

REPORTS OF THE
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
STATE OF NEW JERSEY

Division of Geology—HENRY B. KÜMMEL, State Geologist

BULLETIN 18
(GEOLOGIC SERIES)

Archaeology of Warren and
Hunterdon Counties
(WITH MAP)

BY
MAX SCHRABISCH



TRENTON, N. J.
MacCrellish & Quigley Co., State Printers

1917

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Letter of Transmittal.

July 12, 1917.

Hon. Walter E. Edge, Governor of New Jersey, Trenton, N. J.:

SIR—I transmit herewith the manuscript of a report on the “Archæology of Warren and Hunterdon Counties,” prepared under my direction as State Geologist.

This report summarizes the results of two seasons’ field work by Mr. Max Schrabisch, of Paterson, on the occurrence of pre-historic Indian villages and camp sites, trails, etc. It adds much to our knowledge of the homes and habits of the former inhabitants of the State, and because of its interest to a large number of New Jersey’s citizens, it is submitted for publication.

Yours very respectfully,

HENRY B. KÜMMEL,

State Geologist.

Acting Director in the absence of the Director.

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FIGURE 2. — Method of subdividing and numbering each 6-minute rectangle of the atlas sheet.

Map showing location of sites.

Archaeology of Warren and Hunterdon Counties.

BY MAX SCHRABISCH.¹

GENERAL DISCUSSION.

FOREWORD.

The location and study of Indian habitations in New Jersey was commenced by the Geological Survey in 1912 and this report is the third published on this subject. The field work on which it is based was done in June, July, and August, 1914, and all through the summer of 1915. During this period 451 sites were located in Warren County and 462, sites in Hunterdon County, a fact that may indicate that these two, counties had a denser permanent population or at least were more frequented by the Indians in their wanderings than was Sussex County, where 234 sites were found. Practically all of the sites here recorded except the rock shelters had previously been known to local collectors, from whom information regarding their occurrence was obtained. As a result of this knowledge and the local interest therein most of these sites had been carefully searched for relics, so that few were found during the present survey. The rock shelters, however, were all unknown to local collectors, and in those discovered and explored by the author everything was found "in situ," just as at the time of the redman's final departure.

There are many private collections both in Warren and Hunterdon Counties comprising various kinds of prehistoric objects

¹In justice to Mr. Schrabisch, it should be stated that it has been necessary to condense greatly this report as originally submitted. This has to some degree resulted in recasting the phraseology. Care has been taken to preserve the author's meaning even though some liberties have been taken by the editor with his language. In its revised form the report may not always express the exact shade of meaning intended, but it is hoped that if such is the case the instances are few.—H.B.K.

used by the Indian, with the arrowhead, as usual, predominating. In these jasper artifacts are more numerous than in Sussex County, and it appears that this mineral was here employed to a greater extent. The collections of Dr. Cummins at Belvidere, Marshall Weidmann, at Columbia, and Dr. Hoagland at Oxford Furnace deserve special mention as being the best in Warren County. The first two number about 3,000 specimens each and abound in objects of excellent workmanship, mostly of flint, chert, and, jasper. Smaller collections of a few hundred specimens each are in the hands of Walter P. Lewis, Phillipsburg; John MacCracken, Blairstown; Mrs. Walter Van Campen, Calno, and John C. McConachy, Slate Falls, near Jacksonburg. Small but valuable collections have been made by Raymond Losey, Blairstown; Frank Primrose, Marksboro; L. E. Savacool, Yellow Frame Church, and Lafayette R. Amey, Phillipsburg.

In Hunterdon County, splendid collections are owned by Hiram E. Deats, John C. Thatcher, and James A. Kline, all of Flemington. Each of these contains a thousand and more specimens typical of the ancient argillite culture of which Flemington and vicinity appears to have been the center. Other collections are in the hands of Stephen Dean, Clarence Button, and John B. Case, also of Flemington. In this connection we may state that at this town there was a widespread interest in prehistoric research, a result of the thorough investigation of the surrounding country by the local archæologists.

Another very important collection comprising thousands of artifacts is in possession of Albert Anderson of Lambertville. Most of these were gathered many years ago when the country was still rich in these relics. Other collections of smaller size are owned by A. R. Miller, Holland Station; Henry C. Boss, Milford; Harold Snyder, Copper Creek; N. R. Shuster, Everittstown; Floyd Dalrymple, Pattenburg; Mrs. A. D. Mellick and Mr. White, Clinton; Dr. Frank Larison, Lambertville; Linden Swackhamer, White House; J. C. Exton, Polkton; John Craig Sutton, John W. Vroom, John Rinehart and Charles Murphy, of New Germantown.

The writer wishes to acknowledge his indebtedness to the following persons for information furnished and other aid rendered: Mrs. John Stoddard and Walter Van Campen, both of Calno; Raymond Losey, Samuel Beatty and Dr. Frank Gordon, of Blairstown; Grant Lanternman, Cedar Lake; Joseph Brown, Kalarama; Watson Swartz, Marksboro; L. E. Savacool, Yellow Frame Church; J. Floyd Smith, Ebenezer; E. Frank Fowler, D.D., Mt. Herman; George Dill and Norman B. Osmun, Hope;

William Albertson, Shiloh; George M. Bartow, Bridgeville; William Sigler and John Sidner, Danville; Lafayette R. Amey and Walter P. Lewis, of Phillipsburg. Special thanks are due to the latter in particular for having supplied the writer with most valuable data regarding the archæology of that part of the Delaware River valley between Roxburgh and Lambertville.

In Hunterdon County the following gentlemen contributed materially to the success of the survey: James A. Kline, Hiram E. Deats, Dory Bellis, John C. Thatcher and Stephen Dean, of Flemington; Nelson Stryker and Leon Carpenter, Clinton; Dr. Frank Larison and Albert Anderson, Lambertville; N. R. Shuster, Everittstown; David W. Scott and Linden Swackhamer of White House, and John W. Vroom of New Germantown.

PHYSIOGRAPHY OF WARREN COUNTY.

Warren County is bounded on the northeast by Sussex County, on the southeast by Musconetcong River, which divides it from Morris and Hunterdon Counties, and on the northwest and west by Delaware River. It lies wholly within the Appalachian Province and embraces a portion of the Appalachian Mountains known in New Jersey as the Highlands, and a part of the Appalachian Valley. Its diversified surface is well watered by many streams all flowing into Delaware River. In the northern part of the county the Blue or Kittatinny Mountain extends from northeast to southwest parallel to Delaware River, leaving only a narrow strip of comparatively level land between it and the river. The crest of Kittatinny Mountain is remarkably even, averaging from 1500 to 1600 feet above sea level. This ridge, which rises like a great wall along the northwest border of the county, is broken by no deep passes except at the Delaware Water Gap, where the river has trenched it to its base.

Southeast of it and 10 miles distant lies Jenny Jump Mountain with a maximum elevation of about 1200 feet and trending northeast to southwest. Between it and Kittatinny Mountain lies a hilly country dissected by many streams.

East of Jenny Jump Mountain, along the Pequest, are the Great Meadows, once an extensive tract of marsh land. Still farther east are Cat Swamp Mountain and the southern portion of Allamuchy Mountain, the latter bordering Musconetcong River on the west.

Southeast of Jenny Jump Mountain is Mt. Mohepinoke and Upper Pohatcong Mountain, and south of it Scotts Mountain

and Lower Pohatcong Mountain in the southwestern part of the county. These are separated from each other by broad and well-drained valleys followed by Pohatcong Creek and Musconetcong River.

All the county is well watered, the drainage flowing to the Delaware chiefly through Paulins Kill, Pequest River, Pohatcong Creek, and Musconetcong River, but also through many smaller tributaries. North of a line from Belvidere to Hackettstown the drainage is much obstructed and many lakes and swamps dot the surface, but in the southern part of the county these are conspicuously absent.

The topography of the county has been determined by the geologic structure. Kittatinny Mountain is formed by the outcrop of a tilted mass of extremely hard sandstone and conglomerate. All the other mountain masses are formed of gneissic or granitic rock. The broad Kittatinny Valley and the narrower inter-Highland valleys are underlain by shale and limestone, both rocks being much less resistant to the weather than the hard sandstone or the gneiss of the mountain belts. Hence the harder rocks rise in mountain masses while the softer rocks have been worn down to form the valley belts. During a late stage of geologic history the northern half of the county was covered by a continental ice sheet. One effect of this was to remove the soil from many areas so covered and to obstruct the drainage lines. Hence bare rock ledges, ponds, and swamps are much more abundant in the northern portion than in the southern. During the melting of the ice sheet floods of water followed existing lines of drainage and many others. These streams were heavily loaded with sand and gravel, the latter often being very coarse. Thus deposits of gravel and sand were spread somewhat widely over the region covered by the ice sheet, and to a much less extent along the main valleys which, like the Delaware, drained southward from the ice front.

PHYSIOGRAPHY OF HUNTERDON COUNTY.

Hunterdon County is bounded on the northwest by Musconetcong River, which divides it from Warren County, on the north by Morris County, on the east by Lamington River and the North and South Branch of Raritan River, on the south by Mercer County, and on the west by Delaware River. Its northern portion is more rugged and more mountainous than the southern. Musconetcong Mountain, which is a continuation of Schooleys Mountain in Morris County, trends in a southwesterly

direction parallel to Musconetcong River, with a maximum elevation of about 1100 feet above sea level. East of it is Fox Hill and Hell Mountain, in the northernmost part of the county. South of these lie Cushetunk and Round Mountains. The former reaches an altitude of 764 feet above tidewater and has the shape of a horseshoe encircling Round Valley on all sides except on the northwest. Between the Delaware and the South Branch of the Raritan, south of Clinton, there is a tableland of a mean elevation of from 500 to 700 feet above sea level, which embraces the townships of Union, Alexandria, Franklin and Kingwood. The southern part of the county is a region of low hills.

