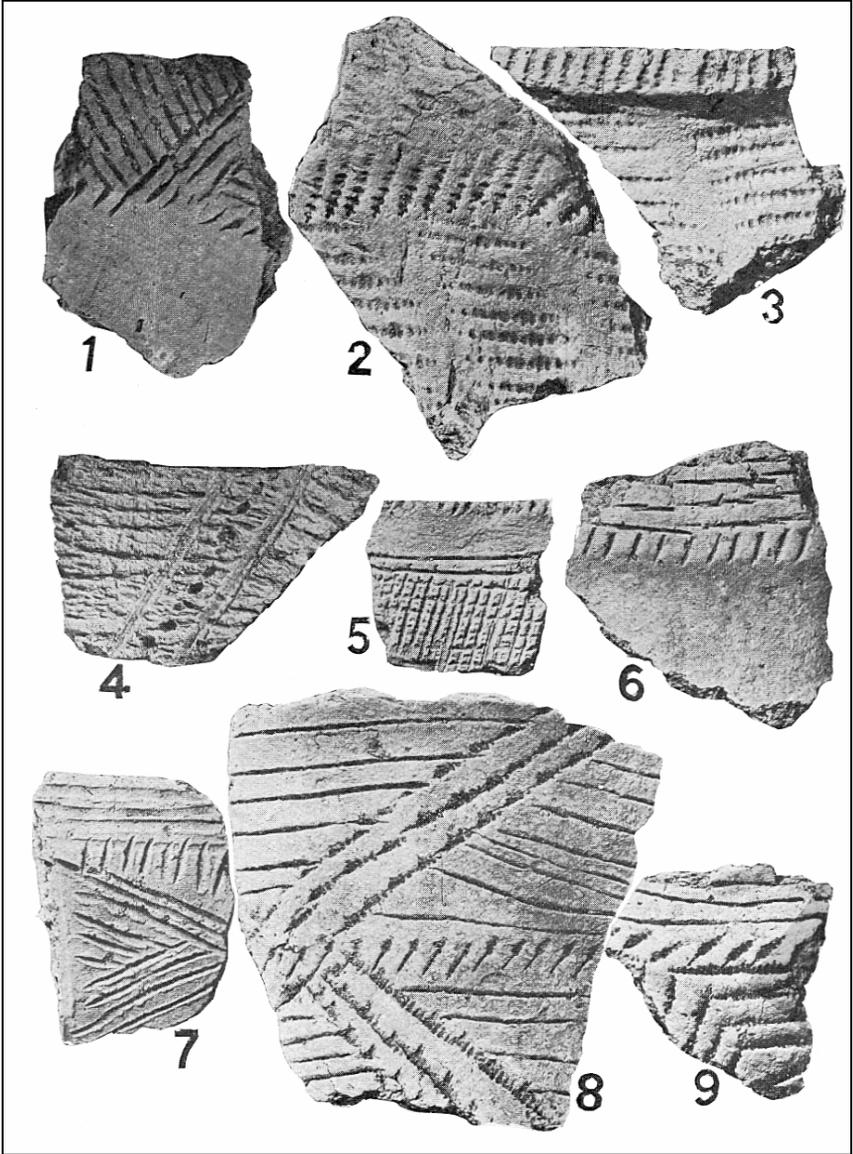


Plate II—Decorated Potsherds from the Upper Delaware Valley. Nos. 1-7, Bevans Rock Shelter. Nos. 8, 9, Minisink Burial Ground.

points, sometimes designated war points, 3 notched points, 1 straight-stem point, several broken points and numerous fragments of pottery.

The center portion yielded but few finds. Here a pot had evidently been broken, as there were many fragments in a heap, about 5 inches below the surface. All these pieces were cord-marked, i. e., showing the simplest kind of ornamentation used by the aborigines and produced by impressing a net upon the pot, while the clay was still soft. Seven imperfect arrow-points, deer bones and two raccoon jaws were also found.

The cave-like portion at the extreme right contained traces of two ancient fireplaces on opposite sides and mingled with the black dirt were hundreds of pieces of pottery, mostly cord-marked, among them a very large fragment of the rim of a pot, exhibiting its curvature. Scattered through the cave but principally near the fireplaces there were also dug up a large spearhead, 4 inches long and perfect in workmanship, 2 smaller ones., also perfect, an exquisitely carved jasper spearhead, several large broken blades, some badly corroded arrow-points, a rubbing stone used for smoothing skins, a flint chisel, deer bones, raccoon jaws and turtle shells.

Altogether there were obtained in the three parts of this rock shelter at least 1000 pieces of pottery belonging probably to about 20 different pots, judging by the various decorations employed as well as by the color and varying thickness of the material. Flint, jasper and argillite furnished the material for the arrow-points and spearheads discovered under this rock. Figures 1-7, Plate II, show the different designs employed in the decorations of the pots.

In view of the abundance of artifacts unearthed under this rock, there can be no question that it was much resorted to by the Indians. It appealed to them for two reasons; in the first place, its excellent configuration or structure, second, its location, since it is only 1 mile from the Delaware and less than one-half a mile from the great Indian river trail, later on changed into the Old Mine Road. It also seems certain that, had this rock lain a few miles farther inland, it would not have been occupied, such was the attraction of Delaware River. Considering the materials found we may assume that it was tenanted more or less permanently, perhaps for winter quarters. The fireplaces suggest cooking and the pottery indicates that the squaws and children accompanied the men and shared their quarters. (21-24-2-1-5.)

A short distance north of this shelter there is a cave, 16 feet deep, 8 feet high and 4 feet wide, with a fine spring close by, which is always referred to as "The Indian Cave." It might have been used by them, but being partly filled with rubbish, it has not been explored.

Scattered relics have been found two-thirds of a mile south of the Bevans rock house in a valley near a swampy patch of ground on John Schoonover's land. (21-24-2-4-4, 5.)

*Wallpack Center.*¹—There is an ancient fishing place on Delaware River between it and the Old Mine Road, 1¼ miles above Shapnack Island. (21-24-1-5-6.)

Beads have been found on the hill north of Wallpack Center (21-24-4-2-5.)

Shapnack Island.—A village site of considerable proportions occupied the flats along Delaware River south of Shapnack Island. Prehistoric objects of different kinds are still fairly abundant. (21-24-1-7-8; 4-1-1, 2, 4.)

Haneys Mill.—A fishing place on the flats bordering Delaware River, 1½ miles northwest of Haneys Mill. (21-23-6-8-1, 2, 4.)

A large camp site at Haneys Mill on the east bank of Flat Brook, where many relics have been gathered. (21-23, 9-3-2.)

A village site and fishing place along Delaware River on the flats opposite Buck Bar, 2 miles west of Haney's Mill. (21-23-8-3-4, 5, 2, 3.)

Flatbrookville.—Near Flatbrookville Delaware River leaves the valley it has been following and in a great S-shaped curve cuts through Wallpack Ridge and enters the valley of Flat Brook, at the base of Kittatinny Mountain. The peninsula enclosed within the arms of this great curve, was a favorite resort of the Indian, as is fully attested by the numberless remains to be found on river, shore and hillside.

Two village sites lie, one northwest, the other southwest of Flatbrookville along the Delaware. (21-23-7-6-8; 9-2, 3), (21-33-1-1-9; 2-7, 8.) Two camp sites lie on the west bank of Flat Brook, about 2 miles above its mouth. (21-23-8-6-7; 8-3.) Another is high up the slope of Kittatinny Mountain, nearly a mile southeast of Flatbrookville, on a level stretch of ground with a brook and spring near by. (21-33-2-1-6.) Scattered relics occur at

¹"Wallpack" is corrupted from Indian "Woo-lac-tup-peek," meaning a whirlpool.

several points on Wallpack Ridge west and north of the village. (21-23-8-5-7; 7-2; 7-6; 8-1; 7-9-9; 33-1-2-3.)

Flat Brook Valley.—So far as our present knowledge goes the valley of Flat Brook and of Clove Brook, its northward continuation between Wallpack Ridge and Kittatinny Mountain, was but little frequented by the Indians, although in many respects admirably adapted for settlement. In addition to the camp site at Haneys Mill, already mentioned, only scattered relics have been found, principally near Abertown, and only one camp site was here located, near Tuttle's Corner on the Merring farm. (21-24-3-3-9.) The reason for this at first sight astonishing condition of affairs must, no doubt, be attributed to the fact that Delaware River proved most attractive to the Indians not only because of the splendid fishing facilities it afforded, but also on account of its being a natural and most convenient avenue of communication both north and south. Hence, all aboriginal life gravitated towards it, and the lesser attractions of the Flat Brook Valley, although by no means to be despised, were overlooked.

ON AND NEAR KITTATINNY MOUNTAIN.

The region immediately east of Kittatinny Mountain between Culvers Lake at the northeast and Fairview Lake on the southwest, and including the small lakes on the mountain, was much frequented by the Redman. This was to be expected in view of the numerous lakes, ponds and swamps within a few square miles.

Culvers Pond.—A large camping ground, probably a village site, on the old Hamm farm near the northeastern end of Culvers Pond. Numerous Indian relics found here in former years. (22-21-17-4, 7.)

A camp site on Kays's farm near the northern end of the pond, a few hundred yards from the shore. (21-25-1-5-9.)

A village on the shore of the pond, on the Kerr farm, a short distance east of Culvers Gap. (21-25-1-8-2.)

A village on Savage Point; many traces of aboriginal occupation still observable. (21-25-1-8-8.)

The shores of Culvers Pond were, no doubt, dotted with many other lodge and camp sites, but all indications of these have been effaced since the pond became a summer resort.

Lake Owassa.—A village site on the high level land on Lawson's farm, at the northern end of Lake Owassa, southeast of the brook connecting this lake with Culver's Pond. (21-25-4-1-7, 8.)

Scattered relics on the corner of a small cove, on land belonging to J. P. Beardall. (21-25-4-4-1.)

A camp site at the northern extremity of the lake, northwest of the village. (21-24-6-3-5, 6.)

Some thirty years ago a well-preserved Indian pot was discovered directly north of the latter site under a small shelving rock at the foot of Kittatinny Mountain. (21-24-6-3-3.)

Traces of a camp site on the west shore of the lake. (21-24-6-3-7.)

A camp site directly across Kittatinny Mountain in a narrow valley trenching northeast towards Culvers Gap. (21-24-6-2-3.)

At the southern end of the lake, at a place locally known as Canticaw, the writer discovered two camp sites. Exploring the ground with a trowel, innumerable flint chips and unio shells were brought to light, and there were many indications of ancient fires, as disclosed by the presence of charcoal and heat-cracked pebbles. (21-24-6-8-1; 8-1-4.)

On the old Morgan farm, at the eastern end of Bear Swamp, four sites. (21-25-4, 7-1; 7-1, 2; 7-2; 7-1, 4.) Also one at the western end near a locality called Egypt. (21-24-9-2-2.)

Quick Pond.—An Indian encampment one-half mile northeast of Quick Pond, opposite L'Hommedieu's farm, on the west bank of a brook. (21-24-5-9-2.)

A camp site on the west shore of Quick Pond. (21-24-5-8-7.)

Scattered relics at the southern end of the pond. (21-24-8-2-2.)

Mud Pond.—A village site a few hundred yards northeast of Mud Pond, on Garret Pittinger's farm at the foot of the mountain. (21-24-8-4-1.)

The region south of Mud Pond is well-watered, for in addition to the headwaters of two large brooks, there is a chain of swamps extending along the southeastern slope of the mountain all the way from Fairview Lake to Quick Pond. Although these swamps have now for the most part been converted into good tillable soil, there is no question that they were formerly of considerable size and probably the home of many species of water fowl. Moreover, they probably afforded an excellent covert for the wild animals of the forest, so that we might expect the Indians to be attracted to

this region because it furnished superior opportunities for hunting. That this was the case is shown by the fact that eighteen sites have been found within a radius of a mile southwest and south-east of Mud Pond.

Two small sites southeast and south of Mud Pond, respectively. (21-24-7-6-9; 6-8.)

A cluster of five sites, near to the foot of the mountain, on the Blackford farm, close to Trout Brook. (21-24-7-8-3; 8-3; 9-1; 9-1; 9-1.)

A camp site one-fourth of a mile south of the road corner, also on the Blackford farm (21-24-7-9-4.)

Half way up the mountain, east of Trout Brook, a small camp site and primitive workshop, as revealed by the numerous flint

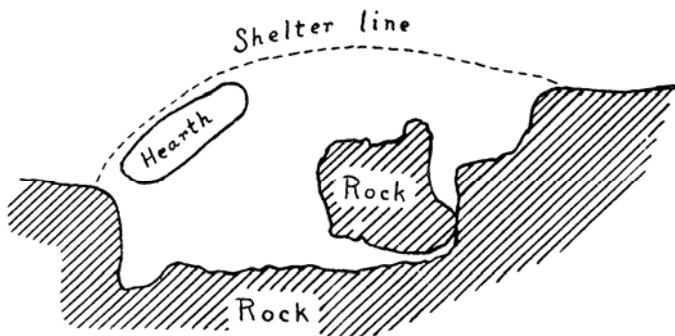


FIG. 3.—Diagram of Upper Swartswood Rockhouse.

chips littering the ground, significant as serving to indicate the probable route of an ancient trail leading up the mountain to Round Pond. (21-24-7-5-8.)

Upper Swartswood rock house.—A rock house showing evidence of Indian occupation, has been discovered at Upper Swartswood on the slope of the mountain, 1100 feet above tidewater, just west of the cluster of sites on the Blackford farm. (21-24-7-8-2.) Trout Brook and the trail presumed to be of Indian origin are one-fourth of a mile northeast of it. This shelter is 20 feet long and lies at the bottom of a ledge, the roof of which juts out about 14 feet and is 7 feet above the floor in the rear and 12 feet along the shelter line. (Figure 3.) Having a southeastern exposure, it receives a generous amount of sunshine, but there is no water close at hand, the nearest available supply being a spring, about 400

yards distant. This circumstance probably accounts for the paucity of the remains found under this rock. Although a spacious shelter, its left-hand portion was obstructed by huge boulders, making that part unfit for use. The floor was dirt, fully 3 feet thick, representing the accumulation of ages and mixed with many rocks. No rock chips or bones appeared on the surface, but the few objects found lay for the most part near the shelter line in the right-hand portion of the shelter, imbedded in the debris at a depth of from 6 inches to 3 feet.

In the course of the excavation a fireplace was discovered near the shelter line. Here the soil was very black and contained deer bones, turtle shells, unio shells, a raccoon jaw, some few pieces of pottery, all undecorated, flint and jasper chips, 2 broken arrow-points, 1 badly weathered jasper point, 1 deeply notched flint point perfect in workmanship, and what appeared to be part of a crude celt. The potsherds occurred in the upper strata only and this fact, taken in connection with observations made elsewhere, seems to hint at a comparatively late introduction of pottery.

Obviously, this shelter was but little visited, probably owing to its poor water supply. At the same time, it seems to be the only rock shelter along the southeastern slope of Kittatinny Mountain or rather that section of it which extends from the Warren County line, west of Fairview Pond, to a point several miles beyond Cullers Gap. Lack of time has prevented explorations of other portions of the mountain, but the ruggedness of the unexplored sections suggests that other shelters may be found.

Three sites a short distance south of Blackford's farm on the sandy ridges bordering the swamps. (21-24-7-8-5, 8; 8-8; 9-8.)

Another group similarly environed, east of these, about a mile south of Mud Pond. (21-24-7-9-5; 9-6.)

Scattered relics near them east of the brook. (21-24-8-7-4.)

Three camp sites on the high bank north of a brook and west of the Benevolence schoolhouse. (21-24-8-7-5; 7-6; 8-4.)

Round Pond.—Still higher, another site, at the eastern end of Round Pond, at an elevation of 1380 feet above sea level; probably a fishing place. It, too, helps to determine still more accurately the direction of the prehistoric trail believed to cross the mountain here. (21-24-7-4-9.)

Long Pond.—A camp site at the southern end of Long Pond, also on top of the mountain, 1269 feet above tidewater. (21-33-3-3-1.)

A careful examination of the rough and rugged section of country between Round and Long ponds gave the impression that the well-trodden path connecting them dated back to Indian times. Countenance is given to this assumption both by certain traditions dealing with this trail and the fact that it is hardly ever used by white men.

Fairview Lake (Sucker Pond).—Two fishing places have been found on the north and on the east shore of Fairview Lake, just east of Kittatinny Mountain. Years ago beds of fresh water mussels were quite common along its banks and many aboriginal objects were picked up near them, but particularly at the sites mentioned. (21-33-3-5-8; 6-7, 8.)

Sprout Hill.—Three widely separated camp sites on Sprout Hill, midway between Mud Pond and Swartwood Lake. Like most of those mentioned above they are of little archæological significance, as they denote a temporary lodge site or work shop, where the dusky hunter pitched his tent to replenish his supply of weapons. (21-24-8-8-9; 34-2-2-1; 3-3.)

NEAR SWARTSWOOD LAKE AND STILLWATER.

Under this heading are included 46 sites near Little Pond, Swartwood Lake, Middleville and Stillwater.

Little Pond.—A large camp site on Comfort Point, a spit of land on the west side of Little Pond, near its outlet, called Indian River. Relics were abundant at this point before its natural conditions were disturbed. (21-34-3-5-4.)

A small site one-half a mile northwest of it, between the road and the pond. (21-34-3-4-3.) Also a camp site at the northernmost point of the pond, close to the mouth of a brook. (21-34-3-2-9.)

Struble rock shelters.—There are two small rock shelters north of Little Pond on the Struble property at the western foot of a cavernous limestone ridge, several hundred yards in length. These shelters gave indications of human habitation. One of them lies towards the northern end of the ridge near the road, the other at the southern and not far from the pond. The roofs of both pro-

ject but little, so that they afforded poor protection from the weather. The south one, in particular, is a poor shelter and its excavation yielded nothing but a few flint chips, bones and some unio shells. Evidently it was not much used. (21-34-3-5-2.)

Although structurally superior, the north shelter also yielded comparatively little. Its length is to feet and its roof juts out about 5 feet, slanting upward at an angle of about 60 degrees, being 3 feet above the floor at the rear and fully 20 feet high along the outside. A fine spring in front is about 50 yards distant. A few bones lay on the surface and the rear wall was discolored by ancient fires, especially in its center part. Digging a trench, a fireplace was discovered here about 2 feet deep and reaching all the way to the rear wall. The soil within was quite black owing to the admixture of ashes and charcoal and in it there were found deer bones, unio and turtle shells, one jasper chip, flint chips, part of a spearhead and several potsherds, most of them decorated with parallel lines. (21-34-3-5-2.)

Hendershot rock house.—An excellent rock shelter was discovered about 700 yards north of Little Pond on the Hendershot farm. The ravine, in which it lies, runs in a northerly direction and is bounded on the east by steep, rugged limestone crags, in which, as usual, fissures and cavities are abundant. Most of these are at the entrance to the ravine, nearest to the pond. Although they were examined for traces of the Indian, none were found.

Some distance up the ravine, an overhanging rock rises about 20 feet at a point where the crags are highest. To reach it from below one must clamber over large masses of fallen rocks that had fallen off the face of the cliff. The writer approached it with the most sanguine expectations of rich finds, but, although it proved to be an Indian rock, exploration of its culture layers disclosed the fact that it contained chiefly broken pottery.

The rock faces westward and so receives the benefits of the afternoon sun, yet it could not have been a very desirable abode, as there is no water close by, the nearest supply being a brook, some 300 yards away. It is 20 feet long, the roof projects about 8 feet, is 2 feet above the floor at the rear and 10 feet along the shelter line. A thick layer of leaves and vegetable mold lay on top of the débris under the rock. The topsoil under it consisted of yellow, coarse-grained sand mixed with rocks, but of the familiar tell-tale marks of the Redman there were none.

The excavation of the extreme left-hand portion revealed a fireplace a few inches below the surface, and about 15 inches deep. The black soil within yielded some chips, deer bones, unio shells and many pieces of pottery, either plain or cord-marked. Nothing was found in the center of the shelter as this was partly obstructed by large boulders. The right-hand portion disclosed another fireplace with bones, potsherds and a solitary netsinker, flat and oval in shape and notched medially. No arrow-points nor other artifacts except the sinker were found. A third fireplace beneath a large fire-stained boulder, just outside of the shelter line and with a cavity underneath contained some bones and some unusually large fragments of pottery about the size of a dinner plate. All these were undecorated and were the bottom and sides of a pot.

From the results of the excavation, it seems certain that much cooking was done under this rock. However, with water relatively far off, we may presume that they carried it thither in their pots.

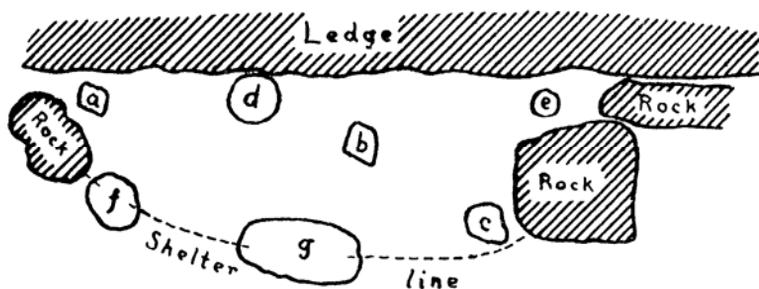


FIG. 4.—Diagram of Gum Hollow Rockhouse.
a, b, c—Fireplaces. *d, e*—Shell heaps. *f, g*—Dump heaps.

Owing to this disadvantage, the spot was most likely but seldom visited, since otherwise there would have been no lack of those traces that invariably bespeak a more permanent occupation, namely, chips, i. e., the refuse of implement-making, and arrow-points. (21-34-3-2-6.)

A camp site east of Little Pond at the forks of a brook. (21-34-3-6-1.) Also one at the edge of a swamp, 300 yards east of the pond. (21-34-3-6-4.)

Scattered relics 1 mile east by north of the pond on O. Hill's farm. (21-35-1-1-7.)

Gum Hollow rock shelter.—A rock shelter (Figure 4) was discovered in a ravine, named Gum Hollow, 800 yards east of Little

Pond. It is a most insignificant looking shelter of low height and little roof protection, yet it turned out to be not only the best rock house for many miles around, but to rank also among the four best thus far located in Sussex County, the others being Bevans rock house, Moody's Rock and Owen's Cave.

A perpendicular limestone ledge, rough and craggy at the bottom and full of clefts and cavities higher up forms the western side of the ravine, which is drained by a small brook flowing to Little Pond. Although now usually dry during the summer months, it perhaps was not at the time when all this region was forest covered. If so, the occupants of the rock were at all times assured of an adequate supply of water less than 50 yards away. The shelter is at the foot of the cliff and faces southeast. It is 18 feet long, the roof juts out 5 feet and its height above the floor was 5 feet prior to the excavation, but about 7 feet after the debris had been removed. The floor was level and gave evidence that very little dirt had accumulated since the Indian's departure, since it was strewn with many chips and bones plainly exposed to sight. Its color was dark and this with the smoke-stained rear wall told an eloquent story of many camp fires.

A trench was dug along the inner wall, beginning at the extreme left. Almost immediately a fireplace was found with stones all around it, arranged in an irregular square. In addition to numerous bones and potsherds there came to light a very crude spearhead, about 6 inches long, an artifact of oval shape resembling a so-called turtle back, two imperfect straight-stem arrow points and a flint arrow point of diminutive size and exquisite workmanship. Five feet to the right of the fireplace and close to the inner wall a shell heap was struck, made up of several layers of unio shells, reaching down to a depth of more than 2 feet. Black soil was all around it, containing chips and broken pieces of pottery. Still farther to the right but a little distant from the back wall were signs of a second hearth also encircled by stones. Within and near it were found, imbedded in successive strata down to rock, 2 pitted hammerstones, 2 triangular arrow points, 2 deeply notched points, a leaf-shaped flint scraper, 5 broken points and the greater portion of a roughly fashioned spearhead. Mixed with these were chips, bones and potsherds in large numbers.

Between the fireplace and the wall the trowel turned up a leaf-shaped knife, 4 inches long, of slaty material and beautifully carved.

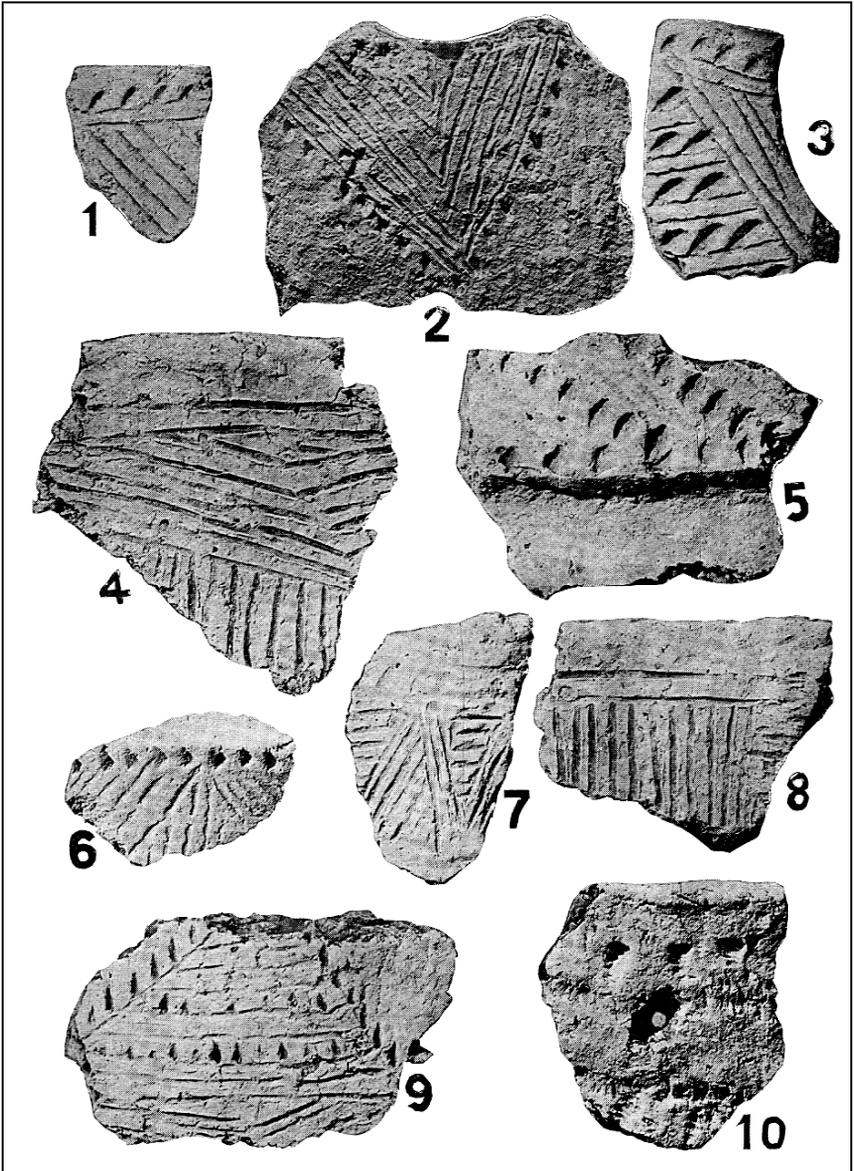


Plate III—Decorated Potsherds from Swartswood Lake, Nos. 1, 2, 3, 5, 7, Gumm Hollow, Nos. 6, 9, Hendershot Shelter, Nos. 4, 8, Emmans Grove.

It was the most perfect and interesting of all the objects recovered under this rock. In the extreme right of the shelter, in the corner formed by the back wall and a large boulder, a great quantity of snail and unio shells were unearthed, together with bones and potsherds.

On extending the excavation towards the shelter line and beyond it, some interesting discoveries were made. At the left of the shelter, near a large boulder there were the unmistakable traces of a refuse heap or rather bone pit. Hundreds of bones belonging to deer, raccoon, rabbit and turtle were dug out at this spot, along with many flint flakes and broken points. Pieces of broken pottery were likewise very abundant. Another refuse heap, several feet long and containing the sweepings of the shelter lay just beyond the shelter line opposite the center of the rock. Buried in the débris here were a crystalline limestone scraper, a lozenge-shaped spearhead, a notched point and half a dozen broken points along with many bones, chips, flint nodules and potsherds. A few feet to the right of it, near the shelter line, was a third fireplace, enclosed by rocks and containing much charcoal and many heat-cracked stones. Some fine specimens were here unearthed, such as a triangular point and three deeply notched flint points.

It is worth noting that artifacts occurred in all parts of the shelter and at all depths down to rock bottom, about 3 feet below. Again, the culture strata consisted of rich black soil throughout the whole extent of the shelter and the three fireplaces were confined within rocks, arranged in irregular squares. About a thousand pieces of pottery were scattered through all the layers, though somewhat more frequently near the top, representing probably the remains of a few score of vessels. Most of the fragments were either plain or cord-marked, and only a few were embellished. Among the cord-marked pieces about five different designs may be distinguished, a fact denoting the breaking up of as many pots (Plate III). Some of the best implements lay underneath the boulders.

Perhaps the most important fact shown by the exploration of this rock house is that there was but one horizon of culture, that is, there were no indications of a succession of cultures, with an old one at the bottom and a newer one in the upper layers and both separated, as often happens, by a neutral stratum, bearing no relics. We may interpret this fact to indicate a rather recent occupation of

the rock, an occupation that did not extend through many centuries and was therefore not long enough to exhibit in the remains preserved the cultural advances made by the Indian. It must be admitted, however, that so far as the evidence from this shelter is concerned, we may equally well conclude that Indian occupancy of this region may not have extended over more than one culture period.

The profusion of potsherds and bones shows that this shelter was much used, perhaps more or less continuously as a permanent habitation. It was, moreover, a great workshop as is attested by the countless chips and pieces of raw material left behind under its hospitable roof. For these reasons the Gum Hollow rock house may justly be regarded as the most important Indian rock in this part of Sussex County. (21-34-3-6-3.)

Swartswood Lake. Nowhere in Sussex County are so many sites crowded into so small an area, and nowhere are the traces of ancient Indian life so dense as along the shores of Swartswood Lake. There are, to be sure, larger sites on Delaware River, great village sites abounding in the multifarious products of aboriginal industry, yet they are more widely separated than is the case on the shores of Swartswood Lake. Twenty-two sites have been located around the lake, yet the limits of each cannot be defined with precision owing to the fact that scattered remains occur in between them all, thus creating the impression of an uninterrupted chain of settlements. Two of them are rock shelters, two others may be regarded as village sites by reason of their size, and the remaining eighteen are ordinary camping grounds, workshops and fishing places.

A village occupied several acres of level land with sandy knolls at the northeastern end of Swartswood Lake, between it and Little Pond and east of Indian River. Tools of many kinds have been picked up here in former years, including pestles, celts and ceremonial objects, and even now the fields are littered with countless chips and angular fragments of raw material which suggest prolonged occupation and the manufacture of many implements. So far as known this was the most important settlement on Swartswood Lake. (21-34-3-5-7.)

West of it and in close proximity there is the famous Indian landing where, according to well-established tradition, the Redmen used to moor their canoes. It is an ideal landing place in the corner of a cove, well sheltered from the winds and with deep water near

the shore. A level tract of land lies back of it adjoining the village, where by digging the writer found many indications of ancient shell heaps and hearths. (21-34-3-8-1.)

A rough and picturesque strip of country, known as Emmans's Grove and characterized by jagged limestone masses, extends south of the landing along the shore for a distance of several hundred yards. At its southern extremity it terminates in a high cliff, at the foot of which the writer discovered two small rock shelters.

Emmans Grove rock shelters. They lie close together, face south and are about 150 yards from the lake. Both are inferior shelters and yielded chiefly refuse of implement-making, bones and shells. The one, nearer the lake, being the better of the two, contained unio and turtle shells, deer bones, all split open for the marrow, a few flint and jasper flakes, fragments of pottery, either plain or cord-marked, excepting three decorated pieces, part of an arrow-point and a netsinker. Traces of a fireplace were recognizable in the left-hand portion of the shelter towards the outside. (21-34-3-7-3)

The other shelter yielded nothing but a few flint chips and some bones and there were no signs of a fireplace. (21-34-3-7-2, 3.)

Swartswood Lake. A camp site at the northeast end of Duck Pond, half a mile east of Swartswood Lake. (21-34-3-8-5.)

Scattered relics at different points along the lake shore for half a mile southwest of the rock shelters, but no encampments. (21-34-3-7-6; 7-5, 8.)

Dove Island, in Swartswood Lake, notwithstanding its small size, has been remarkably abundant in prehistoric implements of almost every description. When leveling the ground, some years ago, preparatory to erecting bungalows, hundreds of arrow-points came to light, together with netsinkers, tomahawks and other objects. Even now the surface is bestrewn with numberless flint and jasper chips, showing that it was the site of primitive workshops. It was also, without question, a great fishing place. (21-34-3-7-7.)

Five sites opposite the island on the south side of the lake, one on Greenwood Point, two farther east on the lake shore and two on the upland fields of Andres's farm. (21-34-3-7-7, 8; 6-1-1; 5-3-3; 2-9-9; 2-9-8.)

A fishing place on a spit of land, a quarter of a mile southwest of Greenwood Point. (21-34-5-3-1.)

No investigation was made of Hickory Island at the south end

of the lake, because it is exceedingly rough and rocky and therefore not a likely place for a camp site.

Two fine sites near the outlet of the lake on its east bank. Here high shores border the lake, and to judge from the abundance of chips still to be found as well as the netsinkers and other articles recovered in years gone by, they were both workshops and fishing places. (21-34-5-2-4, 5; 2-4.)

While the south shore of the lake is high, well-drained and deeply indented by several coves, thus affording many favorable locations for camp sites, the north shore is in many places bordered by swamps which make access to the lake difficult. Hence only eight sites were found on that side.

A camp site on a high bank at the lower end of the lake. (21-34-2-8-8.)

A small camp site on the south bank of a brook a little distance from the lake. (21-34-2-8-3.)

A workshop and fishing place on the bank of the lake, about opposite its center. (21-34-2-9-2.)

A workshop and fishing place on Brown's Point. The rocky shores of this point extend far into the lake and rise about 15 feet above the water. The level tract at its extreme southern end was covered with numberless flint and jasper chips. Alongside of a fire-stained limestone rock an ancient hearth was uncovered containing bones, unio shells and some fragments of pottery, both plain and cord-marked. Near it a pile of jasper chips came to light, yellow, red and pink colored, deposited very much like bones in a pit. Among them there were two arrow points, but, strange to say, they consisted of flint. Tearing up the soil all around, the writer found a fire-cracked hammerstone, a netsinker of the ordinary type, flat, oval and notched on opposite sides, several broken arrow points, many chips, mostly jasper, deer bones and the inevitable unio shells. The finds indicate a workshop site and fishing place. Other traces of the Indian's former presence on this spit of land occurred sporadically on the rocky ground back of the fishing place. (21-34-2-9-2, 3.)

Two camp sites a few hundred yards north of Brown's Point on the fields above the road, where private collectors have been well repaid for their searches. (21-34-2-6-8; 6-8, 9.)

Scattered relics on the fields northeast of the last-named sites. (21-34-2-6-6.)

A village site at the northernmost point of the lake on Yetter's farm, in the village of Swartswood. This site is second only to that on Emmans's farm, described above. Numerous implements, including the primitive artificer's best efforts, have been picked up at this spot and it is still fairly abundant in aboriginal remains. (21-34-3-4-4, 5, 7.)