The principal stream is the South Branch of the Raritan River. It flows through the northern part in an approximately southerly direction, draining the region between Musconetcong Mountain on the west, and Fox Hill on the east. Below Clinton it changes to a southeasterly course passing between Round Mountain on the east and the tableland above referred to on the west. The section of country between Hell Mountain and Cushetunk Mountain in the northern portion of the county is drained by the North Branch and South Branch of Rockaway Creek, which after joining their waters at White House debouch into Lamington River. The western and southern portion of the county is drained by the numerous affluents of Delaware River.

CHOICE OF SITES.

Proximity to water, accessibility, shelter from climatic extremes, and soil conditions were factors which controlled in large degree the choice by the Indian of his more permanent camping sites. Water in close proximity to the camp was an absolute necessity, but it did not seem to matter much whether it was supplied by a spring, a brook, a lake or a swamp. Some of the best sites known to the writer were situated on the edge of what is now a swamp, but what anciently, when all this country was one vast expanse of forest, may perhaps have been a shallow lake. Such localities must have been ideal hunting grounds—places where many kinds of wild animals and water fowl congregated, and therefore highly desirable from the red-man's point of view. Great partiality was shown to sheltered localities, particularly during winter time. A site well protected from north winds and the rigors of the climate was, if possible, chosen as winter quarters.

Another factor determining the choice of a site was accessibility—that is, such spots were generally preferred as lay on

or near the primitive thoroughfares, in the valleys or in less rugged regions. Consequently camping grounds are rarely met in the mountains or high upon their slopes, i.e., in localities that are far away from the beaten track. An exception to this well-observed fact is afforded by the Indian rock shelters, many of them occurring in the wildest and most secluded mountain districts.

Lastly, the place where the Indian pitched his tent or built his wigwam was, to some extent at least, conditioned by the character of the soil, for sandy or loamy ground was in general preferred to stony or rocky spots.

All of these conditions are fulfilled in varying degree at every ancient camp and village site. At the same time some of the conditions which attracted the Indian made the same localities desirable abodes for the animals which contributed so largely to his support, among them deer and wildfowl. Driven by the stern laws of the struggle for existence, man was compelled to train his wits and sharpen his senses so that they became almost as acute as those of the animals he hunted, for his weapons were of the most primitive kind. In order, therefore, to be able to kill his quarry with the crude stone weapons at his command, he had to have recourse to ruse and stratagem.

All living beings are guided by the fundamental instinct of self-preservation, and in the struggle for daily food they all follow the line of least resistance. In choosing his more permanent village sites the redman invariably selected those regions where good hunting and fishing was the rule. True to his nomadic instincts, however, he did not long sojourn at a certain spot but shifted his abode whenever game became scarce in his vicinity. But since his numbers were very small, only a few thousand in all the State, there was probably never a severe shortage of those animals which he pursued, and the extinction of any species from this cause was at that time quite out of the question.

THE ABORIGINE A ROAMER.

Although the Indian of New Jersey had made some progress in agriculture and his tilled fields were associated with his more permanent village sites, nevertheless he was still distinctly a hunter without permanent habitation, whose whereabouts were uncertain and dictated mainly by the vicissitudes of the chase. From what we know, we conclude that each clan hunted in a certain well-defined area, large enough to support all its members. Keeping together or separating, they pitched their tents

now here, now there, but always careful not to trespass on the hunting grounds of the neighboring tribes. In this wise each hunter acquired a most intimate knowledge of his particular territory, taking note of all its features and probably bestowing names on all its more conspicuous ones. This incessant roving about on the part of the red huntsman serves to account for the enormous number of prehistoric camp sites found scattered all over the State, traces which at first sight convey the impression of a large population, but which in reality are attributable to a very thin population, amounting probably to less than one individual per square mile, if evenly distributed, yet inhabiting it for countless centuries.

While thus each tribe had its own hunting district, with rights not encroached upon by others, it must not be imagined that the aborigines were prisoners, so to speak, with each strictly confined to his special section. On the contrary, there is good evidence to show that it was their custom periodically to join on long trips across the country, either to the seashore, where they gathered oysters, so much coveted by them, or to some other locality such as Delaware River, where their great councils were held.

PRINCIPAL DISTRICTS OF HABITATION.

The redman preferred those regions which combined topographic advantages with good hunting. Such regions were the river valleys, for they were not only more easily accessible than the mountainous districts, affording him at the same time ready communication by water with other camps along the stream, but they abounded in a great variety of those animals—fishes, mammals, and birds, which supplied him with food. Comfort and expediency made him seek the river valleys; they fulfilled most nearly his ideal of what a desirable locality should be. Accordingly, it is in the valleys, on the banks of streams and rivers, that the traces of the Indian's former presence are most frequently found.

In Warren and Hunterdon counties there are at least seven sections which evidently found greater favor than others within the same territory. They were no doubt centers of intense prehistoric activity, if we may judge by the profusion of sites and objects of Indian origin scattered thereabouts. These sections are (1) the Delaware River Valley, 150 sites, (2) Paulins Kill Valley, 106 sites, (3) the region about the Great Meadows, 57 sites, (4) Beaver Brook Valley between Silver Lake and Sarepta, 55 sites, (5) High Bridge and vicinity, 44 sites, (6)

New Germantown and vicinity, 59, sites, (7) Flemington and vicinity, 82 sites. In these seven regions 553 sites have been recognized, or more than half the entire number found in the two counties.

Delaware Valley.—Ancient camp sites invariably occur along Delaware River wherever flats or level fields intervene between the steep hillside or mountain slopes and the river. Where the bluffs approach closely to the water's edge, sites need not be looked for. In a few instances, however, traces of camp sites have been noted on the top of low hills flanking the river; for instance, at a point opposite the lower end of Shawnee Island, again 2 miles north of Columbia, at the mouth of Stony Brook, also on the hill extending south of Columbia at Delaware, and on the hill half a mile from the river between Martin's Creek Station and Harmony Station. The surface soil on the flats consists mostly of fine sandy or silty loam and farther south in Hunterdon County of shale loam, and it seems that this kind of soil always met with the approval of the redskin since it is well drained, soft under foot, and is easy of digging and of cultivation.

While all of Delaware River Valley abounds in the mementoes of Indian days, four important sections have been distinguished, namely, a northerly one 6 miles long reaching from Millbrook to Shoemaker's Ferry, centering about Calno; one extending from the Water Gap to within a mile of Roxburg, a distance of about 15 miles, with Columbia and Belvidere as centers;¹ the third lies north and south of Phillipsburg and is about 4 miles long, but it is quite certain that there were once many other sites within the town, all traces of which have now been completely wiped out; the last important district and the most southerly one lay at Lambertville and for about a mile north of it. There is a well authenticated report that the town of Lambertville was at one time occupied by a large aboriginal settlement, and even now artifacts are not infrequently dug up within the town.

In the northerly section 31 sites have been noted, 18 of which appear to have been ordinary camping grounds or small camps, 6 must be designated as villages by reason of their size, and 2 are burial grounds. Seventeen sites dot the banks of the river while the remaining 14 are distributed along Van Campen's

¹Many of the sites comprising this latter group have already been described in Bulletin No. 9, containing the results of the survey of 1912, but are for the sake of completeness again included in this report.

Brook from a point opposite Poxino Island, where it joins the Delaware, to within a mile of Millbrook. Thus there are two distinct rows of sites, one following the river, the other the brook, their point of contact being at the junction of both.

That part of the river shore which stretches south of Shoemaker's Ferry to the Water Gap, a distance of 6 miles, bears relatively few traces of prehistoric occupation. Altogether only 6 sites were found including what appears to have been a village site opposite Labor's Island. This is not to be wondered at since there are here but few places suitable for camps. Kittatinny Mountain is for the most part close to the river and its base is generally too rugged to be chosen for camp sites.

Forty sites have been located between the Water Gap and Roxburg. Among them are three rock shelters, four burial places and eight large sites or villages. Columbia and Belvidere must be regarded as headquarters of Indian activity along this part of the river, not only on account of the massing of sites thereabouts, but more so by reason of the enormous quantities of prehistoric artifacts of every description recovered here in the past. Columbia, in particular, was the site of an exceptionally large Indian settlement, where amateur archæologists have reaped a harvest of many thousands of relics both of domestic use and of the chase. This is not surprising since it is here that the Paulins Kill, flowing through another important section, empties into Delaware River. Intersecting points such as this must always be of considerable archæological significance.

The section of the valley from Roxburg to Iron Mountain, 2 miles north of Phillipsburg, is dotted by many sites at short intervals. Seventeen were located over a stretch of country 8 miles long, scattered mostly along the river front. One of them, at Roxburg Station, seems to have been a village more than half a mile long, two more were burial places, and the other fourteen were camp sites. Three of the latter lay along the southern bank of Buckhorn Creek, a tributary of the Delaware, between Roxburg and Hutchinson.

The third center at Phillipsburg is 5 miles long, extending from Iron Mountain to the mouth of Lopatcong Creek. Here ten sites were found, namely, four villages, three burial places, and three smaller sites. Three of the villages lay between the pumping station and the railroad bridge, the fourth one on top of the ridge near the mouth of Lopatcong Creek.

Between Phillipsburg and Lambertville, a distance of about 32 miles, many sites were located in some places grouped, as

at Holland Station, Milford, and Frenchtown, and in others miles apart. There are indeed long stretches of the river front where nothing is found save an occasional relic. Such is the case between the mouth of Lopatcong Creek and a point opposite Clifford's Island, a distance of 2 miles, another is between Mount Joy and Holland Station, about 2 miles, a third one between Holland Station and Milford, some 3 miles, and a fourth one between Kingwood and Byram, a distance of nearly 5 miles. In all these cases the absence of sites may be explained by topographic conditions, the bluffs flanking the river leaving too little space to be utilized for camp sites.

Forty-one sites were found between Phillipsburg and Lambertville, among them four burial grounds and seven villages, The former were at Holland Station, Milford, Frenchtown, and Brookville; the latter opposite Clifford's Island, 3 miles south of Phillipsburg, at Frenchtown, Byram, Raven Rock, Stockton, and Brookville.