A workshop and fishing place once occupied the sandy fields of Cedar Point, but local archaeologists long ago depleted them of their treasures, leaving nothing but chips and raw material to indicate the character of the spot. Being a high, level tract of land near the mouth of a brook, it must have been an attractive locality to the primeval fishermen. (21-34-3-4-8.)

Middleville.—Three sites along the outlet of the lake. The most southerly one, near the schoolhouse, is the most important. (21-34-5-9-9; 2-7; 4-2, 3.)

Three sites along the lower portion of the outlet, one near its mouth, the other two farther upstream. (21-34-5-4-5; 4-3, 6; 5-1.)

Two camp sites on the east bank of Paulins Kill, a scant mile south of Middleville. (21-34-5-4-8; 4-9.)

A camp site on high level ground, south of Trout Brook, on G. B. Southard's farm. (21-34-5-4-1.)

Two sites farther north, also on Trout Brook, on Merritt Swartswood's farm. Arrow points, made of obsidian—a volcanic rock, resembling black glass and not occurring in this State—are reported to have been found here. (21-34-5-1-7; 1-4-7.)

Another site east of the above on a small brook, not far from its confluence with Trout Brook. (21-34-5-7-7, 8.)

Stillwater.—Two fishing places on the south shore of Catfish Pond, west of Stillwater. (21-34-4-8-7; 7-1-3.)

A camp site high upon the hillside, south of a deep ravine, 1 mile west of Catfish Pond and close to the Warren-Sussex County line. (21-33-6-9-8, 9.)

Two camp sites on the banks of a tributary of Paulins Kill, less than one-half a mile east of it, on Cole's farm, close to the county line. (21-34-7-5-5; 5-5.)

A camp site on the west bank of the Kill, one-half a mile southwest of Stillwater. (21-34-7-2-4, 5.)

Preston Meadows rock shelter.—A rock shelter was discovered in a rugged section of country traversed by many limestone ledges,

one-half a mile southeast of Stillwater. Although favorably situated near a swamp, where water was always available, and quite easy of access, investigation showed that it was but rarely occupied, probably by reason of structural imperfections. It is about 20 feet long and although the roof overhangs about 5 feet, it afforded little protection from the elements. The rock faces southeast towards the bogs which are about 150 yards distant. Its floor was quite uneven, slanting toward the inside, and covered with a thick mass of vegetable mold and decayed leaves. Underneath there was an accumulation of fallen rock débris, which buried the scant remains left by the Redman. The first trace of human occupancy, a flint chip, was found at a depth of about 8 inches, while some objects lay buried fully 20 inches below the surface. They were all of inferior grade, so-called Indian refuse, but of value in proving the Indian occupancy of the shelter. A fireplace was shown by quantities of ancient ashes and fire-cracked stones, and in the left-hand corner, within and around it, there were one roughly fashioned spearhead of slaty material, the base of a flint spearhead, flint and jasper chips, unio shells, deer bones, the jaw of a raccoon and about twenty pieces of pottery, either plain or cord-marked, including one fragment which was decorated with incised parallel and zigzag lines, the so-called chevron pattern. The chips suggest a workshop, while the bones prove that the Redman did not go hungry while he worked. (21-34-7-3-5.)

Stillwater.—A camp site and workshop about 200 yards south of the rock shelter at the southern end of Preston Meadows. The profusion of flint and jasper flakes here denotes a large workshop, a place where many an arrow-point maker plied his trade. (21-34-7-3-5, 6.)

Northeast of Stillwater a camp site on the east bank of a brook, one-half mile north of the village. (21-34-4-9-1.)

A workshop east of it on a high level tract of land north of a small pond, about 250 yards west of the Kill. This field is strewn with innumerable chips and it once abounded with broken points, a fact causing the nearby residents to believe that a battle had been fought there. (21-34-4-9-2.)

A small camp site on the west bank of the Kill, three-fourths of a mile northeast of Stillwater. (21-34-4-9-3.)

Stillwater Station.—A camp site north of a brook, one-half a mile west of Stillwater Station. (21-34-5-7-4.)

A site on a small brook, 1 mile east of the Kill and about 100 yards north of Stillwater Station. (21-34-5-7-6.)

Three sites on the north bank of Paulins Kill on the farm of Levi J. Lewis, on the great bend of the Kill, a mile northeast of Swartswood Station. (21-34-5-5-6; 6-4; 6-6.)

Traces of Indian habitation are infrequent in the hilly country southeast of Paulins Kill, from which it is apparent that he preferred the banks of the Kill and the shores of the neighboring lakes. This was but natural since he found food in their waters and easily cultivated fields along their shores. Nevertheless several widely separated camp sites have been found in this region.

Fredon.—A site on the bank of a tributary of the Kill, 1 mile northwest of Fredon. (21-34-6-5-4.)

Scattered relics on top of a hill, at the source of a brook, on Van Horn's farm, a mile northeast of Fredon. (21-34-6-6-3; 6-6.)

A site on the bank of a small brook, a hundred yards west of the highway and a mile southwest of Fredon. (21-34-9-1-3, 6.)

A site about 500 yards northwest of the preceding, on top of the hill and at the edge of a swamp. (21-34-9-1-2.)

Swartswood Station.—A burial ground is said to have been located southeast of Spring Lake, at the intersection of the Middle-vine and Swartswood roads. (21-34-3-9-5.)

A camp site and fishing place on the high banks east of Paulins Kill, a short distance north of Swartswood Station. (21-35-1-7-5, 6.)

Two small sites high on the hillside, 1¼ miles northeast of Swartswood Station, on the banks of a small brook. (21-35-1-9-1; 6-8.)

Balesville.—A fine fishing place on Hendershot's farm, a mile southwest of Balesville, on level ground in a sharp bend on the west bank of Paulins Kill. This locality which is well protected from the north winds by the hills back of it, has yielded a wonderful variety of artifacts and the plough turns up new ones every year. Common arrow points, net sinkers, hammerstones, axes, and celts, fragments of banner stones and other rarer implements have been found in large numbers. Considering the number and variety of objects obtained here, the spot was possibly the site of a permanent village. (21-35-1-3-8, 9.)

NEAR TRANQUILITY.

On the flats northwest of Allamuchy Mountain, Green Township, twelve aboriginal encampments were noted, among them a village site and a rock shelter. Most of these border or are near the Pequest River, but four lie close to the mountain on Trout Brook, at Tranquility.

Greenville rock shelter.—At the intersection of the Greenville and Huntsville roads, a mile southeast of Greenville and about 500 yards west of Pequest River, are high steep limestone ledges. On the north side, on the Aumick farm is a shelving rock at the base of the cliff, within a few steps of the highway and about 100 yards from a small tributary of Pequest River. The shelter is 18 feet long and its roof which projects from 3 to 5 feet, is 4 feet above the floor on the inside and about 9 feet along the outside. There was nothing on the floor to hint at Indian occupation, but the back wall in the left-hand portion of the shelter was smoke-stained and here, near the wall, a fireplace was discovered, reaching down 15 inches and extending far into a pocket. Beneath 3 inches of soil it contained deer bones, unio shells, a few chips, several large flint nodules, seemingly carried here as raw material for future implement-making and four or five tiny pieces of pottery. (21-44-3-9-7.)

Pequest River.—A fishing place three-fourths of a mile south of the rock shelter on the west bank of Pequest River, on the Lewis farm. (21-44-6-3-7.)

Two camp sites and fishing places of considerable size farther down stream, also on the west bank of Pequest River, both on the Straley farm. (21-44-6-6-1; 5-2, 3.)

A village site opposite the last two places on J. S. Appleman's farm, on the east bank of Pequest River, between the road and a brook. Since several corn pounders and a hoe, as well as many other fine specimens of primitive industry, have been picked up at this site, we may presume that the Indians cultivated fields in this vicinity. (21-44-6-6-1.)

Two fishing places farther upstream on the east bank of Pequest River and scattered relics still farther north on the high ground at the bend of the river. (21-44-6-3-8; 3-5, 8; 3-2.)

A small site north of a brook, about half a mile northwest of Tranquility. (21-44-8-6-5.)

Tranquility.—Four sites at Tranquility on the banks of Trout Brook and at the foot of Allamuchy Mountain. Three of them are on high ground north of the brook. The most easterly one proved to be an inferior site, but the other two have been remarkably prolific in all sorts of prehistoric objects. (21-45-4-7-2; 7-1; 44-6-9-3.) The fourth is on low ground, south of the brook and west of the road. Here many triangular arrow points, so-called war points, have been found. (21-45-6-7-5.)

John Martin of Tranquility has a fine collection of artifacts, gathered principally on the Stuyvesant estate, in which are several large argillite blades that were probably used as scrapers.

Allamuchy Mountain.—Exploration of Allamuchy Mountain, called by the Indians Mamuchahokken, thorough though it was in some parts, failed to reveal any traces of aboriginal encampments. It seems probable, however, that rock houses are hidden away somewhere in its solitudes. Wolf's Glen, a rough section of country on top of the mountain, about 1½ miles southwest of Cranberry Lake, appears most promising in this respect.

NEAR ANDOVER.

The sites comprised within this group lie northeast of Allamuchy Mountain in a rugged territory, very unlike that on the other side of the mountain. The region south of Andover is a veritable maze of steep hills separated by valleys, 300 or 400 feet in depth, and watered by several ponds and the tributaries of Pequest and Muscocong rivers. There can be no question that this territory was pre-eminently a hunting district, although in some of the valleys level, well-drained fields adjacent to pond or brook afforded places suitable for habitation. Three pairs of sites have been found in somewhat widely separated localities, situated perhaps along trails which led from Lake Hopatcong to the settlements in Kittatinny Valley. Strange to say, nothing definite is known respecting the occurrence of rock houses, although two places of this kind are said to have been noticed near Michael Powers's farm, on the road between Andover and Stag Pond, and a third one is said to lie midway between Andover and Sparta, on Robert Mills's farm.

Cranberry Reservoir.—Two small camp sites in the valley east of Cranberry Reservoir. (22-41-4-6-3; 5-4-4.)

Wrights Pond.—A large site, probably a village, at the bend of a brook, 500 yards south of Wrights Pond; a smaller site north of it at the southern end of the pond. (22-41-5-3-2; 2-9-8.) There are extensive level tracts near here which could have been readily cultivated.

Andover.—Two camp sites on opposite sides of a brook on Michael Powers's farm, 1¼ miles east of Andover. (22-41-2-5-1, 4; 5-5.)

A site on the high gravel flats northeast of Andover Junction between the brook, the railroad and the highway. Hewitts Pond is only one-fourth of a mile distant. (22-41-1-3-1.)

NEAR HUNTSBURG, NEWTON AND LAFAYETTE.

This region vies with those around Swartswood Lake and along the upper Delaware in the number and size of the sites discovered.

Huntsburg.—A large site on the farm of the late Dr. Hunt, east of Huntsburg; a well-chosen locality, protected on the north and west by high limestone ledges, near the headwaters of one branch of Pequest River. The Indian field, while not large, is level and littered with countless chips, denoting a primitive workshop. A cave close by was probably once used by the Indians, but could not be examined because now flooded to a depth of 4 feet by the construction of a dam across the brook. (21-44-3-1-5.)

Springdale.—A village site at the Big Spring, 1½ miles west of Springdale, covered many acres of the high ground flanking the bogs on the west. Although for years collectors of relics have closely searched these fields, they still yield a fresh crop of aboriginal objects after each ploughing. The profusion of chips scattered here proves the industry of the occupants of this spot and the permanency of its occupation. (21-35-7-4-7, 8 & 7-1.)

A small site a short distance north of the village and at the edge of the swamp. (21-35-7-4-5.)

The Muckshaw Swamps.—A particularly rough region, as yet almost untouched by the hand of civilization, surrounds the Muckshaw Pond and swamps, 2 miles southwest of Newton and one-half mile northwest of Springdale. Here a narrow rocky peninsula

extends northward for half a mile, surrounded on three sides by swamps, which in wet weather are in part transformed into shallow ponds so that the ridge is open to approach only from the south. This peninsula is remarkable for its picturesque wildness due to the strange shape of its many rock ledges and the perpendicular cliffs traversing its whole length. Although its whole extent is of striking aspect, its most exquisite charms are exhibited along its eastern margin, where Nature seems to have exhausted all her ingenuity in an effort to produce a veritable labyrinth of rocks and a tangled wilderness of ledges, caverns and gloomy glens. Here the steep crags tower 50 feet above the pond, whose waters lave their base. Such is the locality which tradition says was the lurking place of Lieutenant James Moody, the ill-famed Tory. Indeed, what better hiding place could any outlaw have selected, a strategic point par excellence, surrounded on three sides by water and accessible only from the south.

The cavity known as Moody's Rock at the base of a limestone ledge has an eastern exposure and overlooks Muckshaw Pond. It measures about 40 feet in length, while the roof projects from 10 to 15 feet and is 20 feet above the floor along the shelter line, and about 12 feet at the rear. The shelter is spacious enough therefore to afford room for 25 or 30 persons. The floor was generally level and partly composed of flat rocks, partly of dirt. Its height above the surface of the swamp, some 15 feet away from the shelter line, was about 5 feet. It was apparent that the shelter had, in the course of time, been greatly reduced in size, as large masses of rock had broken off the face of the cliff, diminishing the overhang and making the right-hand portion unsuitable for use, because of the detritus covering the floor.

Examination of the top soil gave no evidence of Indian occupation, but the inside wall was smoke-stained and as the excavation proceeded, the indications of fire became more numerous. The first hole was dug in the center, close to the rear wall, and the rock floor was reached at a depth of 18 inches. The results proved rather disappointing, for apart from deer bones and numerous unio shells at the lower levels, nothing of Indian occupation came to light. It is true, though, that the lower strata were discolored and contained charcoal and fire-cracked rocks, but the fireplace, thus indicated, was doubtless of recent date. Moreover, the absence of aboriginal artifacts in this, the best portion of the

shelter, made it quite certain that at some time relic hunters had been here at work, disturbing the original layers and removing whatever the ancient occupants had left behind.

A new excavation was therefore made in the extreme left-hand portion of the shelter in the hope that this portion had remained undisturbed. Here fragments of Indian pottery, both plain and cord-marked, were unearthed at depths of 3 to 6 inches. With them occurred many bones, mostly of deer, and the débris containing them was almost black, thus denoting a prehistoric hearth. Of chips there were comparatively few, a fact which was somewhat strange considering the favorable character of the shelter. At a depth of 7 inches a fine triangular point, so-called bird point, came to view, and underneath a large boulder near the rear there lay a slender notched spearhead, more than 3 inches long. Continuing the excavation down to rock bottom, some 18 inches deep, the following specimens were recovered: A leaf-shaped knife, 3 inches long; another, 2 inches long; the base of an oval knife; a stemmed scraper; a leaf-shaped spearhead, 2½ inches long; a notched argillite spearhead, 2 inches long; a straight-stem spearhead; a barbed spearhead; a lozenge-shaped spearhead; a fragment of a quartz spearhead; a fragment of a straight-stem arrow point and a double-pointed fish hook. Bones were exceedingly numerous, mostly of the deer, but among them there were some of the bear and of birds, the teeth of a muskrat as well as others as yet unidentified. There were found also a crude celt, a hammer-stone, a net sinker, a rubbing stone and several heat stones, i. e., stones heated and then used by the Indians to boil their food by dropping them into the pots.

At the bottom tightly wedged boulders were found, beneath which, at a depth of 18 inches, another dirt floor was plainly visible, so that another and more ancient culture-bearing stratum may occur below. This hypothesis could not, however, be tested without the expenditure of much time and the labor of several men.