The last important district was in and about Lambertville. Although only four sites were noted, two of them were of considerable extent—one north of the mouth of Alexsauken Creek, the other at the present town of Lambertville.

Including a site south of Goat Hill on the bank of the river, a total of 150 sites are known along Delaware Valley, in Warren and Hunterdon counties.

There is no doubt that this valley was one of the principal haunts of the aborigines. The reasons are not far to seek. In the first place, Delaware River, anciently called "Kithanne Whittuck," teemed with fish, an important source of food. It was a great natural highway for communication between the villages located along its banks. Moreover, the valley abounds in localities which are ideally suited for camp sites in level fields by the river's edge, high enough above it to be safe from floods, with fine sandy bottom and protected from the inclemencies of the elements by the hills all about, so that it is small wonder that the Indians were attracted to such a region. The traces of their villages suggest a certain permanency of occupation; the countless artifacts left behind denote an intense primitive industry; while the agricultural implements, such as hoes, mortars, and pestles, give proof of ancient husbandry and often indicate, no doubt, the exact spot of the redman's fields.

Paulins Kill Valley.—This includes the territory which extends from the foot of Kittatinny Mountain to a line about a mile south of Paulins Kill. It is bounded on the northeast by Sussex County, on the southwest by Delaware River. It is a

hilly country 12 miles long and from 3 to 5 miles wide, and well watered by Paulins Kill, anciently called Tonghongneatcong, and its many tributaries. It ranks in the number and variety of the aboriginal remains second to Delaware Valley only. As there is not a square mile in all this region that is devoid of prehistoric traces, it is certain that it was much frequented. Altogether 106 sites have been located, including four villages, twelve rock shelters, and four burial places, all the others being camp sites. All except the burial places were close to some water supply—a spring, stream, lake, or swamp. In addition, scattered relics have been found in many localities, possibly lost during the chase or else denoting lodge sites, occupied for a very short period.

In certain respects this region differs in a marked degree from that along the Delaware. Only four village sites have been located here as against fourteens there, and most of the Delaware villages were larger than any one of those along the Paulins Kill. Moreover, the camp sites on the Delaware were larger and apparently occupied for longer periods than those in this valley. Again the artifacts found along the Delaware are more numerous, of a greater variety of types, and on the whole of a higher degree of workmanship. These facts are in line with the conclusion that there was greater permanency of occupation of the sites along the Delaware, whereas the great number of small camp sites throughout the Paulins Kill Valley plainly suggests a constant shifting of the population, although, as noted below, the region near Blairstown shows signs of greater permanency of occupation. In the report on Sussex County,¹ it was pointed out that the region around Swartswood Lake had been a favorite resort for a relatively large population. The Paulins Kill Valley was the natural route taken by bands traveling to and fro between the Delaware and Swartswood Lake.

The most favored district in the valley was evidently that which lies between Paulina and Walnut Valley, with Blairstown and Jacksonburg as a center. Although only 5 miles long and from 1 to 2 miles wide, no less than 47 sites were here noted, 32 of them north, 17 south of the Kill, among them 4 villages and 8 rock houses. This section, small as it is, must therefore be regarded as one of the favored haunts of the Indian. More than that, in the number of aboriginal remains it easily ranks with the best districts along the Delaware. Again, it is quite

¹Bulletin 13. Geological Survey of New Jersey.

significant that the four largest prehistoric settlements in the valley were found crowded into this bit of territory. Corresponding with this profusion of sites, numberless objects of primitive culture, wholly identical with those of Delaware Valley, have been gathered hereabouts, many of which bespeak a high degree of workmanship.

Some interesting inferences may be drawn from the distribution of sites in this valley. As 42 of the 106 sites are near the Paulins Kill, we must conclude that the strip of land in its immediate vicinity was considered the most suitable for occupation. This is not strange, for not only did the stream afford an opportunity for fishing, but the level, well-drained land terraces adjacent to it are better adapted for habitation than the hilly country immediately south of the Paulins Kill. This may in part be ascribed to climatic conditions, since the country nearer the mountain was better protected from north winds. Except for the sites on or near the southern bank of the Kill, the elevated belt of country south of it traversing the county from east to west is almost devoid of them. If this region was considered undesirable, it was probably due to its being too hilly.

Traces of camping grounds have been found at three of the larger ponds in the valley. We may venture the opinion that while fishing constituted the chief attraction of Delaware River Valley, it was only of secondary importance in Paulins Kill Valley. Here the main stream being smaller and not so well stocked with fish, it seems probable that the aborigine roving this region would largely depend upon hunting as the best means of supplying his material wants.

Great Meadows and Vicinity.—Another interesting section replete with reminders of Indian days are the Great Meadows and vicinity. The meadows are a tract of low, marshy land about 6 miles long by 2 miles wide, watered by Pequest River and its tributary, Bear Creek. Within the bogs is a row of six islands, Young's, White Oak and Post's islands being east of the river, Buck, Money and Roe's islands being west of it. With high land on three sides, the meadows are well sheltered from the rigors of the elements.

Some years ago the drainage of this region was improved and parts of the rich muck are now yielding great crops of onions, celery and lettuce. Before this was done it was all one swamp covered with a luxuriant growth of vegetation. It may be presumed that at the time of the Indians it was more like a lake, the virgin forest all around keeping it from drying up. Even now there is water enough in some places to call for a

rowboat. Anciently, no doubt, some of the islands referred to above were real islands approachable only by canoe. But whatever the aspect of this region may have been, it is certain that it was much resorted to by the redskins, a fact attested to by the numerous traces of aboriginal camping grounds found all about the edge, of the meadows and on some of the islands.

The protection from cold winds afforded by the highlands would seem to have made this a desirable region for winter quarters, but the multiplicity of remains noticeable everywhere, many of which are of a character indicative of agricultural pursuits, make it more likely that it was occupied not only during the winter but all the year round. Fish, wild fowl and other game were probably abundant.

Altogether 57 sites have been noted in this district, including two large ones or villages and two rock shelters. Of these 30 are in the immediate vicinity of the Meadows, the remainder being a mile to the east and south of them. There is a massing of sites at the northern end between Long Bridge and Southtown, where no less than 15 have been located not far from the confluence of Pequest River and Bear Creek. This is a level stretch of country and the surface soil consists for the most part of silt loam. Both village sites are situated at the southeastern extremity of the Meadows in close proximity to each other, on the opposite, banks of Pequest River, at a point where it sweeps around in a sharp curve. One site was found on Young's Island, one on Post's, and three, including a small Indian cave, on Roe's. All the points of higher land projecting into the Meadows give indication of former occupancy and multifarious objects of primitive art have been picked up on all the fields throughout this region.

Beaver Brook and Vicinity.—This is the last of the four principal Indian districts in Warren County. It is irregularly triangular in shape. On the west, its shortest side, it is bounded by Delaware River; on the southeast, its longest, by Jenny Jump Mountain; on the north, by the Paulins Kill. Its surface is hilly, particularly toward Delaware River, where the maximum elevation of the hills above the neighboring valleys is about 300 feet. While slate rock predominates in its western portion and on the hills south of Paulins Kill, there are many cherty limestone ridges between Hope and Kerr's Corners, especially near Trout Brook. This section is drained by Beaver Brook, the chief tributary of Pequest River and its affluents, the most important of which are Honey Run and Mud Run on the west, and Trout Brook on the east.

Among the 55 sites located there were 4 large ones or villages, 5 rock houses, and a burial place. The Indian's predilection for Beaver Brook is manifested by the fact that no less than 21 sites are on its banks against 2 on Honey Run, 4 on Mud Run, and 5 on Trout Brook. Three of the largest sites or villages are also on Beaver Brook, while the fourth one is on Mud Run. The remaining sites are either near swamps or on small brooks, all tributary to Beaver Brook. Four rock houses are in the limestone district between Hope and Kerr's Corners, while the fifth lies at the foot of Jenny Jump Mountain, just east of Shiloh. The prehistoric burial place is on the summit of Jenny Jump Mountain on a straight line between Sarepta and Green Pond. Scattered relics occur almost everywhere in the valley at the foot of the mountain, and, while not indicating camping grounds, they give us many a clue as to the redman's former presence.

There appears to be a total absence of aboriginal remains in all the territory which lies between Knowlton, Mount Herman and Swayze's Mill on the east, and Delaware River on the west. It has already been stated that this is in the main a slaty tract of country with many hills and therefore quite rough. On the other hand, it is intersected by numerous valleys, most of them well watered. However, the fact cannot be disputed that it was shunned by the Indian for some reason or other, and that they regarded it as inhospitable. Possibly he disliked the surface soil consisting mostly of heavy stony clay with many angular fragments of shale and slate. This may, indeed, have been the reason, for it is quite certain that the character of the soil influenced, the Indian in his selection of his more permanent camp sites. Moreover, it may be stated as a matter of fact that aboriginal remains are never so plentiful in slate rock districts as they are in those where other rocks predominate. This is an observation the writer has frequently made. Even rock shelters consisting of slate or shale were hardly ever used. Several of this nature, both in Sussex and Warren counties, were found on examination to be devoid of all traces of former occupation notwithstanding the fact that they were well formed, with water close at hand.¹

¹The comparative absence of Indian remains in regions underlain by slate is probably due not to any aversion on the part of the Indian to slate as a rock, as the author's words might imply, but to the facts that (1) the slate belts are as a rule hilly, (2) their soil (in the glaciated area) is a heavy stony clay, with many large boulders, or is chiefly a mass of weathered shale or slate chips, and (3) the chief streams, bordered by flat terraces covered with

High Bridge and Vicinity.—That High Bridge should have been favored by the redman is no more than would be expected in view of his well-known ability to recognize quickly natural advantages. Situated at the southern base of Musconetcong Mountain, it is well protected from northerly winds, and the rolling country is well watered by numerous streams both large and small. The South Branch of Raritan River flows through the center and Spruce Run drains all the section to the west. Furthermore, it is at the very gateway to two mountain passes, one of them crossing Musconetcong Mountain by way of Glen Gardner, the other leading to German Valley.

Forty-four sites were found within an area less than 5 miles long by about 2 miles wide, reaching southward from Stone Mill to Clinton, and from Jerico Mill east of the river to Polk-town and Coles Mills west of it. One of these was a small rock shelter on the west bank of the Raritan River at Stone Mill, three others were evidently workshops and the rest were camp sites. Nineteen sites lay on the banks of Raritan River, eleven on Spruce Run and the others on small streams tributary to these. Four were at the very headwaters of brooks, a location chosen wherever surface conditions were at all favorable.

In the main the sites indicate small camps, occupied for brief periods, but at the three workshops noted the profusion of flakes and unfinished objects indicate longer periods of habitation and the active manufacture of implements. Argillite, locally known as "blue jingler," was the principal material used here for spear and arrowheads, although the rock of this vicinity is gneiss and limestone, the nearest argillite ledges being found further south. No aboriginal burial ground is known in this region, although doubtless many scattered graves exist.

New Germantown and Vicinity.—The conditions which made the High Bridge area attractive to the Indian pertain to this region also. Like the former, it is an undulating tract of country at the southern base of the highland, well drained by many streams, with a soil comparatively free from boulders. It lies in the northeastern portion of the county and is topographically well defined, being bounded on the north by Hell Mountain and Fox Hill, on the east by Lamington River, on the south by Rockaway Creek, on the west by the North Branch of Rockaway Creek and Silver Hill. Cold Brook, a westerly tributary of

sandy loam such as could be cultivated by the crude agricultural tools of the Indian, flow through limestone belts. Where favorable topographic and soil conditions prevailed in the slate belts, as along the Delaware from the Delaware Water Gap to Belvidere, Indian sites are common.—H. B. Kümmel.

Lamington River, drains its northern half, and there are besides numerous smaller streams and large springs.

Of the fifty-nine sites located, three were workshops, as indicated by a profusion of chips covering the ground, and the others ordinary camps. Six of them were along Lamington River, twelve on Cold Brook, four on Rockaway Creek, three on the North Branch of Rockaway Creek, four high up on Fox Hill on the banks of a stream, and several more near big springs. Argillite implements predominate here as at Flemington.

Flemington and Vicinity.—This district is the most important in Hunterdon County. Considering the remarkably large number of sites crowded into a comparatively small area, we may conclude that it was frequented far more than any other thus far investigated by the Survey, not even excepting some of the best sections in the Delaware Valley. If we include within it Klinesville, the region south of Croton, Copper Hill, Three Bridges and Riverside—that is, the territory 3 miles all about Flemington, omitting only the Reaville section southeast of the town, where strangely enough there appeared to be no signs, of prehistoric activities, we have a tract of land covering some 20 square miles. On this tract no less than 82 sites were noted.

The Indians seem to have been attracted to this region by the occurrence of immense argillite deposits, a rock well suited for the manufacture of arrowheads, spear points, and other tools. It was the center of the ancient argillite industry and the quarries once operated by them are perhaps the most extensive in all New Jersey. More will be said about this subject in the chapter on raw material.

This region also appealed to the redman because of certain topographic advantages. Being situated along the southeastern base of a plateau, it was sheltered from north winds. It is a fertile stretch of country dotted with ridges and knolls and its surface soil consists of red shale loam. Hydrographically, too, it leaves nothing to be desired, being drained by the South Branch of Raritan River and many affluents, the largest of which are Mine¹ and Walnut brooks and the three Neshanic rivers.

Among the 82 sites located there were at least two which appear to have been regular village sites by reason of the variety and number of implements they yielded. One of these is at

¹Mine Brook as named here is called Walnut Brook on the State map, and the name Walnut is here applied to the branch which joins it about a mile south of Flemington.

Holcomb Mills, the other at Copper Hill on the banks of the Second Neshanic. Then there were more than a dozen large sites which from the chips which litter the surface were evidently workshops. They were mostly distributed along Mine (Walnut) Brook, others were on the banks of Raritan River and at the headwaters of the Second Neshanic River. A cluster of 12 sites was found just north of Flemington and others again lay near big springs, which are quite abundant hereabouts. A burial site containing one Indian skeleton is within the town limits, and a rock shelter, now totally destroyed, lay east of Klinesville. Rows of sites have been noted along some of the streams, lying so close together as to coalesce the one into the other.

MINOR DISTRICTS.

In addition to the seven important centers already noted, there are others which possessed in a lesser degree or in a smaller compass those qualifications which appealed to the aborigine. In some of these the crowding of camps was as pronounced as at the favored spots already mentioned, although the area covered was much smaller. These minor districts may be listed as follows: Altogether eleven minor districts have been distinguished, namely, (a) Johnsonburg and vicinity; (b) Musconetcong Valley; (c) Pohatcong Creek Valley; (d) Pequest River Valley; (e) Green Pond; (f) Scotts Mountain; (g) North Branch of Rockaway; (h) South Branch of Rockaway; (i) Chambers Brook; (j) South Branch of Raritan River and tributaries; (k) Smaller tributaries of Delaware River.

Johnsonburg and Vicinity.—This is a rough stretch of country traversed by many limestone ledges and watered by Johnsonburg Creek, Bear Creek and Trout Brook, all flowing into Pequest River. Separating the rocky hills are numerous small level or gently rolling tracts, usually along the streams. Here the surface soil is usually a sandy or gravelly loam easily cultivated.

Of the twenty-nine sites located four were rock shelters. Some are near springs, others on the banks of brooks, or at the edge of swamps, which were plentiful in this region. Eight sites, including a rock house, were found in the neighborhood of the "big woods," an extremely rugged section of country just south of Yellow Frame Church, and another group of seven lies between Kerr's Corners and Johnsonburg in a region dotted with many small bogs and drained by Johnsonburg Creek.

Musconetcong Valley.—Musconetcong Valley, lying between Allamuchy, Upper Pohatcong and Pohatcong mountains on the northwest, and Schooley and Musconetcong mountains on the southeast, is drained by Musconetcong River and numerous tributaries, which flow in narrow trenches sharply cut in the gently rolling floor of the valley. The rock of the valley is shale and limestone, but the adjoining highlands are gneiss.

On the whole, sites are not numerous throughout this valley, which is more than 30 miles long and 1 to 3 miles wide. A crowding of sites was observed at certain points along the river, as south of Beattystown, at Penville, on the river banks south of The Point, west of Hampton, at Asbury, and in the country about Bloomsbury. All except seven lay on or near the banks of Musconetcong River, the others were either along the easterly base of Upper Pohatcong Mountain or on the slopes of Musconetcong Mountain about a mile east of the river. Nearly all appeared to have been mere camping grounds giving no indication of permanent habitation. A few of them may be regarded as workshops by reason of the great quantities of chips and rejects covering the surface. A cave claimed to have been used by the Indians was noted on the west bank of Musconetcong River in a limestone ridge opposite Hampton, and an aboriginal burial place lay on Musconetcong Mountain, a mile southeast of Warren Paper Mills.

The survey proved somewhat disappointing since the writer had expected to find an ever-increasing number of sites as Delaware River was neared. However, this was not the case, as only six sites were located along the last 4 miles of Musconetcong River. The total found in the valley is forty-nine.

Pohatcong Valley.—Pohatcong Creek rises near the summit of Upper Pohatcong Mountain, 1146 feet above tidewater, follows a southwesterly course and empties into Delaware River below Carpenterville. Eighteen sites were noted in this district if we include within it a few isolated sites on Pohatcong Mountain on the southeast. Nine of these sites are on the banks of the creek, most of the others on its tributaries. A group of four sites occurs at an elevation of 840 feet above sea level, a short distance north of Mount Bethel. No village site was identified within this region.

Pequest Valley.—Between Townsbury and Bridgeville, a distance of about 6 miles, there are eleven sites on Pequest River, nine on its north bank, two on its south. Four others are from half a mile to a mile south of it, and there are five on the north slope of Mount Mohepinoke. The region for 2 miles northeast

of Pequest Furnace was most frequented, for here there are eight sites including a village and a rock shelter. With Jenny Jump Mountain and Mount Mohepinoke to the north this part of the valley was well protected from north winds.

In addition to these sites on the lower Pequest, there were sixteen others which were included in the Great Meadows group, so this stream was evidently much visited by the redmen. With thirty-six sites between Long Bridge and Bridgeville, and others on tributary streams, Pequest Valley was without question a much favored district in Warren County.

Green's Pond.—Ensnconced between two mountains, Green's Pond (recently named Mountain Lake) could not fail to attract the aborigine. Its sheltered position recommended it as winter quarters, while its fish contributed to his sustenance. It is not surprising, therefore, that not an acre of shore land but reveals his former presence, either by the ubiquitous arrowhead, the more pretentious stone axe, or fragments of pottery. Aside from the natural advantages, the nearness to Delaware River and accessibility of the pond contributed to its popularity. In addition to isolated finds all around the lake, five well-defined camping grounds occur, one of which, because of its large size and the profusion of relics, probably should be called a village. It occupied a level tract of land at the southern end of the lake between Tamarack Swamp and the foot of Jenny Jump Mountain. Another but smaller site was at its northern end and three others are on its east bank.

Scott Mountain.—Although the top of Scotts Mountain presents wide areas of level or gently rolling surface, and streams and springs are abundant, only nine sites were located within an area measuring approximately 32 square miles. Five of these are along Lopatcong Creek, at and above Allen's Mills, in what is locally known as Harker's Hollow; the others are widely separated but in each case near the headwaters of a brook.

North Branch of Rockaway Creek.—Thirty-five sites have been found within the territory drained by the North Branch of Rockaway Creek. A few are located in the hilly region between Mountainville, Fairmont, and Califon, chiefly along or near the streams, but the larger number occur in the lower country east of Apgar's Corner. No one was of large size such as betokens relative permanency of occupation; most of them were ordinary camping grounds, but one, on the west bank of the creek just north of White House Station, was apparently a workshop, since large numbers of flakes now cover the surface.

Nothing authentic could be learned about any burial place, nor was any rock shelter found.