The large quantity of bones unearthed in the left-hand corner, together with the discoloration of the débris, warrant the inference that this part of the shelter served both as a bone pit and a fire-place. The adjacent portion lying toward the shelter line was subsequently subjected to a thorough examination with different results. In the first place, the culture layer extended only to a depth of 10 inches. Second, there were fewer artifacts and bones,

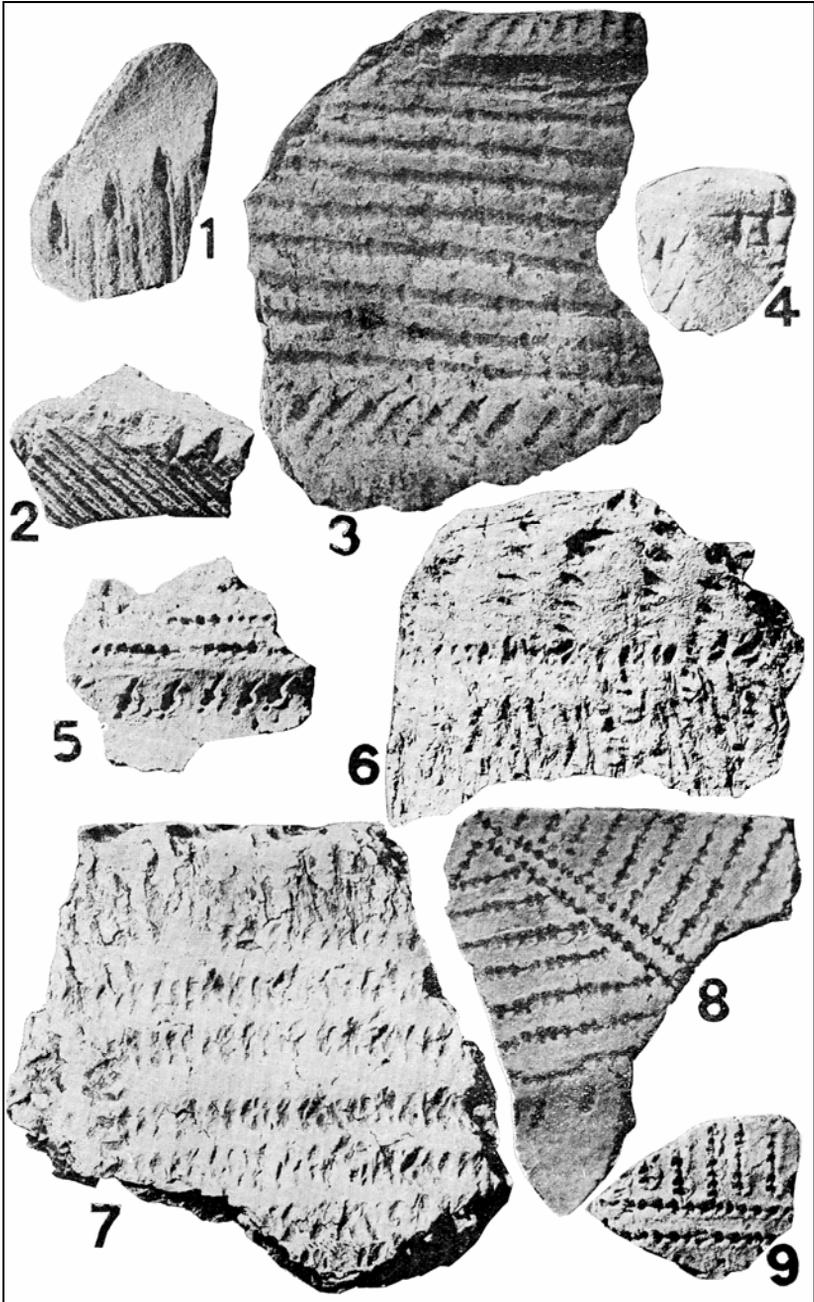


Plate IV—Decorated Potsherds from the vicinity of Newton. Nos. 2, 3, Moody's Rock, Nos. 5, 8, 9, Snyder's Rock House, Nos. 1, 6, 7, Warbassee Shelter.

but, on the other hand, potsherds were more plentiful, among them many finely decorated pieces, exhibiting parallel dotted lines and other ornaments with partly Algonkin, partly Iroquoian patterns. Here, too, the layers overlying the rock bottom were charged with charcoal and other signs of ancient fires. Imbedded in them, at a depth of from 4 to 10 inches, there were found a notched arrow point, 1½ inches long, another notched point an inch long, a small triangular flint point, a flint scraper and the base of a straight-stem spearhead. The potsherds occurred in the upper strata only, perhaps indicating a late introduction of the art of pottery-making, but perhaps indicating that at first the shelter was visited only by hunters and later by families. To be more explicit, the first discovery of a shelter was probably by a hunting party—its early use was by parties on the hunt, who would not be incumbered by pots, but who would cook their food by toasting or broiling before the fire. Thus, it might be many years before pottery was carried there. Again, even when more permanently occupied by a family, it might be a very long time before a pot was broken, and considerable refuse could accumulate in and about the fireplace, before any potsherds were formed. About 8 feet from the rear wall and not far from the shelter line a number of large boulders parallel to the wall interfered with further digging toward the outside.

After completing the exploration of the left-hand portion, attention was turned to the remaining section on the right. A trench about 9 feet wide was dug along the inside wall, beginning at the right-hand corner and continuing toward the center. To reach the Indian layer innumerable rocks, piled there recently by visitors to the site, had to be thrown out. This done, the black soil indicating the original surface was at last laid bare. In the process of excavation an abundance of bones and potsherds were turned up at a depth of from 3 to 30 inches. In agreement with the observations made in the left-hand section the fragments of pottery were either plain or cord-marked, and the bones, as before, were all cracked to extract the marrow. The large number of bones found indicated the presence of a huge bone pit and the potsherds along with the blackened soil bore eloquent witness to the fact that a great deal of cooking was done along the inside wall, that it was in fact the site of one long fireplace. A few implements, for the most part fragmentary, came to light, such as an awl or drill, a reject, a scraper and parts of three arrow points. Again,

on reaching bottom, the crevices between the boulders showed a dirt floor farther down.

On extending the excavation toward the outside, some larger boulders were discovered which interfered with the digging in that direction. Moreover, much less soil had accumulated so that the rock bottom was struck at an average depth of 12 inches. Here there were but few bones and potsherds, but several artifacts, viz., a triangular quartz point, a so-called war point; a lozenge-shaped arrow point; two straight-stem points; two notched points; the base of a spearhead and fragments of two arrow points. (21-35-4-2-9.)

In addition to the Moody rock shelter twelve other sites have been located, all but one lying in the immediate vicinity of the ponds; two camp sites at the north end of the most northerly pond, (21-35-4-3-1; 3-1); one west of it, (21-35-4-2-3); three more on the knolls east and west of the second pond, (21-35-4-2-2, 3; 2-6; 3-1); a small rock shelter about 500 yards west of the southwesterly pond, (21-35-4-2-8); two camp sites on the ridge flanking it westward, (21-35-4-2-5; 2-6); another at its southerly extremity, (21-35-4-2-8, 9); lastly, two sites south of Moody's rock, near the southern end of the southeast pond. (21-35-4-3-7; 5-3.)

Flint nodules and other raw materials suitable for the manufacture of implements are to be found on all the fields and knolls surrounding the swamps, so that with game abundant in this region, and good camp sites there were excellent reasons for the Indian's presence here. At almost every step one is reminded of his former activities about these ponds and in imagination one readily conjures up his sinewy form, as he trod the trail in the somber twilight of the primeval forest or hunted amid these rocky fastnesses.

Newton.—An Indian rock shelter, locally known as "sheep rock," was found on the outskirts of Newton Cemetery. North of the cemetery a series of limestone ledges rise one above the other and the shelter lies at the bottom of the second terrace. It is about 18 feet long and the roof juts 8 feet, being 4 feet above the floor at the rear wall and 10 feet along the shelter line. Little débris had accumulated under the rock since its occupation, as potsherds and chips lay on the surface, particularly towards the outside. The subsoil was quite dark, as the result of fires, both ancient and modern. Buried in it, to a depth of about a foot, were little fragments of pottery and chips, as well as unio shells, deer and bird bones, but

neither complete implements nor fragments were recovered. It is a poor shelter structurally, although it has a southern exposure, with no water close at hand, and, if we may judge by the paucity of remains found, it was little visited. (22-31-4-5-4.)

Scattered relics were found a short distance east of this rock in the summer of 1913, while the lower part of Spring Street, Newton, was being graded. (22-31-4-5-4, 5.)

A number of sites occur north of Newton on the knolls and ridges west of the Paulins Kill Meadows as follows: A camp site on the west slope of a hill and one a half mile to the east near the meadow, both in the northern part of Newton. (22-31-4-2-1; 2-6); one east of the last-named site across the township line on high ground at the edge of the meadows. (22-31-4-3-1.)

A small site on Ryerson's farm on the edge of the meadows, about 1 mile north of Newton (22-31-1-9-7), near which an aboriginal burial ground is supposed to have been situated, although nothing authentic could be learned regarding it; scattered relics on the hillside north of Ryerson's farm (22-31-1-9-1); two camp sites on the sandy knolls, 2 miles north of Newton. (22-31-2-4-9; 4-9.)

Tradition locates an Indian village, called Tok-hok-nok, on the west branch of Paulins Kill, near Newton. Local archæologists place the site at Losee's brickyard since many relics have been found here. With this opinion the writer does not agree. The ground is low and marshy, and within the memory of persons now living, has often been covered by water. On the other hand, there is much evidence to show that the village was on the opposite side of the meadows, east of Newton and about two-thirds of a mile south-east of the brickyard. Here a few rods south of the railroad a small low hill rises above the swampy meadows near a big spring. It slopes gently toward the west and south, but is very rugged on the north and east. Its summit is covered by trees and is quite level. Innumerable chips litter the surface, plainly exposed to view wherever the ground is bare and rocky. Two ancient fireplaces were discovered at the base of a large limestone boulder. They were more than a foot deep and yielded a large quantity of Indian refuse, consisting of hundreds of pieces of pottery, mostly cord-marked, flint and jasper chips, deer bones, unio shells, a couple of broken arrow points, a pitted hammerstone and a net sinker, oval in shape, flat and notched on two sides. Nearby was another large

limestone rock, 10 feet high and split in the middle. Judging from the detritus around its base, it might once have been a rock shelter. While proofs of Indian occupancy were found all about the rock, it was evident that they had preferred its westerly side, where there was a level patch of ground little obstructed by boulders. Here were several fireplaces, one close to the rock, the others farther away. An inch or two below the surface the soil was of a dark color due to the presence of charcoal and ashes, and imbedded in it were several scores of potsherds, a few decorated, the others cord-marked; shells, deer bones, chips, one square-shaped net sinker, one badly weathered sandstone scraper, the base of a very large blade, one straight-stem argillite knife and a straight-stem argillite spearhead, both patinated. Nothing was found in the cleft of the rock except a flint nodule and two chips. (22-31-4-3-8.)

Tok-hok-nok rock shelter.—There is a small Indian rock shelter at the bottom of the limestone cliff, forming the eastern boundary of the hill. It lies at a point where the ledge forms a corner, the result being a double shelter, one a few feet above the other. The upper one, though superior structurally, being larger and hanging over some 4 feet, yielded only a few chips; the lower one, with a roof projection of but 2 feet, gave evidence of a fireplace and the floor debris contained flint chips, shells, bones and one triangular arrow point. (22-31-4-3-8.)

From the data at hand this shelter was apparently little used, although there is much to compensate for its structural imperfections. It had a southern exposure, heated by the sun the greater part of the day, and a spring not far off supplied good drinking water. Moreover, its proximity to the village on the hill made it easily accessible.

In addition to the evidence of long-continued occupancy of this hill, discovered by the writer, the late Victor M. Drake, editor of the *New Jersey Herald* from 1845 to 1853, found on it many Indian implements of different types. For these reasons the writer believes that the hill and its environment was the site of the Indian village of "Tok-hok-nok," rather than the low ground of Losee's brickyard.

Two camp sites and a small rock shelter have been noted on a hill west of Tok-hok-nok, within the town limits of Newton. (22-31-4-3-7; 6-1; 6-1.)

East Newton shelter.—The shelter faces east on the eastern slope of the hill, at the bottom of a limestone ledge. It is about 12 feet long and its roof overhangs about 6 feet, but is very low except near the front, where it rises 5 feet above the rock-covered floor, which is quite level on the inside but slants downward toward the shelter line. There were no surface indications of Indian occupation, nor were any found in the subsoil within 4 feet of the rear wall. An ancient fireplace, about 10 inches deep and 2 feet square, was found near the front and in the center. Within and near it the trowel turned up red, yellow and pink jasper chips, quarts and flint chips, the skull of a raccoon, the jaw of a rabbit, a wolf tooth, bird and deer bones, shells, a small notched quartz arrow point and about a dozen fragments of pottery, plain, cord-marked and decorated. Some of the sherds consisted of a reddish clay. (22-31-4-6-1.)

A small site a few hundred yards east of Tok-hok-nok on the easterly edge of the meadows. (22-31-5-7-7.)

As all these sites were crowded into less than half a square mile of space, we are warranted in concluding that this spot was one of the headquarters of aboriginal life here in Sussex County. One of the reasons why the Redman haunted this particular locality, may have been the protection which the marshes afforded from an attack by a hostile band who would have difficulty in approaching from that direction. Beyond question, the site of Tok-hok-nok was well chosen, situated, as it was, on high ground, in the vicinity of the "Big Spring" and at the southern extremity of the meadows. Furthermore, we may take it for granted that hunting hereabouts was exceptionally good, and the lakes on Germany Flats only a few miles distant, were undoubtedly well-stocked with fish.

Since several camp sites have been found along the western side of the meadows northeast of Newton and none along the eastern side, the trail between the village of Tok-hok-nok and the sites near Lafayette may perhaps be assumed to have followed the western side of the meadows, particularly as that side presents fewer obstructions in the way of rock ledges.

Drake's Pond.—Three sites on the elevated ground north of Drake's Pond, 1 mile south of Tok-hok-nok. (22-31-4-6-4, 7; 6-7; 6-8.) The northerly one appears to have been a workshop, as evidenced by the numerous chips and chunks of raw material littering the surface.

Warbasse rock houses.—Three-fourths of a mile west of Warbasse a limestone hill rises more or less precipitously for about 100 feet above the northern end of the Paulins Kill meadows on the Raymond Snyder farm. Its frowning cliffs towering abruptly above the meadows below form a most conspicuous feature of the landscape and there is nothing more picturesque and rugged for many miles around. It is comparatively level on top and is terminated on the west, south and east by perpendicular cliffs, that gradually decrease in height as its northern portion merges into the undulating country back of it. At its southern end, where the crags are highest, two Indian rock houses were discovered on opposite sides of the cliff, one facing west, the other east.

The western shelter has a roof projection of 10 feet, is 20 feet long and 30 feet high. It consists of two parts with different floor levels, that of the left-hand portion being 2 feet above that of the other, which subsequent examination showed was the only part used by the Redman. Two springs are about 150 yards distant to the south and to the west.

No sooner had the exploration of the rock begun than it became apparent that it had been a favorite rendezvous of tramps. Broken bottles, pieces of iron and other refuse of modern origin had to be thrown out along with many rocks, that had been carried here to be used in building fireplaces and a wall around its sides and front. Underneath there was black soil due to modern fires, then a layer of yellow sand, several inches thick, and after that again black soil, associated with potsherds, many of them superficially buried, others at a depth of from 10 to 15 inches, all lying in a bone pit near the rear wall. Three fireplaces could be distinguished, two of them close to the rear wall, on the left and on the right, with the third on the right near the shelter line. The culture-bearing strata attained their greatest thickness, 20 inches, near the inside. The archaeological harvest was rather disappointing, for it consisted mostly of ordinary refuse, such as deer bones, unio shells, flint and jasper chips. In addition, there were the base of a notched flint point, the upper part of two quartz points, one perfect triangular flint point, fragments of two large blades, a so-called flint turtle back and a great quantity of potsherds, most of them cord-marked, a few plain and some others ornamented (Plate IV). The varying thickness of the fragments and the de-

signs and colors of clay used indicate the remains of at least half a dozen pots. (22-31-2-5-3.)

The eastern shelter lies snugly hidden from sight half way up the easterly face of the cliff, sheltered on all sides except the north. A large mass of rock, parallel to the cliff, gives it the appearance of a cave, the more so as its floor is several feet below the level of the passage leading to it. Although on the easterly side of the hill, it faces to the north, the shelter line being at right angles to the cliff. It is 12 feet long, 10 feet deep and 10 feet high. Much débris in the shape of vegetable mold and rocks had to be removed before the Indian level was struck. A fireplace was found in the right-hand corner, about 15 inches below the top. It contained turtle and unio shells, bones and broken pieces of pottery, all of them plain with the exception of two small sherds, that were ornamented with zigzag lines, the chevron design. Judging from the character of the remains and, in particular, the complete absence of chips, it was in all probability a squaw shelter, resorted to exclusively by women, in accordance with usages observed among many primitive people. The above presumption appears to be quite justifiable in view of the fact that nothing was found to hint at the presence of male occupants at this spot. (22-31-2-6-1.)

A careful examination of this locality resulted in the discovery of four more rock houses, two of them at the foot of the cliffs, the others part way up their faces. The latter, in particular, were structurally superior to the two just described, yet notwithstanding a thorough search, they showed no proof of aboriginal occupation. Probably they were too far from springs to suit the comfort-loving savage. Bones were dug up, but they belonged to animals that had died under these rocks or had been carried thither by other predacious animals. However, a quartz scraper and several chips were found among the boulders lying chaotically at the base of the ledges, evidence enough that the Redman had tramped over this labyrinth of crags and rocks.

Two camp sites were noted at one of the two springs, about 150 yards southeast of the Warbasse shelters. (22-31-2-6-1; 6-2.) The west branch of Paulins Kill flows past these sites less than 200 yards to the south.

A camp site on the east bank of Paulins Kill, one-half a mile east of Warbasse. (22-31-3-4-3, 6.)

Lafayette; Ackerson's rock house.—A rock shelter bearing testimony to aboriginal occupation was found on a rise of ground, 1 mile southeast of Lafayette. It was brought to the writer's attention as a place around which the Indians had built their camp fires. He found it to be unique by reason of its peculiar configuration, for it is neither an ordinary shelter, such as is found at the foot of a cliff with a projecting roof, nor is it strictly a cave. Instead it is a cavity due to the irregular piling up of huge limestone boulders, the whole giving the impression of a mass of rock shattered perhaps by some cataclysm of Nature, but more probably broken down by the slow action of frost and gravity.

Although investigation failed to substantiate the assertion that the Indians had kindled their fires all around this rock, the cavity furnished unmistakable evidence of Indian occupation. It has a length of 9 feet and the roof is 6 feet above the floor and overhangs about 5 feet. Along the shelter line a large oblong boulder, 4 feet high, partially encloses the cavity back of it and leaves an opening to the left by which to enter. The shelter faces west and a swamp lies a short distance to the north. This swamp has now all but dried up in consequence of cutting off the timber.

The floor under the rock was perfectly level and little débris had accumulated since the Indian's final departure, for signs of aboriginal occupation began to appear an inch or two below the surface. The subsoil was quite black especially along the inside wall, which revealed plainly the effects of camp fires. Nearly all the articles unearthed here lay near the rear wall at a depth of from 2 to 16 inches. A large fireplace was discovered in the center, extending to the rear wall and along this to the left hand portion of the cavity, opposite the entrance. Mingled with the black dirt was a profusion of bones, mostly of deer, numbering several hundred. Then there came to light many detached teeth, belonging for the most part to muskrats and deer, the jaws of squirrels and deer, unio and turtle shells, flint chips and about 100 pieces of broken pottery, plain, cord-marked and decorated. An examination of these seemed to indicate the remains of at least seven different pots. In addition, there were recovered one leaf-shaped limestone scraper, another limestone scraper, very crude and notched on one side only, and the upper part of a spearhead made of crystalline limestone.