South Branch of Rockaway Creek.—In the region drained by the South Branch of Rockaway Creek west of White House Station, about twenty sites were found, most of them, merely camping grounds, probably occupied for only brief periods. There were three areas where the profusion of chips and flakes are still to be found, indicating a workshop. A number of sites lie along the northwest base of Cushetunk Mountain, and several occur east of White House below the junction of the South and North Branches. The most important site of the region was located on the south bank of Rockaway Creek near its junction with Lamington River. This may have been a village, judging from the great abundance and variety of, chipped tools gathered at that spot.

Chambers Brook.—This brook is about 7 miles long. It rises half a mile south of White House Station and flows in an easterly direction into the North Branch of Raritan River. A careful survey of this strip of country resulted in the finding of seven sites, two of which were at the headwaters of the brook.

South Branch of Raritan River.—The most important centers of population in the area drained by the South Branch of Raritan River, notably High Bridge and Flemington, have already been described. In addition to these and some smaller centers also referred to above, there are many scattered sites along the numerous smaller tributaries. Their location is shown on the map, and the most important of them will be described in the chapter giving local details.

Minor Tributaries of the Delaware.—Practically all tributaries of the Delaware, no matter how small, show traces of Indian occupation, even if nothing more than a few chips or a stray arrowhead. The Indian evidently approached or left the river by way of the tributary valleys, traveling their whole length and thence over the divide to the headwaters of the next stream. Between Phillipsburg and the Mercer County line fifty-five sites have been located along the smaller tributaries in addition to those in the main valley. It is noteworthy, however, that none of these appeared to have been a village. A few were no doubt workshops, one was a rock shelter, and another a burial place, all the others being ordinary camping grounds. Thus three sites were noted on the banks of the Queequawkomisikunk Creek, now known as Hakiwokake Creek, five on Hakewokake, corrupted into Hariwokake, three on Nississakawah, corrupted into Nishisakawick, ten on Lockatong Creek, five on Wickecheoke

Creek, and thirteen on Alexsauken Creek and its affluents. As the latter stream led to a large aboriginal settlement once situated at the site of the present city of Lambertville, it does not seem strange that it should have been frequented more than any of the others.

ROCK SHELTERS.

The Indian lived mostly in tents built of poles over which bark or skins were stretched. These tents could be quickly pitched and in traveling from place to place the squaws usually dragged the poles along, since they were veritable beasts of burden to whom most of the rough work was assigned. A still simpler sort of dwelling was the so-called tree hut, to construct which no material was required. The Indian selected a group of small trees or saplings standing closely together and united their tops in a common center. Obviously, this kind of habitation would be useful only in summer time when the trees were in foliage. There does not appear to be any record among the Lenni Lenape Indians, who were the inhabitants of this State, of houses built of hewn timber, such as the so-called "long houses" of the New York Iroquois. In this sense, then, our New Jersey Indians had not attained as high a plane of material culture as was reached by the Six Nations.

In addition to these artificial abodes, the redman made use of natural shelters such as were supplied by caves and shelving or overhanging rocks. In this he followed a tendency common to all primitive peoples the world over, including even the Pueblos, who represented the highest indigenous culture. Consequently, rock houses giving indication of aboriginal occupancy may be met in all parts of the United States. As already intimated, places of this description are natural rock formations affording protection from rain and wind. They occur nearly always at the foot of a ledge, the upper portion of which projects above the floor. Real caverns are extremely rare and when found show usually much fewer traces of occupation than the rock houses. In fact, the writer knows some caves that were wholly devoid of any such traces. If, then, rock houses were generally preferred to caves, it may be for the reason that the latter are in most cases damp and partially dark, while the former are usually dry and well lighted.

Rock houses are found, of course, only in regions where numerous rock cliffs give opportunity for their development, so that it is generally true that the more rugged a district, the greater the number of rock shelters. However, some classes of

rock lend themselves more readily than others to the formation of these shelters. Certain kinds, such as gneiss and slate, did not often form good shelters, whereas in sandstone, and especially in limestone districts, rock houses are quite common.

As already stated, the Indian was quick to avail himself of any covert supplied by nature. In this regard he was a true troglodyte. But certain conditions had to be fulfilled if a shelter was to be considered really desirable. In the first place, its shape must be such as to afford real protection from the rain and wind. A projecting roof was therefore necessary, a roof jutting far out above the floor. Taking the measurements of a hundred rock shelters, the writer found this projection to vary from 5 to 25 feet. Next, the height must be sufficient to permit the occupants to stand. Shelters, with a low roof were usually spurned. Again, there had to be a dirt floor under the roof—the softer, the better. If the floor was strewn with rocks the shelter became less attractive, but if good otherwise, the Indian would probably remove the rocks. That the character of the floor was a factor for or against a shelter may be inferred from the fact that several are known which, although good in other respects, were not utilized evidently for no other reason than that they had a stony and uneven floor.

Another factor of importance was a good supply of water conveniently near, even as it was in the selection of a camping ground. Needless to say that many a fine rock shelter was avoided just because of this deficiency. Exposure seems to have been, of minor concern, as it apparently did not matter much whether the rock house opened to the south or north. Neither did its situation matter much, however inaccessible, so long as the main conditions were complied with. When on the chase the redskin would go anywhere, penetrating the wilderness and tracking his prey to its very lair. Thus, no part of the country was inaccessible to him if he so chose, and rock houses once occupied by him have been found in the most secluded mountain districts. Rock shelters that were, hard to approach and lay miles away from the beaten path were, however, seldom visited, even by hunters. Sojourning but a brief time, they left few traces to remind us of their former presence under these rocks. All that we find are mostly chips and arrowheads buried in the subsoil at varying depths. In these shelters fragments of pottery are invariably absent, as hunters did not encumber themselves by carrying pots. On the other hand, rock houses situated nearer the trails were more often visited even by women and children. In these cases the remains found deposited in the

debris are generally of a more varied description, including often great quantities of potsherds, along with arrow points and bones. Some of these rocks give evidence of prolonged occupation, others again were apparently tenanted only for a very short period. The aborigine not infrequently improved this sort of habitation by leaning poles against the ledge and covering them with skins or bark. In this way he could enlarge its sheltered space and keep it warm.

A thorough search of Warren and Hunterdon counties resulted in the discovery of thirty-one rock shelters containing remains of aboriginal culture. Twenty-nine of these were in Warren, and only two in Hunterdon County. In Sussex County, which was investigated during the summer of 1913, twenty-five of these interesting sites were located. Moreover, in the light of our present knowledge it is quite certain that the Sussex County rock shelters are, in the variety and number of artifacts found, of somewhat superior archæological significance to those of Warren and Hunterdon counties. A comparison between the two groups of shelters shows that the Sussex shelters were more frequently occupied. Furthermore, there were among their number four rock houses of the first order as against one in Warren. This particular shelter is situated on Delaware River a short distance north of Dunnfield. Although it is the, most important in the two counties of all those known to the Survey, it does not compare favorably with any of the four great shelters located in Sussex. The other shelters, namely, twenty-seven in Warren and two in Hunterdon County, are of little importance if we are to judge by the scarcity of prehistoric remains, many of them containing only broken pieces of pottery, a few bones, and fresh water shells.

In Warren, as in Sussex County, the shelters occur most frequently wherever limestone ledges are common. These are more abundant in the northern part of the county, north of the terminal moraine which marks the southern limit of the ice during the last glacial epoch. South of this line rock ledges are much less numerous, the topography being less rugged and the rock more uniformly covered with a mantle of soil. North of the moraine, the ice scraped bare the rock over wide areas, scored it deeply, and left behind a region marked by countless ledges of irregular shape and in many places of fantastic outline.

Fourteen rock shelters were discovered in Paulins Kill Valley, all but one in limestone. Twelve of them lay between the Kill and the foot of Kittatinny Mountain, the other two just south of the Kill. The distribution of the others was as follows:

Three were scattered along Delaware River, four in the vicinity of Johnsonburg, two near the Great Meadows, one in Pequest Valley, one near Green Pond, and five in Beaver Brook Valley. Twenty-one shelters were in limestone, two in sandstone, two in slate rock, and two in gneiss.

Careful exploration of Kittatinny Mountain between the Sussex County line and Delaware River failed to disclose a single rock house either on the top of the mountain or on its slopes. Two, however, were found amid the cliffs at the Delaware Water Gap.

It is characteristic of the Warren County rock houses that they are each and all easily accessible. None of them lies in an out-of-the-way place, but all are rather near where we may suppose the redman's trails to have been. This being the case, the scantiness of aboriginal remains under their roofs is the more surprising, since easy accessibility would seem to favor frequency of occupation. It is therefore quite certain that all these shelters were but little used, least of all as winter quarters, as in that case the debris would be comparatively rich in objects of primitive origin, both of the chase and of domestic use.

An interesting observation made in connection with these rock houses is the fact that the culture layers under some of them contained only potsherds, a few bones, and unio shells, while implements of war or of the chase were conspicuously absent. Places such as this, which reveal only traces of a distinctly feminine character, have been designated squaw shelters, for it is known that all Indian tribes reserved such coverts for the exclusive use of their women. As may be expected, they ordinarily lie near the settlements and sometimes another shelter is close by which was used by all, as indicated by the nature of the remains. A case of this kind was noted at the Delaware Water Gap, where there are two rock houses not far apart, one giving evidence of male occupation, the other containing only some bones and pottery. Six of these so-called squaw shelters have been discovered, most of them in Paulins Kill Valley.

While the great majority of all shelters are simply overhanging ledges, a few are caves, as, for example, the Pox Hole at Jacksonburg, the Devil's Kitchen between Ebenezer and Kerr's Corners, the Wolf Den at Southtown, and the Fairy Hole on the northeastern slope of Jenny Jump Mountain. All of them were once visited by the redman.