From the material found we may infer that this rock was a frequent stopping place and temporary camp, but was hardly ever occupied for any length of time, since in that case chips and artifacts would have occurred more abundantly. (22-31-3-3-7.)

There is a site on the east bank of Paulins Kill near what is known as "The Indian Spring," in the village of Lafayette. Although this site is not large, implements of prehistoric origin are reported to have formerly been very abundant there and collectors reaped a rich harvest of specimens of almost every description. Some made of obsidian and chalcedony, the former material entirely foreign to New Jersey, the latter extremely rare, are said to have been found here. If so, we have evidence of barter and the importation of finished implements or of raw material from regions hundreds of miles away. (22-31-3-1-3.)

Scattered relics on the banks of a small brook on and near Baxter's farm, west of the Lafayette Meadows, 1 mile northeast of Lafayette. (22-21-9-8-2.)

Augusta.—Two sites on the level fields along the east bank of Paulins Kill, three-fourths and one and one-fourth miles south-east of Augusta. (22-21-8-5-9; 5-1.)

Monroe; Snover's Cave.—At the northern end of the Lafayette Meadows, on the old Snover farm, 1 mile northwest of Monroe, there is a cave which the writer believes to have been the abode of the Redman, since a flint scraper was found at its entrance, and a camp site and a brook are near at hand. Although it is now partly filled with many boulders, which cover almost completely the dirt floor and render excavation impossible, it seems that formerly it might have been a splendid shelter both by virtue of its peculiar structure and its favorable location. Entrance is gained through a small opening which leads vertically into a large cavern, about 9 feet below. The hole admits of plenty of air and light. From the main room a dark passage-way runs horizontally for some distance, widening here and there into smaller chambers. (22-22-7-2-5.) Near by on the Beemer and Runyon farms, there are somewhat similar small caves in the limestone.

A site occurs on a low ridge north of Snover's cave. A cleft is at the bottom of the ridge and a ditch extends from it. Accord-

ing to information received water gushes out of the hole every spring, filling the ditch and overflowing the level country in front. (22-22-7-2-5.)

Hopkins Corners.—Four sites have been noted on the high ground surrounding a swamp at Hopkins Corners about 3½ miles north-east of Lafayette. Two of the sites are southeast of the swamp on Dave Hopkins's farm. (22-22-7-2-1; 4-8-8.) The others are northwest of it on the Van Horn farm. (22-22-4-8-7; 8-5, 8.)

The writer is inclined to think that trails skirted both sides of the Lafayette Meadows, but that, for topographical reasons, preference was given to the westerly side. At all events, it permitted of easier traveling by being less hilly.

ON GERMANY FLATS.

Germany Flats and its southwestern continuation towards An-dover furnished relatively few sites. This is the more surprising in view of the favorable environment. Not only is there a chain of seven lakes within a distance of 9 miles, but there are numberless swamps and brooks with many springs, all bordered by level and well-drained terraces of sand and gravel, the surfaces of which are generally loose and readily cultivated. In spite, however, of these advantages, the region seems to have been but sparsely populated since only six sites, one a village, have been noted.

Iliff's Pond.—A large village site lies on the west shore of Iliff's Pond. Many of the aboriginal implements that have been secured exhibit a high degree of skill on the part of the maker. Flint being very abundant in all this region, the Indians who came here used it extensively in the manufacture of their arrow points and spearheads to the almost total exclusion of other raw material, such as argillite, quartz and jasper. There is a tradition to the effect that this spot marks the site of a winter quarters. This is by no means improbable as it occupies the sunny side of the hill and is well protected from northwest winds. The fishing afforded by the numerous ponds in this neighborhood must have been an important factor in determining the location of a village in this vicinity. (22-31-8-2-1, 2.)

Sussex Mills.—A site on a knoll at the edge of a swamp north of Sussex Mills. As the Lehigh and Hudson River Railroad cuts through it, it is now for the most part destroyed. (22-31-6-4-3.)

Sparta Junction.—An ancient workshop and camp site on the undulating fields south of the brook, one-half a mile west of Sparta Junction. (22-31-6-2-5.)

A site on elevated ground on the Utter farm, a short distance north of Sparta Junction. (22-31-6-2-3.)

A gorget, elaborately fashioned and perforated at both ends, was found some years ago on the east bank of the brook, midway between Sparta Junction and Houses, P. O. (22-32-1-7-8.)

Ackerson.—A site on the west bank of the brook, about 300 yards east of Ackerson depot. (22-32-1-4-4.)

A site near a pond hole, one-fourth of a mile northwest of Ackerson depot. (22-31-3-6-3.)

THE VALLEYS OF WALKILL¹ RIVER AND PAKAKATING CREEK.

This region, lying in part within the Highlands in the eastern portion of the county, proved to be comparatively poor in aboriginal remains. Sites are few and far between except in the region near the borough of Sussex, which was apparently a center of primeval activity, probably largely because of the junction of Papakating Creek with Wallkill River.

Southwest from Sussex there was an easy route along the valley of Papakating Creek to the level plains near Augusta and thence to the settlements along the Paulins Kill and near Swartswood Lake, while the Wallkill Valley could be followed northward to the rock shelters near Owens, or southward to the camps near Sparta, and thence to those southeast of Andover or about Lake Hopatcong.

This paucity of remains and camping grounds except near Sussex is doubtless accounted for by the roughness and general inaccessibility of most of the territory, which except along the larger valleys is still difficult to traverse. Eighteen sites including six rock shelters are described under this heading.

Sparta.—A large site probably a village west of Wallkill River, on H. Scudder's farm, at the eastern base of Pimple Hills, 2 miles

¹Said to have anciently been known as "Twischsawkin," meaning the land where plums abound.

northeast of Sparta. Many beautiful artifacts have been secured on these fields and new ones are ploughed up every year. (22-32-5-2-4, 5.)

A smaller site, also on the west bank of Wallkill River, one-half a mile farther northeast. (22-32-5-2-3.)

Borough of Franklin (Franklin Furnace.)—A rock shelter, called "Wild Cat Rock," was discovered three-fourths of a mile southwest of Franklin Furnace, on land of Joseph Edsall. Although structurally one of the best rock houses found in Sussex County, it contained but few remains of aboriginal industry and was probably little frequented, apparently for no other reason than that water was too far away. It lies in the midst of a rough and densely wooded region remarkable for high ledges and detached masses of rock strewn along their bases. At the shelter two rock ledges rise as steps separated by a bench or terrace about 50 feet in width. A small brook flows along the foot of the lower cliff. The rock house lies about 10 feet up the face of the higher cliff and 150 yards more or less from the brook, and has a western exposure. In shape the shelter leaves little to be desired. It is 25 feet long and the roof projects about 15 feet. It is 6 feet above the floor on the inside and 14 feet along the front. There were no surface indications of habitation, but in the course of excavation two fireplaces were found, one of them to the left close to the rear wall, the other in the center. Along with pottery, chips, bones and turtle shells there came to light one notched and one triangular flint arrow point. Between the center fireplace and the rear wall were many fragments of pottery, some of them cord-marked, others plain. (22-22-8-9-6.)

A smaller rock house nearby, about 15 feet up the face of the lower cliff, showed no traces of prehistoric occupation, although here the water conditions were entirely favorable.

There is a small camp site on the western bank of the brook, about 200 yards west of the rock shelter. (22-22-8-9-6.)

North Church.—A site between North Church and Hamburg at the headwaters of a small brook, on the Simmons farm, (Stone Mill.) Many objects of primitive industry are said to have been found in this locality, which is well protected from north winds and altogether favorably located. (22-22-6-7-1, 4.)

Scattered relics occur on Vanderhoof's farm, north of North Church. (22-22-5-9-2.)

Beaver Run.—Artifacts have occasionally been found a mile north of Beaver Run store, east of the brook of the same name. (22-22-5-3-4.)

In a rough and heavily timbered region between Beaver Run and Wild Cat Rock—not to be confounded with Edsall's Wild Cat Rock near Franklin Furnace—flint chips and numberless large pieces of flint were noticed, distributed over a large area. This seems to warrant the supposition that the Redmen had come here for the purpose of procuring this much prized raw material. (22-22-5-3-1, 4.)

Pellettown.—What appears to have been an ancient village site once noted for a profusion of implements of many types was located on high ground one-half a mile east of Pellettown and east of Papakating Creek, called by the Indians "Pepoketing." From this village there was ready access along Papakating Creek to the settlements near Sussex. (22-22-4-1-4, 5.) No other sites are known within 2 or 3 miles of it.

Lewisburg.—A small site on the east bank of Papakating Creek west of Lewisburg station. (22-22-2-2-2.)

Sussex.—A mile southeast of the borough of Sussex, Papakating Creek describes a great loop within which is enclosed a rocky peninsula locally known as Berry's Cove. Limestone ledges rising to a height of 100 feet above the creek occupy its center, while verdant meadows strewn with many boulders and small limestone outcrops intervene between them and the placid waters of the creek. Here many an arrow point has been found, and many a chip, indicating a spot where the Redman fashioned his tools. Nor has there been any lack of objects of the more elaborate kind, such as tomahawks and hatchets, and of potsherds an amazingly large quantity has been found. Notwithstanding the fact that the fields on Berry's Cove have not been under cultivation for many years past and, therefore, there has been no recent upturning of the soil to reveal their hidden treasures, the writer succeeded in finding numerous chips and a limestone scraper lying near the bank of the creek. (22-12-9-8-7.) There can be no question that, if the fields were tilled, many artifacts would be laid bare by the plough.

In addition to these evidences of Indian occupation two rock shelters were located, both on the southwestern slope of the hill. The lower shelter has a length of about 22 feet with roof 12 feet

above the floor along the shelter line, 6 feet at the back and projecting about 8 feet. However, much of the floor space was unavailable for use owing to boulders obstructing it. The shelter faces southwest and the creek is about 300 yards distant. Excavation of the culture layers brought to light several triangular arrow points, three pitted hammerstones, unio and turtle shells, deer bones, flint and quartz chips and many potsherds, some decorated. (22-22-3-2-1.)

The other rock house lies higher on the hillside and about 150 yards west of the lower. It faces west and the waters of the Papakating Creek are about 200 yards distant. Its dimensions are: length, 30 feet; average roof projection, 6 feet; height of roof above the floor, 4 feet on the inside and 7 feet along the shelter line. Practically all the remains of aboriginal culture occurred near the outside of the rock and even several feet beyond the shelter line, but this is not strange, since the Redman often enlarged a rock house by leaning poles covered with bark and hides against its sides and front.

Four triangular points and immense quantities of pottery fragments were unearthed from 3 to 15 inches below the surface. Altogether there must have been over a thousand potsherds, belonging to a score or more of pots, as indicated by the different color, thickness and ornamentation of the sherds. Some of the decorations used were rather artistic, consisting of straight parallel lines, zigzag designs, dotted lines and incised rims (Plate V). Chips were very few, a fact showing that but few implements were fashioned in this place. One large fireplace, indicated by the blackened soil and broken pieces of pottery lay around a boulder near the shelter line. Here four deer bones, gnawed and cracked for the marrow, were turned up. (22-12-9-7-9.)

Judging from the comparative scarcity of mammalian bones we may perhaps assume that the food of the Indians occupying this shelter consisted almost exclusively of fish caught in the creek nearby, the bones of which are small and not well adapted for preservation.

East of the last shelter and higher on the hillside there is a small cave discovered by boys about 30 years ago. When first found, its entrance was completely closed by a wall of rocks. Tearing these away, the boys found a hole barely large enough to admit them. On digging in the floor of the cave they found at

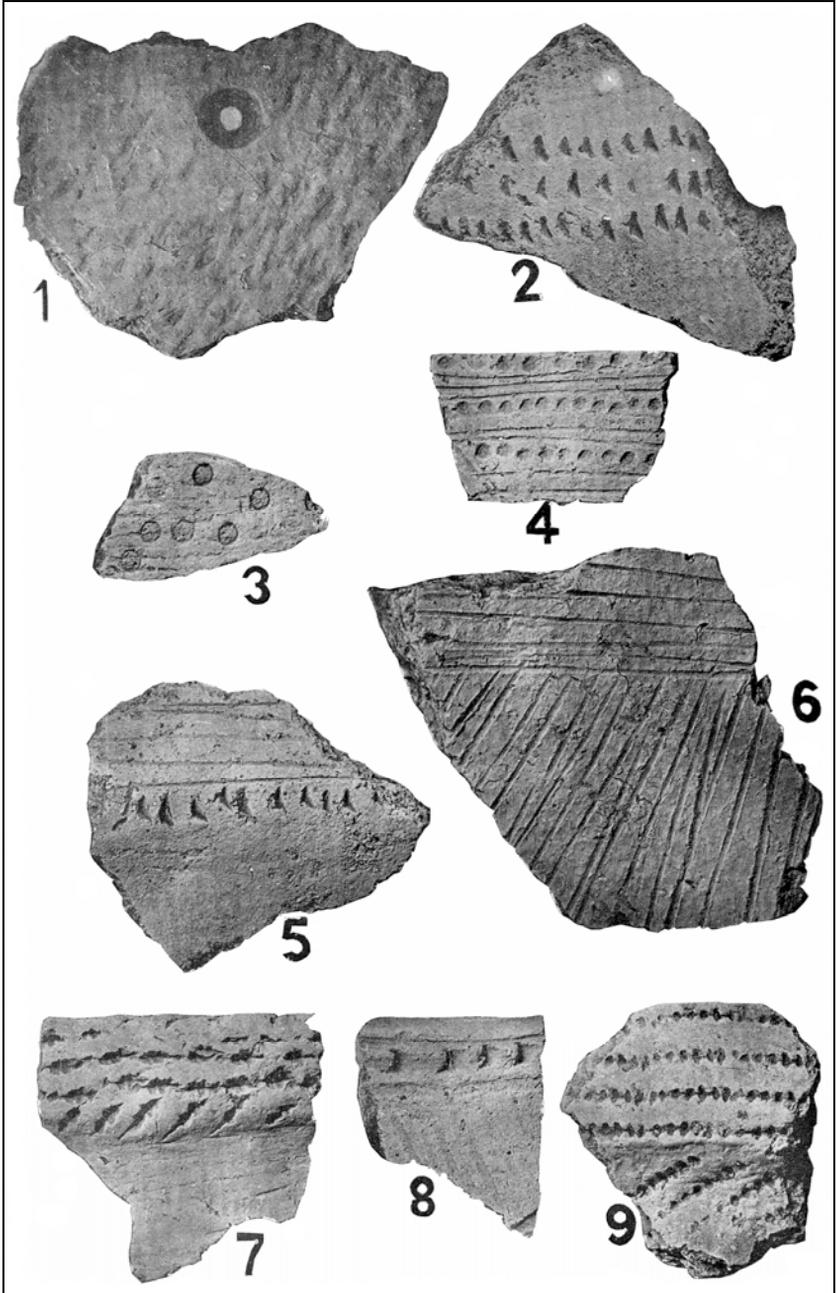


Plate V—Decorated Potsherds from the Wallkill Valley. Nos. 7, Owen's Cave,
Nos. 1-6, 8, 9, Berry's Cove.

a depth of a foot the skeletal remains of a human being, which were subsequently pronounced to be those of an Indian, who had evidently died a violent death, since his skull was pierced by a bullet. Continuing the excavation to a depth of about 4 feet, where rock bottom was reached, the boys unearthed many fragments of pottery and some arrow points. Although accurate data are unobtainable at this late day, it is perhaps not unreasonable to infer that an Indian of some prominence had here been interred. This cave burial is to our knowledge the first of which there is any record in the State of New Jersey.

As the writer dug up some more bones, probably belonging to deer, as well as several flint nodules, at a depth of more than 4 feet below the original surface, as found some 30 years ago, it would seem that this cave was inhabited prior to its being used as a burial, since otherwise the occurrence of bones and chips at such a depth could not be easily accounted for. More than that, it seems likely that the last living occupant of this cave may have been the one whose remains were found at this spot. (22-22-3-2-1.)

Other signs of the Indian's activities were noted in this vicinity. A ford probably constructed by the Redmen, crosses Papakating Creek west of the rock houses, about half way between them and the New York, Susquehanna and Western Railroad. Again, two large camp sites, possibly villages, were situated on the other side of the creek, opposite Berry's Cove, and many finds including the finer objects of primitive culture have been made there in years gone by. (22-12-9-8-4; 8, 9.) When all the facts are considered, it is safe to say that Berry's Cove was one of the headquarters of the Lenni Lenâpé of Sussex County. Although their principal settlements were along the Delaware and about Swartswood Lake and Newton, it would seem that Berry's Cove was another center of population, or, if not a permanent settlement, bands from the other settlements came to this region, as perhaps they did in the summer months to fish in Papakating Creek and Wallkill River. Certainly the scarcity of prehistoric sites hereabouts tends to make Berry's Cove a place of exceptional archaeological significance.

The first settlers of Sussex borough about the year 1700 are said to have found an Indian encampment on top of the hill east of the railroad station, but all traces of this site disappeared long ago. (22-12-8-9-3.)

Another camp site, also within the borough and still recognizable, lay on the east bank of Clove River. (22-12-8-9-1.)

A site has been identified on the flats between two hills, a short distance northeast of the borough in Wantage Township.¹ (22-12-9-4-4.)