The Devil's Hole near Johnsonburg belongs to the same category, but it is not sure whether it was ever occupied by the Indian. To decide this question would require the use of a der-

rick, for it is now partially filled with boulders which cover all of its dirt floor. It is a large hole in the limestone rock, about 12 feet below the ground, with plenty of light and air and with a subterranean passage extending from its rear. Near by, also at Johnsonburg, is the Devil's Wheelwright Shop. This, too, may have been frequented by the Indians, as it is in close proximity to a large ancient camping ground. At present there is nothing left of it but a cleft in the limestone rock, but formerly before a part of the cliff was blasted away to make room for the new line of the Delaware, Lackawanna and Western Railroad, it was a much larger place with a projecting rock in front.

Several good natural shelters in Warren County have evidently never been resorted to by the redskins. Among these are a slate rock shelter at Blair's Creek Falls, south of Franklin Grove; another slate rock shelter on the north bank of Honey Run, one mile southwest of Swayze's Mills; one-half a mile north of Karrsville on Upper Pohatcong Mountain; a small cave at Shiloh; and Rock Hannah north of the eastern entrance to the Musconetcong tunnel, near West Portal. This latter rock lies on the upper slope of the mountain at an altitude of about 700 feet above sea level and at a point where it may be easily crossed. Toward the south the rock rises as a cliff at the foot of which there is a spacious shelter fronting south and therefore well protected from north winds. There is no water within several hundred yards of this rock, and the excavation of its floor proved futile. Had this rock lain near some water supply the redman would in all probability have utilized it.

Both of the Hunterdon County shelters were of little value although quite favorably situated. One of them is at Milford, on the east bank of the Hakhokake (Oueequawkomisikunk) Creek, under an overhanging ledge of red shale. The other is in the gneiss rock, at Stone Mill, 1 mile north of High Bridge, on the west bank of the South Branch of Raritan River. In addition to these there are in Hunterdon County a number of caves in a more or less dilapidated condition which tradition claims to have been occupied by the aborigines. There is a small cave on the east bank of Spruce Run north of Clinton in a limestone ledge on the Conover farm, now filled with fallen rocks, so it could not be investigated. A second lay on the opposite side of Spruce Run, also in the limestone. While it is now wiped out, old residents of this locality claim to have secured there various relics of Indian origin. There was a third in the shale rock formation south of Everittstown near the banks of the Nississakawah Creek, but as its roof had collapsed exploration was out of the question.

There is good ground for thinking that there were formerly a number of rock shelters along the base of the red shale cliffs skirting Delaware River between Holland Station and Milford, but they have been destroyed to make room for the highway and the Belvidere Division of the Pennsylvania Railroad. There are even now several good shelters among these cliffs but they are mostly high above the river, and they proved on investigation to be devoid of all signs of former habitation. A small rock house near Mount Carmel has likewise met with destruction.

Finally, two rock houses were located in the northern portion of the county, namely, Wolf Rock on Musconetcong Mountain, a short distance north of Wood Glen, and Sheep Rock on the western slope of the mountain, just east of Mountainville. Although of excellent configuration neither contained any traces of prehistoric occupation, probably because water was too far away to make these shelters desirable.

BURIAL GROUNDS.

It is altogether probable that the Lenni Lenape Indians, like ourselves, disposed of their dead by burial in graves, but these were usually quite shallow—only from 1 to 3 feet deep. Burning their corpses on funeral pyres, or depositing them in the branches of a tree, were methods peculiar to many tribes in other parts of the country.

The fact that the redskins were in possession of the land for untold centuries might lead one to think that their remains would frequently be discovered, and our knowledge of the prehistoric burial places might be much more comprehensive than it really is. On the contrary, our information of these ancient cemeteries is exceedingly meager. It is true that the Indian population of this State amounted only to a few thousands, but it is equally true that an occupation extending over long periods of time would counterbalance the effects of a scant population in regard to aboriginal remains of any kind.

Since the number of graves known to us is extremely small when contrasted with the hundreds of ancient camp sites known all over the State, the question naturally arises—what became of them. The answer will be suggested by the following considerations. In the first place, Indian graves are not recognizable nowadays by outward signs marking them as such. While in Indian times they might have been distinguished by piles of stones, or wooden head posts, or even by being fenced around,

these external indications have long ago been obliterated either by the action of the elements or the activities of the white man. Again, there are no traces left of the more ancient graves, the bones having crumbled to dust long before this. It must also be remembered that tradition or history is quite mute on this point, that in but very few cases has any definite information in relation to the exact site of aboriginal cemeteries been transmitted to posterity. Yet there can be little doubt that the number of graves in a tolerably good state of preservation is considerable, and that they are more widespread than our present knowledge would indicate. It is certain that many of them will never be discovered, and that others will no more be recognizable even if excavated.

At best the discovery of an Indian grave is largely a matter of chance. In places, bones of undoubted Indian origin have been found when grading a street, or making an excavation for a house; they have occasionally been turned up by the plow or exposed to view by washouts due to heavy rains.

It has quite generally been held that the redman in selecting a last resting place for his dead gave preference to the sunny side of the hills, especially if the soil consisted of fine light sand or gravel. This supposition has not been borne out in the case of the Indian cemeteries found in Warren County. While such localities were sometimes selected, the survey of this county showed that burial places may be met in almost any kind of territory. To illustrate, one large prehistoric cemetery is reported to lie on the top of Jenny Jump Mountain, another on the southern slope of Kittatinny Mountain, others again are in Delaware and Paulins Kill Valleys, now in a level field, now on top of low ridges. Most often the soil containing the remains consists of light sand, but at other places it is gravelly and even rocky. Sometimes the burial ground is in the heart of an aboriginal settlement or in its vicinity, sometimes it is in out-of-the-way places miles away from any known camp, and in some cases only a single grave was found.

What information the writer has regarding Indian graves is not the result of his own discoveries but is derived from people living near them. This information, scant as it may be, is in every instance fairly well corroborated. Through local assistance 26 localities were noted where human bones of Indian origin had been found, namely, 18 in Warren and 8 in Hunterdon County. Ten of these seem to mark the sites of prehistoric cemeteries by reason of the relatively large number of dead bodies once buried there. Four of them are in Delaware River

Valley, the others lie inland. The best known, and probably the largest aboriginal burial-place in Warren County is at Calno, on the farm of the late Andrew Ribble on the top of a low ridge about 1200 yards from Delaware River. Others lie at Dunnfield in the valley between Delaware River and the foot of Blue Mountain; at Delaware, on the top of a hill near the river; at Holland Station, on a high sandy bank close to Delaware River; on the southern slope of Blue Mountain, 3 miles north of Jacksonburg; on a ridge north of Walnut Valley, less than a mile from Paulins Kill; one on the summit of Jenny Jump Mountain, 1½ miles north of Butzville.

In addition to these, smaller burials have been discovered at Hutchinson; north of Iron Mountain; south of the Pumping Station, and at another point in Phillipsburg; at Lopatcong, 1 mile east of Delaware River; at Milford, on the ground of the Warren Paper Mills; north of Frenchtown; between Brookville and Lambertville. There are others on Musconetcong Mountain southeast of Warren Paper Mills; at the southern slope of Cushetunk Mountain, near Stanton; and between Mount Airy and Ringoes.

Single graves have been found at Shoemaker's Ferry on Delaware River, in Paulins Kill Valley between Shuster's Pond and the Kill, and in the town of Flemington.

Single skulls were found on Delaware River near the mouth of Stony Brook, at Kalarama, and on George Wildrick's farm, 1 mile north of Pequest Furnace.

Lastly, a large quantity of human bones unquestionably belonging to the Indians was discovered in a fissure among the rocks on Delaware River between Delaware and Columbia. Another ossuary was found at Vulcanite, Warren County, 2 miles east of Delaware River.

TRAILS.

General Factors.—The subject of ancient trails involves some of the most difficult problems with which the investigator has to deal. While once these prehistoric highways were very real and easily discernible at least to those who used them, there are nowadays practically no traces left indicating the course they took. By their very nature they are evanescent and exist only when in constant use. The moment they ceased to be trodden by the feet of those who made them, vegetation began to obliterate them. Efforts at this late date to determine their location are therefore largely conjectural. At the best we can only draw

inferences and make deductions based chiefly on the distribution of camp sites and the topography.

Thus, in the absence of any direct observation of the trails themselves, our attempt to reconstruct them, figuratively speaking, can at best be only approximately correct. In discussing camp sites, rock shelters, and even graves, we always stand on solid ground with substantial telltale marks coming to our aid and elucidating many an obscure problem. In the matter of trails, on the other hand, we are wholly dependent upon indirect or circumstantial evidence, a course of procedure always implying some uncertainty in the conclusions reached.

The following principles are probably safe guides in the attempt to locate these forgotten highways. Trails most commonly followed the water courses, usually close to the river and deviating only where physical obstacles interfered. Since, furthermore, all primitive life converged toward the river valleys, it is quite obvious that along them trails both great and small were most numerous. That many lakes were once skirted by trails is equally certain, for they were all visited by the redman. Permanent villages and the larger camp sites were unquestionably connected by well-trodden paths. It follows, of course, that the more favored a district the greater the number of aboriginal highways leading toward and intersecting it. Conversely, it must be, true that the least favored districts were those with the fewest number of trails. Yet there were no doubt many trails running through inhospitable regions merely for the sake of direct routes between principal districts.

It has already been intimated that there were great and small trails. The important ones were often hundreds of miles long, had distinct names, and were known far and wide. A prehistoric avenue of this kind was the famous Minisink Path, running from Elizabethport to the country of the Minisinks on Delaware River, south of Port Jervis, and referred to in early deeds. These great highways were periodically used by the Indians when traveling from the inland country to the ocean. Aside from these, a network of small or secondary trails without question connected the many camp sites in the various districts, new ones being added and old ones abandoned as the population shifted.