Owens rock shelter.—Northeast of Sussex, Walkill River flows through marsh lands which extend farther north into the so-called Drowned Lands of Orange County, N. Y. The most prominent physical feature along this portion of the river is a great limestone cliff on its east bank north of Bazatt's bridge, 5 miles northeast of Sussex and one-half mile west of Owens, a station on the Lehigh and New England Railroad. This cliff forms the western side of a rocky island, surrounded by swamps and low-lying meadows. It extends north from the bridge, parallel and close to the river for about 500 yards, facing westward and rising abruptly almost from the water's edge to a height of about 50 feet. Masses of fallen rocks are scattered along its base in picturesque disorder, wherever it recedes a little from the river, so that with the dense vegetation and the many boulders between cliff and river there is hardly room for a narrow path. From the top of the cliff the hill slopes gently to the east, with none of the ruggedness characterizing its western side.

About 200 yards north of Bazatt's bridge and 15 feet up the face of the ledge a cave was found, which in some respects was the most interesting of all the shelters of Sussex County. It is formed by a huge rock resting against the ledge at an angle of about 60 degrees so that its opening and all the space back of it has the shape of an inverted "V," facing southward. A dark and narrow passage extends from its rear downward, expanding, as is claimed, into a subterranean chamber. When first seen, the cavern was almost completely obstructed by boulders, choking it to the very entrance, placed there years ago, so the story goes, in an effort to prevent access to the subterranean chamber, which was alleged to be filled with noxious gases, causing lights to go out and therefore endanger life. After these had been removed, the dimensions of the cave were found to be as follows: depth, 14 feet; height, 10 feet; width, 5 feet. The floor under the rocks was level and of a black color, doubtless chiefly due to recent fires, and the

¹The name of this township, "Wantage," is said to be a corruption of Indian "Wundachqui," signifying "that way."

cave was quite light even in its rear portion. A few potsherds lay on the surface, revealing the character of the place and showing at the same time that but little debris had accumulated since Indian times.

A trench was dug lengthwise along the left-hand inner wall, starting at the entrance and continuing toward the interior. The process of digging was much impeded by rocks buried in the culture layers, but the subsoil proved to be very rich in Indian refuse of every sort. At the outset a leaf-shaped scraper and numerous flint chips were unearthed lying a few inches below the surface near the outside. At the same depth and deeper numberless cord-marked potsherds came to view together with great quantities of bones, those of deer predominating, and it became evident that this was the site of an ancient fireplace. At a depth of about 6 inches the trowel turned up a crude net sinker, rectangular in shape and notched in the center, a neatly fashioned straight-stem flint arrow point, an unfinished point made of pink-colored jasper and an unfinished gorget, consisting of red sandstone, with two large pits on one side and three smaller ones on the other. At about the same level seven net sinkers were found lying close together. They were of the shape and size of a chicken egg, pecked all around and grooved medially. Farther down, about 3 feet from the entrance, a bone pit was struck, containing hundreds of bones as well as unio and turtle shells, mingled with broken pieces of pottery, all cord-marked, and a few chips. Among the remains there were also two large deer antlers. This bone pit reached to a depth of nearly 3 feet and at its bottom the most interesting finds were made. These consisted of three bone arrow points, two bone awls, a bone spearhead, a pointed bone instrument, all highly polished, three deer horns and last, but not least, an oyster shell. It is strange that notwithstanding the most careful search not another similar shell was found. It appeared, indeed, to be the sole representative of this class of mollusks in a cave 70 miles from the ocean. Although the Redman's well-known fondness for oysters often led him to carry them to his camp sites many miles inland, to find a single oyster shell at such a distance from the ocean is, to say the least, unique.

On the right-hand side of the cave the various strata contained an abundance of potsherds and bones, but comparatively few chips. Excepting the top layers, the soil was of a lighter color

and no remains were found beyond a depth of 2 feet. At a depth of 8 inches the trowel turned up two perfect implements, one being a straight-stem knife or scraper, the other a nicely polished celt, 2 inches long and 1½ inches wide with a sharp cutting edge. There were also found part of a quartz point and a most curious relic, in part at least of European manufacture, namely, the stump of a rusty iron blade set in a deer horn handle. The latter lay, by actual measurement, 10 inches below the top and near it there were scores of potsherds. It is a foregone conclusion that the Redmen bartered this article from the early white settlers, since we know that a lively trade invariably developed between the two races wherever they came in contact with one another, and many objects obtained in trade with the whites have been found in aboriginal camp sites situated on and near the Atlantic seaboard.

While digging near the front of the cave, it was observed that the culture-bearing strata extended outwardly. Pottery, in particular, was fully as plentiful on the outside, a few feet from the entrance of the cave, as it was in the interior. Yet all this ground was uneven, sloping from the foot of the ledge to the river below. Judging, however, from the different depths at which the remains occurred, it seemed as though the space in front of the cave had once been quite level, and its present unevenness was due to accumulation of *débris* subsequent to Indian occupation.

What appeared to have been an ancient fireplace was discovered to the left of the entrance. It was about 2 feet deep and the black soil within contained a profusion of broken pottery, bones and turtle shells. Apart from these the trowel turned up a fragment of a gorget with one perforation, a scraper made of yellow jasper and a crude argillite knife, badly corroded and patinated with age.

From the distribution of the relics it is certain that the Indians camped both in the cave and on a space 5 feet long by 4 feet wide outside of it. This they could have made quite hospitable by leaning poles against the face of the ledge and covering them with skins and bark, something they often did. Thus enlarged, the shelter was spacious enough to harbor nearly a dozen men.

The large number of bones and potsherds, more than a thousand of each, contrasted with the relative scarcity of chips and artifacts, seems to hint at frequent visits, each of short duration, by hunting parties rather than at a prolonged occupancy by families, since in the latter case the subsoil would have been much richer

in objects of aboriginal handiwork. It is probable therefore that this cave was the temporary resting place of hunter and fisherman, a favorite resort of theirs and famous withal, as there was not another place comparable to it for a radius of many miles. The occurrence of bone implements here is unique and places this shelter in a class by itself compared to the others of the county. (22-13-4-2-6.)

A small rock shelter occurs 200 yards north of the cave, near the northernmost point of the cliffs on the east bank of Wallkill River. Although not high enough to permit one to stand upright, it, too, bore witness to the Redman's presence. Its center showed traces of an ancient fireplace and the debris contained unio shells, bones, chips and a few pieces of pottery. Like the cave it was probably used by Indians fishing along the banks of Wallkill River. (22-13-4-2-3.)

IN VERNON VALLEY AND ON THE ADJOINING HIGHLANDS.

This region proved to be extremely poor in aboriginal remains and, large as it is, only eight sites have been found, four in the valley, the others high up among the mountains.

Glenwood.—Two sites on the low hills east of Pochuck Creek, a mile east of Glenwood. They were probably villages, as they have yielded many fine specimens representing a great variety of objects. (22-13-6-6-9; 14-4-4-4, 5.)

Vernon.—A site on top of a high bank, west of the brook at Vernon. The profusion of chips littering the soil indicates a prehistoric workshop. (22-13-9-8-8, 9.) A hatchet of perfect workmanship was found on the opposite side of the brook near John Burrows's hotel in the summer of 1913. (22-13-9-9-7.)

McAfee.—A site east of Black Creek, 1 mile northeast of McAfee. (22-23-2-4-6.)

Wawayanda Lake.—A fishing place on Wawayanda Mountain, at the north end of the lake. (22-24-2-1-7.)

Sand Pond.—Two fishing places on Hamburg Mountain, on the north shore of Sand Pond. (22-23-5-4-2, 4; 3.)

A site on Peter P. Babcock's farm, on the north bank of the brook, one-half a mile west of Sand Pond. (22-23-4-6-5.)

March 10, 1914.

Indian Remains near Plainfield, Union County, and along the Lower Delaware Valley

By

Leslie Spier



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I. GENERAL CHARACTER OF THE ARCHÆOLOGICAL REMAINS.

During the field season of 1913 the writer investigated three new regions in central and southern New Jersey; the watershed of the Raritan River, the creek regions of Gloucester and Salem counties, and the watershed of the Maurice River.¹ Further investigation of the first and second regions might be profitably undertaken; the problems presented by both being of more than local interest.

The attention of the survey was again directed to the surface sites to determine their distribution, and to record evidences for or against their homogeneity. In accordance with the plan of the preceding year, the general characteristics of these sites have been noted in respect to their superficial surface indications. Several innovations have been introduced in the notes on sites in southern and central New Jersey, made during the field season of 1913. The chief of these is a quantitative estimate of the materials used in stone implements, having in view the determination of the distribution of the several kinds of material in relation to the distribution of implements of the same materials; the physiographic characteristics of the sites were also briefly noted to determine their probable effect, if any, on the location of camps and villages.

In the Vicinity of Plainfield.—On the Raritan watershed, west of, and paralleling the village sites on Staten Island, lies the First Watchung Mountain. A group of sites is located on the sandy bluffs in the sheltered valley southeast of this mountain. The surface archæological remains found on these sites partake of some of the characteristics of the sites in the little valleys about Paterson. Peculiar to the sites of the Paterson region, exclusive of the rock shelters, is the abundance of the commoner implements, and the great lack of finer articles.

Characteristic of many of the sites about Plainfield is the preponderance of small argillite blades and arrow points. Intermingled

¹The writer wishes to express his obligation to Clark Wissler, Ph.D., Curator and Alanson Skinner, Assistant Curator, Department of Anthropology, American Museum of Natural History, for kindly advice and valuable suggestions for the prosecution of the survey in 1913.

with these are a very few, small, well made points of black flint and yellow jasper. Other sites show equal numbers of well made argillite, quartzite, flint, jasper, and trap-rock specimens. No relation between the cultural characteristics and the geographical position of the individual sites in this group is discernible. The characteristics of these sites differ in a marked degree from those usually obtaining in Lenape camps, inasmuch as no pottery, no shell pits or heaps, no animal bones or other camp debris, with the exception of a few fire-cracked stones, have been found in the entire region. It must be remembered, however, that as yet evidence is furnished by surface indications alone. The large camp sites found in this group are groups of small camps; the same fields being used repeatedly.

It would obviously be ill-advised to attempt an explanation of the apparent heterogeneity which exists in this group based on the necessarily cursory inspection of the surface material which has been collected there; but two reasons for the presence of these remains have been advanced which may be profitably discussed at the present writing.

It has been suggested that this region might exhibit evidences of communication between the two headquarters of the Unami—on Staten Island and at Trenton. Such evidence may exist on the Raritan and Millstone Rivers, although nothing of the kind has yet been found along the Raritan River by Dr. J. Hervey Buchanan or the writer. These sites do not lie in the direct line of communication between the two headquarters; and the remains are apparently not those of traveling bands. This suggestion apparently does not account for the presence of most of these sites.

A second suggestive record of occupation of this territory is the tradition preserved by the descendants of old settlers both on Staten Island and about Plainfield: that the Indians, even at a comparatively late date, when they lived in the outbuildings of the whites, left the villages on Staten Island and those about Raritan Bay in the autumn to winter in the sheltered valley at the foot of the Watchung Mountains.

These sites were quite probably occupied by successive bands, which camped on them for varying periods of time. But were all of these camps occupied at a comparatively recent date, there should exist today on each evidences of the lateness of such occupation. Such evidences would be the slowly decomposing camp débris

which forms the black soil of most camps known to be of modern origin. The utter lack of such decomposing matter, so far as is known, is the most apparent characteristic of these sites. Moreover, the number of sites within this limited area is, in the opinion of the writer, too large for all to have belonged to that period designated by the tradition.

It will be noted, however, that the suggested occupation by traveling or wintering bands offers no reason for the occurrence of two types of camps. Although the distribution of the superficial surface remains within the State when viewed collectively was found in agreement with the distribution of the historic Indians of the colonial period, yet this and other instances of differences between individual sites seems to indicate a lack of homogeneity.¹

Whether the heterogeneity which seemingly exists is more apparent than real is a subject for serious consideration; it is quite evident that this investigation may be profitably pursued at the present time.

In the Lower Delaware Valley.—The valleys of the streams tributary to the lower Delaware River were also examined for traces of settlement. The attention of the survey was directed to the determination of the nature of the occupation of the territory lying between the Unami and Unalachtigo headquarters, so far as was possible from the inspection of surface archæological material alone. No evidences of extensive occupation were discovered. Camps are found on all of the small creeks in this territory; the few village sites found there would bear further investigation. The writer believes that further investigation would indicate that a line of demarkation between Unami and Unalachtigo sites exists in this region.

Arrow points are fairly common, but larger and finer implements are generally rare in this region. Pottery, too, is abundant, but only in certain restricted localities. The absence of any considerable quantity of camp debris may be due in part to the shifting nature of the sandy soil; but it suggests that this territory was infrequently occupied by large bands, or by bands of smaller size but of longer sojourn.

In the sandy loam of the gently sloping country along Raccoon Creek is an abundance of pebbles, none of argillite. No ordinary

¹For suggested heterogeneity and other instances see Bulletin 9, this series.

camp débris is visible here. Flaked implements of argillite and of flint and jasper, none of which are very common, show equal crudity, and are found in approximately equal quantities.

Finer articles, such as banner stones and gorgets, are notably absent, with a few exceptions, from the village sites on Oldman's Creek. Pottery occurs in a few of the sites: the ornamentation is typically Algonkin. Flaked implements are roughly proportionate in numbers to the quantities of pebbles of like material found along the creek. Quartz and impure flint pebbles are abundant; as are the crude points of the same materials; no jasper or argillite pebbles were to be seen, and but few points of these materials have been found. Mounds reputed to contain aboriginal material have been reported; one group of these, located by the writer, may be of white origin.

The sites on the upper and lower reaches of Salem Creek are similar in respect to general characteristics. Sites are few, and widely separated in this low-lying region. Objects of all types are noticeably rough; an impressive example being the gorgets, which are usually classed among polished stone articles. Arrow points are small and roughly made, with the exception of the few made of jasper. Equal quantities of quartz, sandstone and flint, and a few jasper and argillite arrow points were found. A number of short, stout celts have been collected from two sites situated a considerable distance apart on this creek. Potsherds, bearing typical Algonkin designs, are found in abundance on the Harrisonville group of sites: all were thin, and evidently from small pots. Several clay "trumpet" pipes have been found here.

Along Maurice River.—The characteristics of the Maurice River finds may be briefly stated. Objects are sparsely scattered along the banks of the river and its tributaries. A few camp sites have been located. In these a few arrow points and potsherds were found; the grooved axes found along the river number less than a dozen, while celts are not found. Aside from a few jasper and sandstone specimens, equal numbers of quartz and flint arrow points are found. The few sites seem to have been but the hunting camps of bands using the Maurice River as a highway into the unoccupied interior.

No important change regarding the distribution of archaeological remains in central and southern New Jersey has been warranted by the results of the second field season; these results tend to con-

firm and amplify our earlier conclusions. The distribution of the new sites is, in the main, in agreement with the distribution of the sites investigated in 1912. The conclusion then reached as to the identity of the remains is in no way affected by the new evidence.¹

Since many localities are as yet not represented in our list of sites, the results of the preliminary survey presented in this report are incomplete, and the conclusions arrived at are but tentative.

II. GEOGRAPHICAL DISTRIBUTION OF SITES.

Indian sites, found by members of the survey staff in central and southern New Jersey, can be readily grouped, for the purpose of description, in four geographical divisions. As stated in Bulletin 9: "A Preliminary Report of the Archaeological Survey," these are:

I. The New York and Raritan Bay Group. The remains on Staten Island, about Raritan and Newark Bays, along South River, and on the watershed of the Raritan River are included in this group.

II. The Atlantic Coast Group. This includes the sites found along the bays and rivers of the coast from Sandy Hook to Cape May.

III. The Lower Delaware River Valley Group. This includes the great Unalachtigo headquarters on Cohansey Creek, and the numerous sites in Cumberland, Salem and Gloucester counties.

IV. The Middle Delaware River Valley Group. This centers about the cluster of sites at Trenton, and includes the sites found in the territory south of the Unami headquarters to Camden.

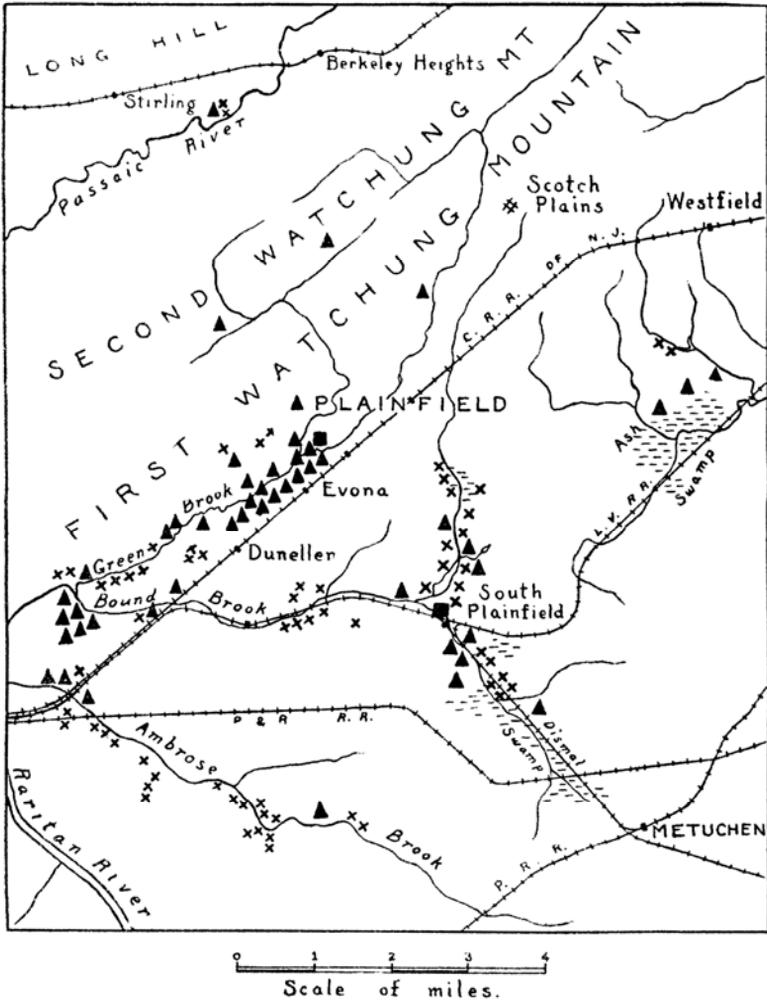
This grouping of remains in the central and southern parts of the state, adopted as a result of the work of the field season of 1912, has been in no way affected by the location of the remains found during the field season of 1913. The sites added to our list during the last season are in Groups I and III.