That the Indians regarded the mountain tracts as undesirable for habitation is evident from the total absence there of any but occasional small camps. Yet there is no doubt that trails pierced these mountain barriers and were traveled at certain seasons by the red huntsman, invading their solitudes for

the sake of game. Although he was distinctly a dweller of the lowlands, securing most of his prey along the shores of rivers, lakes and swamps, he was at times compelled to penetrate the mountains, for they were the habitat of certain species of animals valuable for their hides, among them bears, wolves and catamounts. On these hunting expeditions he sought the shelter of a rock house many miles from his starting point, or made a temporary camp. It is probable that on these trips he did not wander at random, but in coming and going followed more or less definitely marked paths whose location was controlled chiefly by the topography.

Since each camp, if more than that of a single lodge, marked a definite point on some trail, important or otherwise, a row of sites all close together fixes a trail beyond much question, particularly if the lay of the land be such as to leave no choice of route. In such a case the route of travel undoubtedly connected the various sites in the most direct and the easiest manner. Again, we may not be far from the truth in presuming that most large sites were situated along the important highways, while many of the smaller ones lay on secondary trails. The problem of ascertaining their approximate location grows more difficult in regions where sites are scarce, but here topography often comes to our aid.

One more point must be considered. It must be remembered that not all the sites in any large district were contemporaneous in the sense of all being occupied at the same time; far from it. In consequence of the redman's nomadic mode of living, camps were always being shifted. Owing to these fluctuations of primitive society, it often happened, no doubt, that now a region would witness a great influx of people, now a general exodus. This fact is easily lost sight of, as any group of sites now located is likely, to convey the impression of permanence of population and contemporaneity of occupation. The fact, however, that the population was migratory and all the camp and village sites now known were not occupied simultaneously, does not destroy the validity of the conclusion that the location of the ancient trails is in large measure indicated by the distribution of camps as now found, it being recognized that along every important route of travel there were many deserted sites. In brief, whether a site was now vacant, now occupied, is quite immaterial to the problem under discussion. Each of them helps us in shedding some light upon it.

We know that the redskin was naturally lazy and that in his travels he always obeyed the law of least resistance. Accord-

ingly, he often made a detour for the sake of easy travel, and he circled a mountain rather than to climb straight across. This being so, we may imagine that most of his trails were quite crooked. But as he generally evinced a remarkable knack in choosing the best route compatible with directness, it is not surprising to find that many of our modern highways and railroads follow closely the lines of prehistoric thoroughfares.

On the strength of the two factors discussed above we are justified in assuming the existence in Warren and Hunterdon counties of several great ancient highways, namely, those of Delaware Valley, Paulins Kill Valley, Beaver Brook, Pequest Valley, Pohatcong Creek, Musconetcong Valley, Fast Branch of Raritan River, and Minisi-Neshanic-Alexsauken creeks. Aside from these there were no doubt many trails of secondary importance following mostly the smaller streams and serving as connecting links between the principal highways.

Delaware Valley Trail.—This trail is probably the most important and at the same time the least conjectural, for in tracing it we are guided by an almost continuous series of camp and village sites strung along the banks of the river, and by the topography. The sides of the narrow trench occupied by the Delaware are usually steep, everywhere well defined, and for the most part only a few hundred yards from the river. In view of this we may presume that the trail connecting the settlements lay close to the river.

Its Warren County portion began north of Calno. At this point it probably branched, if we may judge by the distribution of sites, one arm running along the river, the other following Van Campen's Brook to Millbrook, thence perhaps back to the river at Flatbrookville, in Sussex County. South of Calno it must have clung closely to the river for topographic reasons, at least as far as the Water Gap, and most likely also farther south as indicated by numerous river settlements. That minor trails ran up the mountain at different points may be taken for granted.

Between Columbia and Delaware the trail probably took to higher ground along the top of the hill rather than along the almost precipitous slope next to the river. This assumption is somewhat supported by the fact that three camp sites are scattered along the hillside high above the river near where the ancient highway is quite likely to have passed.

Between Holland Station and Milford, and particularly between Kingwood and Byram, where no traces of camp sites were noted in a distance of 4 miles, cliffs rise so steeply close to the

river that it seems probable that the trail left the valley and crossed the neighboring hills.

Paulins Kill Valley Trail.—There can be no doubt that this valley was also traversed by a great prehistoric thoroughfare, but its location is less definitely known for the valley is broad and there were many possible routes. The most important trail through this region probably wound along the Paulins Kill, for most of the sites are distributed along its banks at short intervals. There may have been a trail on both sides of the Kill, but that on its north bank appears to have been most frequented since the majority of sites are on that bank.

The occurrence of camp sites along brooks in this section suggests several other routes of travel, since we know that the redskin was wont to follow the water courses. Thus, he seems to have traveled along Stony Brook, a tributary of Delaware River, scattered remains and a couple of sites having been noted on its banks. Yard's Creek was followed all the way to Catfish Pond, on Kittatinny Mountain. A much-traveled route lay evidently on the high ground west of Jacksonburg Creek, beginning near its confluence with Paulins Kill and running northwardly to Catfish Pond. Considerable significance seems to attach to this route from the fact that it is mentioned in an ancient deed issued in 1752 to one Lazarus Adams. This individual acquired a tract of land south of Cedar Lake, the western boundary of which is described as lying 800 yards east of a famous Indian trail, called the "Minisink Path." While nothing was said about the direction it took south of the lake, the deed stated that it passed a big spring, now known as "Rattlesnake Spring," near Kalarama, and fording Paulins Kill, pursued a northerly course to the foot of Kittatinny Mountain, thence to Catfish Pond. This route was a famous Indian highway, one often referred to in ancient deeds as running from Elizabethport to the country of the Minisinks, south of Port Jervis. As elsewhere, practically nothing is known as to its exact location. The information contained in the Adams deed is valuable in that it defines a portion of it, however small. South of Cedar Lake, the Minisink trail may have passed close to the camps about Silver Lake, but this is a mere suggestion, as there is nothing to aid us in determining its course.

The distribution of sites north of Blairstown indicates another trail route which skirted Blair's Creek and ran north to Sand Pond.

The fact that the Great Paulins Kill trail joined the Delaware Valley trail at Columbia was bound to make that region one of great importance as a headquarters of aboriginal life.

Beaver Brook Valley Trail.—The distribution of sites along Beaver Brook and some of its affluents seem to bespeak the presence of several ancient thoroughfares in the region west and north of Jenny Jump Mountain. The most important of these followed, no doubt, Beaver Brook, the principal stream, beginning at Belvidere and running in a northeasterly direction to Silver Lake and beyond to the limestone country around Johnsonburg. It appears to have branched a few miles north of Sarepta, one route bearing northward along Mud Run toward Mount Herman. Another bifurcation seems to have been near Hope, whence a trail followed Trout Brook toward Southtown, with a branch at Shiloh across Jenny Jump Mountain to the Great Meadows. All this may be inferred with some degree of certainty from the grouping of sites thereabouts.

Pequest Valley Trail.—If we may trust the testimony of the remains found all through this valley, it must have been the site of another great aboriginal highway, which skirted Pequest River from Belvidere to Quaker Church and beyond. Near Butzville a branch probably turned off to Green Pond, and another up a small stream at the southern base of Cat Swamp Mountain. The Great Meadows being surrounded by sites were without question encircled by a trail. Seemingly, another trail branched off near the confluence, of Pequest River and Bear Brook, following the latter stream to Johnsonburg.

We may presume that the Pequest and the Beaver Brook trails joined at the confluence of these two streams. At this point, 2 miles northeast of Belvidere, there are indications of a large prehistoric settlement.

Pohatcong Creek Trail.—In the section lying between the headwaters of Pohatcong Creek, near the summit of Upper Pohatcong Mountain and New Village, there are sufficient camp sites along the creek to suggest a trail and its approximate course. Moreover, judging from the distribution of sites at both ends of a gap across the mountain north of Karrville, it is possible that an ancient path crossed at this point and so established communication with the settlements of Pequest River.

Owing to the absence of sites throughout the lower portion of the valley from Willow Grove to Delaware River, a distance of about 9 miles, we are without data suggesting the former occurrence of a trail, let alone the direction it may have taken. Although no traces of former occupation excepting an ossuary near Vulcanite and 4 sites at the mouth of the creek have been observed, yet the nature of the country is such that a prehistoric path probably traversed all this valley to the Delaware, the more

so as traveling through it was not attended with any particular difficulties.

Musconetcong Valley Trail.—Although the number of camp sites scattered along the banks of Musconetcong River is comparatively small, there being sections a and 3 miles long devoid of any well-defined traces of occupation, it may be taken for granted that a prehistoric thoroughfare skirted this stream its entire length. This does not preclude the possibility of other trails traversing the valley in various directions, but if there were such nothing tangible is known as to their whereabouts. The river trail may, however, be ascertained with some degree of accuracy by means of the sites strung along its banks.

In addition to the main trail along the valley, the author is inclined to believe that a path diverged from Musconetcong River somewhere near The Point and extended across the valley to Port Colden, where there is a group of sites, and thence to the Pohatcong Valley, a route now followed by canal, railroad, and highway. Local tradition claims that Musconetcong Valley and the Raritan Valley were joined by an Indian path which crossed Musconetcong Mountain by way of Glen Gardner, following the deep gorge now utilized by the Central Railroad of New Jersey and the highway. This was probably the main trail across the mountain, but there appears to have been an auxiliary path across it as shown by a row of sites along the upper course of Spruce Brook from Junction via Red Mill, Newport, and Little Brook to German Valley. In addition to these, other trails may have crossed the mountain near West Portal, where there is a gap, near Bloomsbury, and also at Warren Paper Mills.

It will have been observed that all the great trails in Warren County led toward Delaware River. This fact serves to emphasize the important part anciently played by this stream as the great avenue of communication between the various tribes of the Lenni Lenape.

Two more great primitive highways and several minor ones remain to be discussed. They are in Hunterdon County.