NEW YORK AND RARITAN BAY GROUP.

Stirling.—Near Stirling, one-half mile south of Gillete Station, on the north bank of the Passaic River, is a small camp site.

¹For the conclusions regarding the distribution and identity of the remains see Geological Survey of New Jersey, Bulletin 9, p. 16.

Scattered relics are found hereabout, chiefly arrow points. (25-23-6-9-9.)



LEGEND—▲ Camp sites ■ Burial grounds. x Scattered finds

FIG. 5.—Indian Remains Near Plainfield.

Watchung.—One mile northeast of Watchung there is a small camp site on a hillock. There were formerly a number of springs here, now dried up. Arrow points, several celts, and chips were

found on this site. There is said to have been an Indian trading post one-third of a mile east of this site. (25-24-7-6-8.)

Washingtonville.—On the headwaters of Stony Brook, on the land of Dr. J. H. Cooley and Leo Phillips, 1 mile southwest of Washingtonville, there is a small camp site where a few arrow points of flint and jasper have been found. Chips are not plentiful on this site. One flint scraper has been picked up here. No implements of argillite or other soft stone has been found here. (25-34-1-1-1.)

North Plainfield.—On Green Brook at Mountain and Leland avenues, a small camp site was located. This has yielded arrow points, a grooved axe, and some chips—none of argillite. While excavating for a road near this site a number of axes were dug up; in the vicinity of these finds several stone mortars were collected. (25-24-8-8-8.)

Occasionally relics are found along Green Brook from this site to Scotch Plains.

There is a small camp on the farm of R. Cadmus, situated on a bluff with southerly exposure on a tributary of Stony Brook. Many objects have been found at this site, including one grooved axe, excellently formed arrow points, one yellow jasper blade 6 inches long and exhibiting fine workmanship, and chips. (25-34-1-5-5.)

A camp site has been located on the bluff on Green Brook. Here three axes, several hammer stones, a pestle, arrow points, chips, and rejects were found. The arrow points were chiefly of flint, jasper, trap-rock, and some argillite. A few burnt and fire-cracked stones are scattered about this site. (25-34-1-7-8.)

A small mass of débris on a tributary of Green Brook in the valley immediately below Washington Rock marks a small site, evidently that occupied by a single lodge. A few broken specimens, and quartz and flint arrow points were found here. Chips are abundant on this site; these are chiefly of trap rock. (25-34-1-7-1.)

There is a small camp site on a sandy hillock on Green Brook road near a tributary of Green Brook. Among the burnt stones and chips scattered about, arrow points, pitted hammer stones, grooved axes and crude scrapers were found. The materials used in the flaked instruments were flint, quartz, jasper and trap rock. (25-34-1-7-4.)

Plainfield.—On the sandy bluffs bordering both sides of Green Brook near its confluence with Stony Brook lies a very extensive camp site, or more exactly a group of small sites, the “tailings” of which extend for some distance in all directions, chiefly south along the brook to Dunellen. The remains from this site however indicate but temporary occupation. The main camp is situated on the point of land formed by the junction of the two brooks. Skeletal remains, reputed to be Indian, have been dug up at this main camp by Mr. George Fountain: with the skeleton was found a copper plate. In connection with this find must be noted the fact that British soldiers camped and were buried in the neighborhood. Remains from this group of sites consisted of arrow points, hammer stones, scrapers, and two undrilled banner stones. (25-34-1-8; 25-34-4-1.) We are indebted to Dr. J. Hervey Buchanan, of Plainfield, for information concerning this and other sites in the vicinity of Plainfield.

Dunellen—One-half mile due northeast of the Dunellen railroad station was a small camp, now obliterated. Chips were abundant here but no objects have been found. (25-33-6-3-5.)

There is a large camp site at Feikert’s farm, situated on the north side of Green Brook, 1 mile due northwest of Dunellen station. This site, including the scattered debris around the principal part of the camp, extends from Dunellen Road to Green Brook—an area of about 10 acres. Arrow points of flint, jasper and argillite, axes and pitted hammer stones have been collected from this site. Fire-cracked stones, chips and broken argillite pebbles are also present. (25-33-6-2-6; 25-33-6-3-4.)

A knoll on the south side of Bound Brook at the pumping station south of Dunellen has yielded a number of long, slender stone blades, commonly but probably erroneously called “fish-spears.” One argillite axe has been found on this site. (25-33-6-5-9.)

On the north side of the brook opposite this knoll is a small camp site. The objects from this site, and the chips scattered about it, are all of argillite, with the exception of a few small arrow points of flint and jasper.

Scattered relics are to be found in Dunellen due northeast of this site.

Lincoln.—From the crossing of Gallagher's Lane and Green Brook to Sebring's mill pond the fields on the south side, adjacent to Green Brook, show scattered specimens. Arrow points, chips, and a broken hammer stone were found here. (25-33-6-4, 5.)

A small camp site is on a high knoll in the meadow bordering Green Brook on the farm of Mr. Jones, near Sebring's mill. Arrow heads, the majority of which are notched, are the objects found in greatest abundance on this site. (25-33-5-6-6.)

The second very large group of small camps on Green Brook is that immediately south of Sebring's mill pond at the junction of Green and Bound brooks. These camps and the scattered debris from them extend from Green Brook to the outskirts of Lincoln. This is a rich site in regard to the quantity of objects found on it, but signs of extensive occupation are not found here. Broken ornaments, a broken pottery pipe, a banner stone, grooved axes, pitted hammer stones, a pestle, and an iron trade axe have been collected. Arrow points of all sizes, shapes, and made of all materials common to the points of this region, have been found in great abundance. Chips and rejects are also found scattered over the entire site. (25-33-5-6-8-9: 25-33-5-9-3.)

East Bound Brook.—A large camp very prolific in specimens is situated on the southern part of the Creighton Manor tract on Ambrose Brook about 1 mile from where it empties into the Raritan River. The specimens from this site are those typical of this region—arrow points, grooved axes, and pitted hammer stones. The quantity of cracked argillite pebbles here is worthy of note. (25-33-8-3-1, 2.)

The fields along the south side of Ambrose Brook from this site to 1 mile above Newtown, and the fields on the north side from Newtown to the source of the brook have yielded objects. (25-33-9-1, 5, 6; 25-34-7-7, 8, 9.)

A small camp site is on the north side of Ambrose Brook due east of the Central Railroad of New Jersey crossing. The objects, from this site are chiefly arrow points and chips of argillite, flint and jasper. (25-33-9-1-1.)

Newtown.—On a flat, sloping field on Dr. W. J. Nelson's farm on the north side of Ambrose Brook is a small camp in which there is an excellent spring. This site shows arrow points and chips but no other specimens. All indications point to its use as

a temporary camp. Its use for this purpose at a late date is confirmed by its present residents. Dr. Nelson, who is elderly, says that his grandparents told him of the use of this site by Indians journeying from Raritan Bay and described the papposes strapped on the backs of the squaws. (25-34-7-9-1.)

New Market.—Scattered remains are found on both sides of New Market pond and Bound Brook from New Market to Samp-town. These are most plentiful about the head of New Market pond. (25-34-4-5-8; 25-34-4-8-3.)

South Plainfield Pond.—On a sandy slope on the north side of Bound Brook one-half mile west of South Plainfield pond the quantity of arrow points and chips found seems to warrant the assumption that they mark a camp site. (25-34-5-4-9.)

One-half mile east of here is a site on the brook reputed to be a burial ground. Artifacts have been found here, but so far as is known no skeletal remains, the sole evidence that this is a burial ground being the tradition.

Scattered finds are reported from the fields bordering the South Plainfield pond.

Implements are ploughed up and washed out of the fields along both sides of Cedar Brook from the South Plainfield pond to Valentine's Bridge. At this bridge was a ford, on both sides of which are found numbers of arrow heads, chips and axes. Several celts have been collected from the camp site on the west bank. Another very small camp is located on the south side of the bridge on the same side of the brook. (25-34-5-2-6.)

Avon Park.—Two small camps are situated on either side of the road at the lower end of Holly's Pond. The majority of the specimens yielded by these sites have been arrow points. Tradition affirms that in comparatively recent times Indians wintered in the "corn-cribs" at this place. (25-34-5-6-2.)

South Plainfield.—A large camp site is at the entrance to the Le-high Valley R. R. coal storage yards. This stretch of sloping ground is adjacent to several large springs. Several broken axes, hammer stones, arrow points, the majority of which are perfect specimens, and chips were found on this site. The flaked objects were chiefly of flint and quartz. Artifacts of argillite are rare, and argillite pebbles are not abundant on this site. (25-34-5-9-2.)

A second large camp is situated on the Johnson farm, lying west of the stream which drains Dismal Swamp. This site is divided into two distinct parts. On the northern portion arrow points and hammer stones are found. Quantities of flakes and fire-cracked stones are scattered about this portion of the site. The southern part lies on a knoll. Here grooved axes, pitted hammer stones, crude celts and arrow points of all shapes and materials peculiar to this region have been collected. (25-34-5-9-4.)

Many implements were found scattered about the field immediately west of the southern portion of this site.

A large site lying south of the last one, on a hillock sloping to the southeast near Dismal Swamp, presents a number of interesting peculiarities. This camp is prolific in weathered specimens of soft stone and trap rock. A few grooved axes, one or two stone drills, hammer stones, and a gun-flint of the square type have been found here. Burnt and fire-cracked stones are scattered over the site. Dr. Buchanan has a pear-shaped ornament from this site. This is approximately 1 inch long, of black stone, and notched at the upper end. (25-34-5-9-7.)

Many scattered relics—axes, hammer stones and arrow points—are found along the east side of Dismal Swamp from the entrance to the coal storage yards to Peney's Crossing. The field southeast of Peney's Crossing, containing a knoll, shows an abundance of chips of all materials common to this region. A few perfect objects have been found here; a rude sandstone axe and a perfect banner stone. Hammer stones and a few rejects of argillite and sandstone have also been found. Large chunks of argillite and cracked pebbles of flint, argillite, and sandstone are common over the entire site. There are but few indications of the use of this site as a camp: this was apparently a manufactory of arrow points. (25-34-9-1-6.)

One-half mile south of the Lehigh Valley R. R. to the east of the road from Pumptown to Plainfield there is a small camp on a hillock, near a pond which empties into Dismal Swamp. This has yielded a few arrow heads and unfinished specimens. All indications point to a temporary occupation of this site. (25-34-6-8-5.)

Lying on the east side of Dismal Swamp 1 mile directly west of Pumptown is a sandy sloping field where finds of hammer stones, arrow points and chips indicate a camp. (25-34-8-1-3.)

Willow Grove.—East of the road from Lambert's Mills to Rahway at the end of Ash Swamp, is a camp site, the débris of which extends fore one-quarter of a mile north and south. Axes, hammer stones and arrow points of all materials common to this region are found here. (25-35-1-2-9.)

The fields adjacent to this site also show evidence of occupation by the finds of scattered relics.

Implements have been found scattered about Lambert's Pond northwest of this site.

A small camp was situated on a hillock north of Ash Swamp on the farm of Anthony Wahl, one-half mile from Willow Grove. A number of grooved axes were taken from this site. Arrow points and chips made in the process of flaking are fairly abundant. Few argillite objects have been found. (25-35-1-5-4.)

A large sandy hill on the northern edge of Ash Swamp 1 mile southwest of Willow Grove is the site of a camp. Including the camp proper and the scattered débris from it the site is one of several acres. A large number of arrow points, one or two stone drills, and several pitted hammer stones were collected here. Stone flakes are very abundant on this site. Dr. Buchanan believes that the position of objects found here indicates that they have been ploughed up or washed out from a considerable depth. (25-35-1-4-5.)

THE LOWER DELAWARE VALLEY GROUP.

Woodbury.—Many scattered finds have been made in the fields adjacent to Woodbury Creek on both sides from its mouth to its source, as well as along Mathew's Brook. Objects, although not abundant, are more plentiful on the south side of the creek. (31-11-4, 5, 8.)

Mantua Creek.—Along Mantua Creek, on the bluffs on both sides, from Mt. Royal to Hee's Branch and along Monongehela Brook, relics have been found. These are chiefly arrow points, occasionally a grooved axe is found. It is probable, however, that all the sites on this creek have not yet been reported. (31-11-7, 8; 31-21-1, 2, 3.)

Swedesboro.—Objects of aboriginal manufacture, such as arrow points, flaked blades and axes, are found on the sandy bluffs on both sides of Raccoon Creek between Swedesboro and Bridgeport.

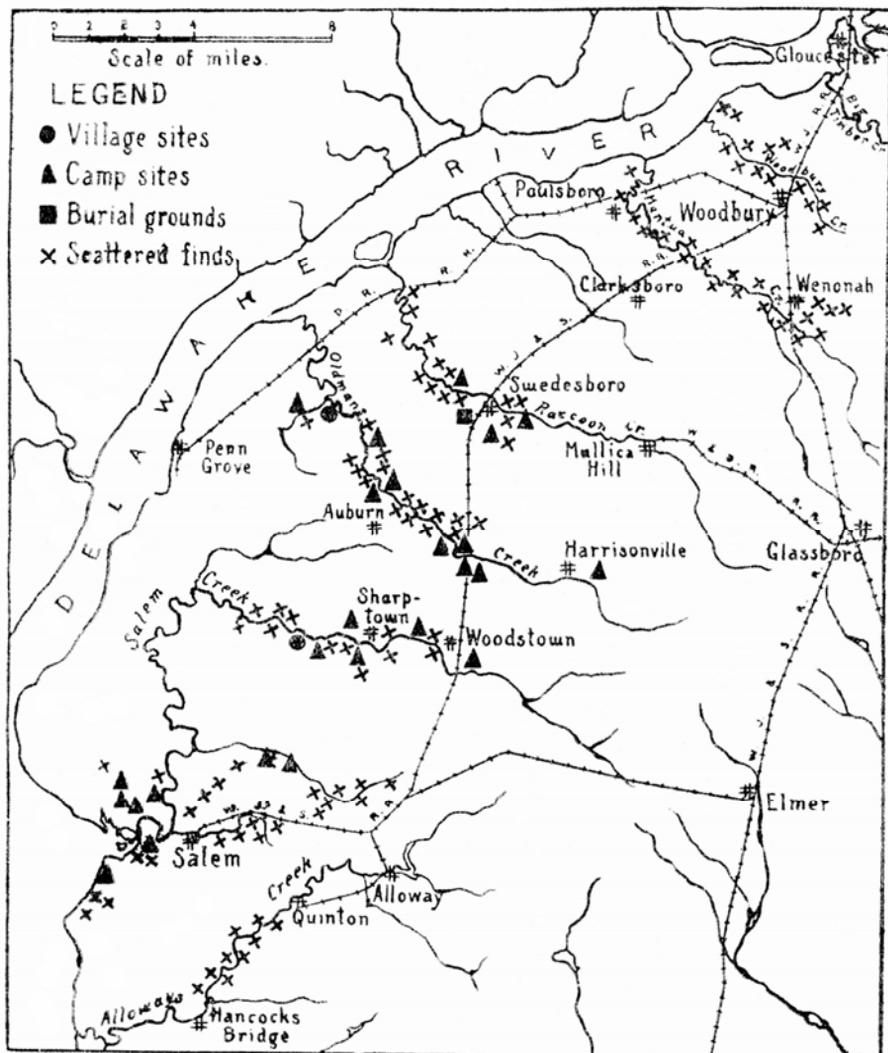


FIG. 6.—Indian Remains Along the Lower Delaware.

The upper reaches of this creek, where the banks are quite high, would repay further investigation on the part of local collectors. (24-4; 30-23-3, 6.)

The hill rising immediately south of the mill pond at Swedesboro is the site of a large camp or small village. Here a sandy loam overlies gravel, in which pebbles of quartzite are abundant, but none of argillite are to be seen. Several large springs are located on this hill. This site is now occupied by a cemetery, where many objects have been found while excavating for graves. Mr. C. D. Lippincott reports pitted hammer stones, grooved axes, a pestle, and a rubbing-stone, flat with long usage. Arrow points are fairly abundant, approximately equal numbers of these are made of hard stone (flint, quartz and jasper) and argillite. The degree of finish exhibited by the hard stone points is equal to that of the argillite blades, both displaying crudity of form and polish. (30-24-4-9-4.)

Scattered objects are to be found on the tributaries of Raccoon Creek near the mill pond, as well as on the upper reaches of the creek east of Swedesboro.

Remains of those types common to this region occur in such abundance as to indicate a camp site on Raccoon Creek south of the confluence of two of its branches 1 mile east of Swedesboro. This site, occupying several acres, is on a sandy bluff near several good springs. Quartzite, flint and jasper pebbles abound: no argillite pebbles were to be seen. The arrow points from this site are essentially of the same characteristics as those found south of the mill pond. (30-24-5-4-9.)

Workmen engaged in building the Bridgeport road excavated several skeletons, reputed to be Indian, about one-half mile west of the West Jersey R. R. on a brook tributary to Raccoon Creek. These were at a depth of 3 feet in sandy soil. The bones were black. Only the skulls were taken out intact, but these soon crumbled on exposure to the air. Scattered finds have been made nearby, but no signs of occupation were visible when this site was visited in August, 1913. (30-24-4-4-9.)

Indications of a camp site are found on the north bank of Raccoon Creek 1¼ miles below the West Jersey Railroad trestle at Swedesboro. Several grooved axes, a pitted hammer stone and many arrow points have been picked up here. The preponderance of arrow points are of flint and jasper. (30-24-4-1-5.)

Harrisonville.—A camp has been located on the flat bluff overlooking a tributary of Oldman's Creek 1 mile east of Harrisonville. The site is a small one, the objects found in it being typical of those from other Oldman's Creek sites, except that potsherds are

absent. Three very fine pestles, about 14 inches long, have been found here. (30-34-3-5-4.)

Harrisonville Station.—Mr. David Bassett reports a camp site containing a mound on the south side of Oldman's Creek, one-half mile east of the railroad bridge. He has found many objects here, notably a bird amulet. Shells are also found on this site, an unusual feature in this region. (30-34-1-5-3.)

Signs indicative of occupation are found on the Bassett farm one-quarter of a mile west of the West Jersey Railroad. Potsherds have been found scattered about this camp. The arrow points collected here are for the most part of quartz, flint and a few of jasper and argillite. These are all of the same degree of finish, but their crudity is apparent when comparison is made with specimens from the great village sites in other parts of the state. With the exception of the objects from one or two sites, finely finished stone implements are conspicuous by their absence from this region. (30-34-1-1-6, 9.)

Scattered remains are found in the fields immediately north and west of this site.

Three-quarters of a mile due west of the West Jersey Railroad on the south side of Oldman's Creek is the highest bluff on the creek. The bluff is sandy and convenient to several springs. A small village was located here, where a great abundance of specimens have been found. Arrow points, grooved axes, hammer stones, both plain and pitted, pestles, etc., have been picked up on this site. It is noteworthy that about half of the arrow points from this tract are made of quartz, and that the majority of pebbles near the site are also quartz. Potsherds are found here in abundance. There is said to be a mound, about 12 yards square, at this site, but it could not be located in the timber growth which covered the greater part of the site, when it was visited in August, 1913. (30-34-1-1-4, 5.)

Auburn.—Remains of aboriginal origin are found scattered along both sides of Oldman's Creek from Porche's Mill to Auburn. The arrow points, the majority of which are of quartz, are noticeably crude. Pieces of pottery, with characteristic Algonkin ornamentation, are found. (30-23-9-4, 5, 8, 9.)

Arrow points are plentiful and many potsherds have been found at a camp site on the bluff bordering the north side of Oldman's Creek north of Auburn. Larger stone implements have also been

found here. Pebbles of quartz and impure flint are plentiful at this site, but those of jasper and argillite are not to be found. This condition obtains throughout the entire length of the creek. (30-23-9-4-1.)

A camp site, where arrow points, grooved axes and a few potsherds were found, is located on the south bank of Oldman's Creek one-half mile from Auburn. We are indebted to Miss Larzelere of Auburn for the location and characteristics of this and other sites on Oldman's Creek. (30-23-8-6-5, 6.)

Scattered objects, including pieces of pottery, are plentiful along both sides of Oldman's Creek from Auburn to Indian Run.

Pedricktown.—A camp is located on the sloping land east of the junction of Oldman's Creek and Indian Run. Arrow points, principally of quartz and flint, are fairly abundant here. Several axes and a mortar were ploughed up. Potsherds are found scattered over the entire site. (30-23-5-9-4, 5.)

A small village was situated at Graveyard Reach on the Hendrickson farm on the east side of the junction of Beaver and Oldman's creeks, on one of the few bluffs which extend to the bank of the creek. The soil is sandy and pebbles of quartz and impure flint are abundant, but neither jasper nor argillite are found here. Grooved axes, a celt, net sinkers, pestles, several very fine flaked blades, hammer stones and arrow points have been found. Equal numbers of the arrow points, which vary greatly in size and shape, and are all crude, are of quartz and flint, a few of jasper and argillite. Arrow points of all materials are found together. A unique feature of this site is the great quantity of potsherds found. All these fragments apparently belonged to rather small pots, and bear the typical Algonkin decorations—"corn-cob" and "chevron" designs. A part of a steatite pot has also been found.

Graveyard Reach receives its name from a group of mounds in the orchard on this site. Here are a dozen low mounds, 6 feet long, 3 feet wide and 1 foot high. The majority of these lie east and west in a row, but at the west end of these is a file of three or four lying north and south. These are reputed to be of Indian origin, but this site has been farmed "for over a hundred years," and coins of George I and II have been found near the old house. (30-23-5-4-8, 9.)

There is a camp site, where artifacts are plentiful, on the Layman farm, 1 mile due south of Pedricktown, on a bluff on Beaver Creek. The many arrow points found here closely resemble those found at Graveyard Reach. A very fine large flint blade was also picked up on this site. (30-23-4-5-6.)

Scattered objects are found on the opposite side of Beaver Creek to the Graveyard Reach site.

Andrew Hendrickson reports that a polished, "boat-shaped" stone was found on the bank of the Delaware River, near the mouth of Oldman's Creek.

Woodstown.—Evidences of a small camp site are reported in the sandy fields on the south side of a branch of Salem Creek one-half mile southeast of Woodstown station. Many objects of interest have been picked up here. Quartz is the material used in approximately one-third of the flaked implements. (30-34-4-5-4.)

Sharptown.—Artifacts are found scattered throughout the fields along both sides of Salem Creek between Woodstown and Sharptown. Implements made of argillite are rare, and no argillite pebbles or boulders are to be seen along the creek. (30-33-6-1, 2, 6.)

A settlement of temporary character has been discovered on the sloping ground between two tributaries of Salem Creek 1 mile east of Sharptown. A mortar, several pitted hammer stones, and arrow points have been picked up here. Fire-cracked stones are absent from this camp site, as well as in all others along the upper reaches of Salem Creek. (30-33-6-2-5.)

On the bluff on the south side of Salem Creek, at its junction with Major's Run, 1 mile west of Sharptown, is a small camp site. The objects found here are similar in type and abundance to those of other camp sites on this part of Salem Creek. (30-33-5-5-3.)

Scattered remains are found along the south side of Salem Creek from Sharptown to Course's Landing, and on Major's Run.

On the point of land formed by the junction of two small brooks, tributary to Salem Creek, 1¼ miles west of Sharptown, is a small camp site. The flaked implements are chiefly argillite, sandstone and quartz; the few points of jasper and flint found here are well fashioned. (30-33-5-2-2.)

Course's Landing.—A small camp is situated on the bluff on the south side of Salem Creek, three-fourths of a mile east of Course's Landing. Here many arrow points and potsherds have been found. Fifty per cent of the arrow points are made of argillite; the majority of the remainder of sandstone and quartz. (30-33-5-4-4.)

At Course's Landing, on Salem Creek, is a village site. This extends over the Weber and Matlack farms, located immediately east of the causeway, on the bluff on the south side of the creek. Objects of interest are found here in abundance. None of these, with the exception of the jasper arrow points, show any high degree of finish. Axes, net sinkers, pestles and arrow points are found. The majority of the points are of argillite, sandstone and quartz. Potsherds, bearing typical Algonkin decorations, also abound; from the nature of the materials used, they appear to have been made at this site, or at one having similar soil. Several broken "trumpet" pottery pipes have been found here by Mr. Fred Sumnerill, of Penn's Grove. (30-33-4-3-7.)

Relics have been scattered about the fields on both sides of Salem Creek for several miles west of Course's Landing. (30-33-4, 5; 30-32-6.)

Harrisonville.—Several large camp sites are grouped in the low-lying fields back of the marsh bordering Salem Cove, about 1 mile south of Harrisonville. That nearest Harrisonville has yielded many fine implements; among these are a number of short, thick celts, several grooved axes, pestles, net sinkers, hammer stones, some of which are pitted, potsherds, and many arrow points. Near this site was found a stone adz (hoe?) (30-42-1-3-6.)

The fields west of this site have also yielded specimens.

The second camp site near Harrisonville lies about one-fourth of a mile south of the first. Conditions here are similar to those at the other two sites. Objects of aboriginal manufacture are abundant. Hammer stones, axes, pestles, celts, arrow points and chipped blades, and several small gorgets have been collected here. The arrow points are small and rough, with the exception of a few made of jasper. The materials used in these are chiefly sandstone, quartz, flint, and some yellow jasper. Occasionally points of argillite are found. The same conditions regarding flaked implements obtain in the other camp sites of this group. (30-42-1-3-9.)

The third site of this group is situated on the Johnson farm immediately south of the other two, about 1¼ miles from Harrisonville. Several gorgets and many other objects were found here. Pottery is found in abundance. All sherds seen by the writer show typical Algonkin decorations, including the straight-line patterns, and the "corn-cob" design. These were thin, probably from small pots, and made of clay apparently from this part of South Jersey. Nearly all showed the imprint of basket work. (30-42-2-4-1.)

Signs indicative of aboriginal residence are found 1 mile southeast of Harrisonville, on the west bank of Salem Creek. From this camp site many objects, including pestles, grooved axes, pitted hammer stones, net sinkers, arrow points and some pottery. The majority of these potsherds show the "corn-cob" design. (30-42-2-2-2.)

Scattered relics found in the fields immediately north of this site are of the same types.

Salem.—Artifacts are found scattered about the fields east of the meadows bordering Salem Creek from Salem to Mannington Creek. The variety of implements, and the relative scarcity of fire-cracked stones in this region is noticeable. (30-42-3-4, 1, 2; 30-32-9-8, 9.)

Welchtown.—Mrs. Clarkson Pettitt, of Salem, has objects from the fields on the south side of Mannington Creek about 1 mile due north of Welchtown, the nature and abundance of which would indicate the use of this land as a camp or small village site. These artifacts include several short celts of polished granite, grooved axes, pitted hammer stones, pestles, several gorgets, and potsherds. The last are typically Algonkin in design. Several pottery pipes, reported to be of the "trumpet" variety, have also been found. The arrow points are rather roughly made; equal proportions of them are of quartz, sandstone, and flint and jasjer; but with the exception of one large blade, no argillite-flaked implements have been found. (30-33-7-7-2.)

Another camp site is to be found 1 mile from Welchtown, west of the road to Woodstown. This is on the bluff overlooking Mannington Creek. Chips and other camp debris are to be found here. The specimens from this site are identical with those found in the camp immediately west. (30-33-7-8-2.)

Signs of aboriginal occupation are found scattered in the fields along the banks of Swede's Run, and its tributaries, from Welchtown to 1 mile south of Portertown. Although objects are not found in great abundance, the distribution of sites along Mannington Creek would indicate the possibility of others being on this brook. (30-43-2-1, 2, 3.)

Oakwood Beach.—On the Delaware River shore at Oakwood Beach is a camp site where many objects of aboriginal origin are washed out of the bank. Objects were found in considerable abundance when this land was farmed; but farming has been abandoned partly on account of the erosion by the Delaware River. Grooved axes and arrow points have been found here. The materials used in these points are similar to those used at the site nearer Salem; and similarly no potsherds have been found. (30-42-4-2-6.)

Scattered remains are to be found along the shore front, and some distance inland, from this site to the meadows at Elsinborough Point.

Salem.—There is a camp site on the road to Elsinborough, three-quarters of a mile southwest of the wharf at Salem. Artifacts are fairly numerous here. The arrow points are rough, except the few made of jasper. About one-third of the points are of sandstone; the remainder being equal numbers of quartz and flint, and some jasper. Pitted hammer stones are grooved and axes are also found. No pottery, however, has been obtained from this site. (30-42-2-7-6.)

Scattered specimens are found south of this site in the fields bordering on Salem Cove.

Many scattered specimens have been picked up in the low lying fields on the south side of Fenwick Creek from Salem to the Acton station of the West Jersey R. R. These are identical in type to those implements found north of here along Mannington Creek. (30-42-3-8, 9, 6; 30-43-1-4-5.)

In the fields adjacent to Keasbey's Creek, on both sides, scattered objects have been found. These are similar to objects found along Fenwick and Mannington Creeks. The majority of the flaked articles are made of sandstone and quartz. No potsherds have been found. (30-42-6-2, 3; 30-43-4-1.)

Quinton.—Objects are found scattered throughout the fields bordering both sides of Alloway's Creek, between Quinton and Hancock Bridge. At no point, however, are they found in sufficient abundance to indicate the presence of a camp, or village site,

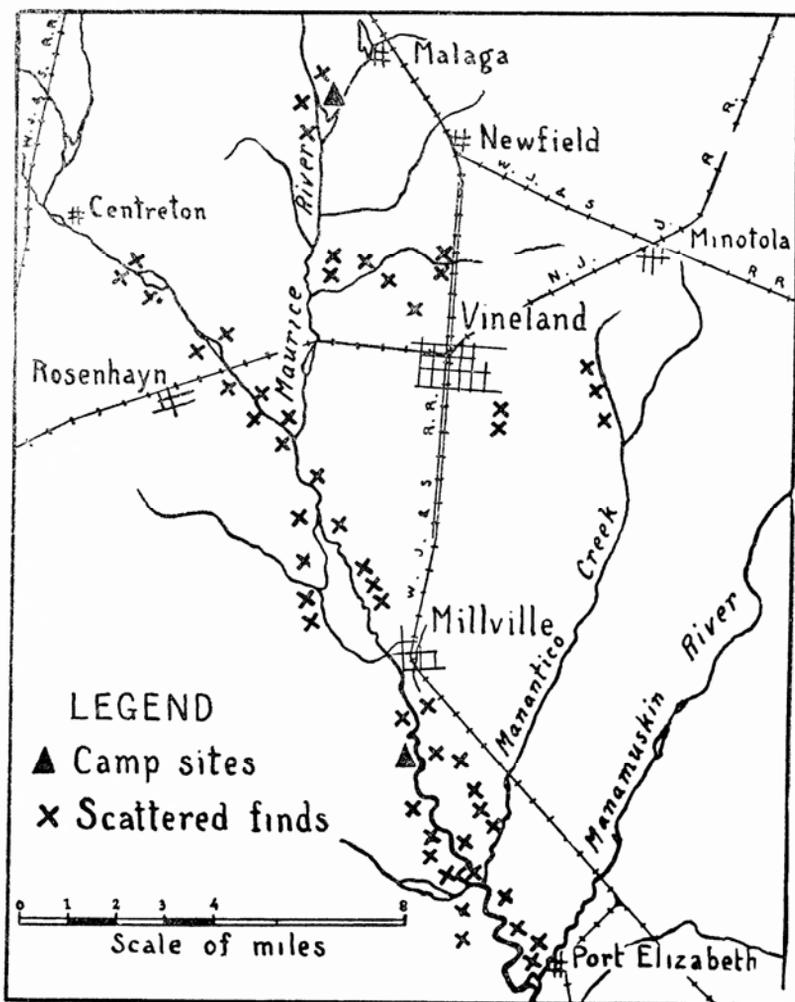


FIG. 7.—Indian Remains Along Maurice River.

although such sites occur at both Quinton and Hancock's Bridge. Few argillite implements have been found in this territory. The majority of the objects found are devoid of a higher degree of finish. (30-42-6-9; 30-43-4-4, 7, 8.)

Millville.—Objects of aboriginal origin are found scattered along both sides of the Maurice River; on the east, from Millville to Port Elizabeth; and on the west, south of Millville to Buckshutem. Arrow points and axes of the grooved variety are found. The arrow points are chiefly made of flint, quartz and sandstone; points of argillite are occasionally found. (35-12-5, 6, 8, 9; 35-22-3.)

About 2 miles south of Millville on the west bank of the Maurice River is a bluff where the quantity of relics found indicates a camp site. Arrow points, grooved axes, and several net sinkers and hammer stones have been found here. Pottery is absent from this site. (35-12-5-9-5.)

Manantico.—Mr. Frank D. Andrews, of Vineland, reports that many years ago the sand blowing from an open field on the west side of Manantico Creek, 1 mile south of Clark's Mill, disclosed a circle of fire-cracked, rough stones. The circle was 2 feet in diameter. This was believed to have been of Indian origin. A few arrow points are sometimes found in the neighboring fields. (35-12-9-6-2.)

Vineland.—Arrow points are found scattered about the head of Parvin's Branch, and are sometimes found in excavating at the Catholic Cemetery here. These are similar in type to others found along Blackwater Branch. (35-2-6-9.)

Objects are scattered about the fields at the head of Cedar Branch, notably on the farm of Mr. Ellis, situated at the junction of Bear and Cedar branches. Arrow points and occasionally an axe, but no other objects, are found. The points are chiefly of flint, the remainder of jasper. (35-3-4-6, 9; 35-3-5-7.)

Scattered remains are found in considerable quantity at Indian Head at the junction of Muddy Run and Maurice River. Arrow points and chips have been plowed up in this field. (35-2-7-2-4.)

Objects are picked up on both sides of Union Lake just south of this site.

Scattered objects are found on both sides of Muddy Run from Parvis Lake to the Maurice River. These are chiefly arrow points; a few grooved axes are found. Near Parvis Lake a large portion of a pot was found several years ago. (35-1-2, 3, 6; 35-2-4.)

Arrow points are found along both sides of Blackwater Branch from the Maurice River to Pine Branch. These are plentiful at the junction of the two streams, at Mr. Schelder's farm south of

Blackwater Branch, and on both sides of the confluence of Blackwater and Pine Branches. At this last site chips are also found. The flaked implements in this region are of equal numbers of quartz and flint, with some jasper and sandstone. (35-2-1-6; 35-2-2-4, 8; 35-2-3-4, 7.)

Malaga.—There is a camp site at Willow Grove, about 1 mile southwest of Malaga, on the farm of Mr. G. B. Langley at the junction of two branches of the Maurice River. Potsherds are found scattered about here, as well as arrow points. The materials used in the arrow points are quartz and flint (about equal numbers of each), and some jasper. Pottery is also found near Grove Pond. (31-42-4-3-6.)

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