South Branch of Raritan River Trail.—Since two great centers of Indian occupation lay near the South Branch of the Raritan, High Bridge and Flemington, and there is hardly a mile along its banks but gives some indication of the redman's presence, it seems certain that an important thoroughfare of travel lay close to this stream although there are now no signs of its actual position. The river being navigable along most of its course, canoeing was no doubt much resorted to in traveling

from place to place, but as canoes were not always available except perhaps at those settlements which were more permanently occupied, we may presume that most Indians followed the land route, which hugged the river closely, or deviated from it, as demanded by the topography. Over long stretches it seems to have kept close to the water, if we are to believe the testimony of sites most of which are strung along its banks. The region was generally favorable for foot travel, and much of the river was, we think, lined by trails on both sides, save perhaps for a few miles north of High Bridge, where rocks and ledges near the water's edge may have compelled the Indian to make a detour.

It is probable that branch trails led from the main thoroughfares along the river. Two probably branched off near Califon, one of them running up Fox Hollow, the other passing up the hills toward Lower Fairmount, a row of sites extending in the latter direction may well serve to indicate the route it took.

Another thoroughfare seems to have skirted Mulhockaway Creek, and by crossing the mountain near West Portal may have afforded another route to Musconetcong Valley. Again, there is little doubt that a trail wound along Capoulin Creek, if we may attach any significance to the distribution of sites throughout this region. There is a tradition that an aboriginal highway ran along the divide between the Mulhockaway drainage and that flowing to the Delaware. Starting near Pattenburg, it traversed the strip of country south of Jutland known as The Barrens, whence it continued across Capoulin Creek to Cherryville and Flemington, a route closely followed by highways at the present time. That a trail skirted Prescott Brook all the way to its headwaters in Round Valley is likewise reasonably sure. Another seems to have passed along the eastern base of Round and Cushetunk Mountains connecting the camps near Flemington with these near White House Station.

Minisi-Neshanic-Alexsauken Trail.—Southwest of Flemington, the trail connecting the many workshops along Mine (Walnut) Brook from Klinesville southward may have extended via the headwaters of Neshanic Brook past Copper Hill toward Ringoes, thence across the rolling country to the headwaters of Alexsauken Creek and down that stream to the Delaware. Such seems to have been its course, if we may judge from the distribution of camp sites which have been recognized. There is a tradition, however, that the old Indian path followed the high ground over the hills from Ringoes to the Delaware via Mount Airy.

Minor Trails.—Apart from the more important routes mentioned, there were unquestionably many paths traversing the two counties in other directions. Probably along all the smaller tributaries of the Delaware there were paths more or less definitely marked since each of these little streams served as an avenue of approach from the upland country to the great river. In some cases these trails may have run to their very headwaters, in others only a little way up.

An ancient path seems to have followed Harker's Hollow on Scott's Mountain along the banks of Lopatcong Creek. In Hunterdon County trails flanked the banks of Queequawkomisunk Creek and its branches north of Milford. Other paths seem to have followed Hakeohokake, Nississakawah, Locketong, and Wickecheoke Creeks, judging by the distribution of sites along their banks.

A well-trodden ancient highway is suggested by the numerous sites scattered along the banks of the North Branch of Rockaway Creek south of Mountainville to its junction with the South Branch, thence to Lamington River. Another path appears to have skirted its headwaters from the foot of Fox Hill southward to Lower Fairmount, thence in an easterly direction to Pottersville on Lamington River.

The South Branch was doubtless flanked by a prehistoric highway connecting the numerous camp sites dotting its banks, and finally a short but much frequented path appears to have followed the small tributary stream between White House Station and the base of Cushetunk Mountain, the crowding of sites near there bespeaking intense occupation.

RAW MATERIAL FOR IMPLEMENTS.

In the manufacture of his implements the Indian made use of a great variety of raw materials—animal, vegetable, and mineral, but only those made of the more durable materials have been preserved. Consequently, our collections of Indian relics consist for the most part of articles of stone, such as arrow-heads, spear points, scrapers, knives, celts, awls, tomahawks, hatchets, and netsinkers. Articles of bone and wood were indeed quite common, but owing to their perishable nature few such specimens have escaped the ravages of time.

The animal kingdom supplied him with hides for blankets and clothing, those of deer, bear, catamount, and wolf being probably the most highly prized. The sinews of deer and other animals he used for fish lines and bow strings, and also for

hafting the arrowhead to the shaft or the tomahawk to the handle. Bones were wrought into fish hooks, arrowheads, and drills, yet objects of this material are now very seldom found, although once no doubt of common use.

Wood, too, was utilized to a great extent. Mortars and cups were often fashioned from wood; for his bows he preferred the wood of the hickory tree; for the arrow shafts he usually took dogwood; the stems of bulrushes were used for plaiting into mats; and in some parts of the country birch bark furnished the material for his canoes, while dugouts made of different kinds of wood were used by the redskins of New Jersey.

It does not appear that the aborigines inhabiting New Jersey and the adjacent territory were acquainted with the art of working metal. In this respect their culture was decidedly below that of the tribes living about the Great Lakes, who knew how to mine iron and copper and to hammer it into shape. The sporadic finds of this kind which have been made in this State may be considered as importations brought here by barter, such as existed between most tribes. While exploring the woods at Upper Preakness, north of Paterson, some years ago, the author found a piece of crude ore oval in shape and about the size of a chicken egg, which was pecked all around and grooved medially so as to resemble a so-called slingshot. Whether or not this object is of Indian origin cannot easily be ascertained. Some worked copper implements were also unearthed in a little gully near Delaware River about half a mile north of Riegelsville, Warren County.

None of the many private collections in Warren and Hunterdon counties inspected by the writer contained any bone implements, nor did he find any while examining the bone deposits under rock shelters. The bones found had been cracked for the marrow but not worked artificially. In Sussex County also artifacts of bone seem to have been extremely rare, only one locality having been noted where they occur. This was in a cavern on Walkill River, 4 miles north of Sussex.

Stone utensils have been found in great profusion throughout the two counties. Unlike wood, they last forever as the imperishable mementoes of former ages. The materials used are the same as those used elsewhere in the State, and the workmanship exhibited in the artifacts was wholly along conventional lines—that is, like that of other regions. Implements of argillite, flint, chert, jasper, slate, quartz, sandstone, quartzite, hornblende, crystalline limestone, steatite or soapstone, and porphyry were identified.

The majority of arrowheads and spear points consisted of flint or argillite, while the proportion of jasper was about 1 to 20, in some few localities 1 to 10. Flint was most commonly used in Warren County, while in Hunterdon County argillite was the principal material. This is not surprising since the predominant material on any given site or in any territory is always that nearest at hand.

Flint and chert, in a sense the most important of raw materials, occur in great abundance in the limestone belts of Warren County. Being brittle they were well adapted to the making of points and other tools requiring a high degree of finish. In the regions about Blairstown, near Shuster's Pond, and between Hope and Southtown, there are many outcrops of cherty limestone from which the redmen obtained much of their material.

A very good deposit of flint occurs at the southeastern base of Mount Mohepinoke between Pequest Furnace and Townsbury. At this spot there were formerly many indications of an ancient mine. On the field along the foot of the ledge there lay hundreds of pieces of flint, roughly fractured, together with chips, rejects, fragments of arrowheads, and battered pebbles, which evidently were used for breaking up the large chunks of raw material. There is therefore little doubt that the redmen resorted to this locality for the purpose of procuring this much needed material.

Mr. Walter P. Lewis, of Phillipsburg, N. J., who has made exhaustive archæologic studies in his own neighborhood, says that the prevailing chipped implement in the section about Phillipsburg is black flint. Next in order come jasper and quartzite, while the least common is argillite. This is because the number of argillite implements diminishes with the distance from the sources of supply, which are Flemington and Byram, N. J., and Point Pleasant, Pa. He believes that the most prized material in his section of country was jasper, a fact demonstrated by the numerous examples of broken and reworked implements of that material. He also thinks that the Indians inhabiting this region obtained much of their flint at a quarry situated north of Phillipsburg on Delaware River.

Jasper was without question in great demand, for, like flint, chert and argillite, it could easily be worked. Yet being comparatively scarce, only a small percentage of points were fashioned from it. A deposit of jasper has been noted at the northwestern slope of Scotts Mountain about 2 miles south of Belvidere. As it is quite likely that the savages knew of this place, much of the jasper used in the county may here have been

secured. Another jasper quarry is reported as being situated on top of the bluffs between Holland and Milford, Hunterdon County. Jasper occurs also at Durham, Pa., and in the Lehigh Mountains near Allentown, Pa.

Slate, which was also used to some extent, is very common in many sections of Warren County. Steatite occurs at the northeastern slope of Jenny Jump Mountain, but chiefly on Delaware River a short distance north of Phillipsburg. It was highly valued as material for vessels of various kinds. Nothing is known as to the source of the clay used for pots. Quartzite could be secured from the glacial drift. In Hunterdon County there are extensive deposits of a hard dark-colored, brittle, fine-grained rock, locally known as "blue jingler," but more properly as argillite. Its outcrop extends from the Delaware near Byram northeast, along the margin of the Hunterdon plateau to Klinesville and Cherryville northwest of Flemington. The streams which flow from this upland have cut deep gorges along which the outcrops and waterwork masses of argillite abound. With this abundance of material suitable for the manufacture of arrow points and spear heads, scrapers, blades, and various other tools, it is not surprising that large workshops have been discovered along Mine (Walnut) Brook north of Flemington.

While not permitting such a high polish as flint, jasper, and quartz, the argillite could easily be worked into the requisite shapes, since it is both hard and brittle. With such splendid material at their disposal, the Indians traveling this section used the argillite to the almost total exclusion of all other minerals. Flint and jasper implements are therefore rarely found on the numerous camping grounds situated along the streams and near the springs so numerous within this region. The center of the argillite industry appears to have been, a stretch of country on both banks of Mine (Walnut) Brook from Klinesville down to its confluence with the First Neshanic. A practically unbroken succession of ancient factory sites borders this stream, the fields being littered with untold thousands of chips, rejects, unfinished large blades, and also perfect specimens.

Since this district was once a great headquarters of the prehistoric toolmakers, it is not surprising that about 90 sites have been recognized within a few miles of Flemington. Implements from these and other argillite quarries were disseminated widely over the State, although, of course, in relatively few numbers with increasing distance from the source of supply. Thus, along the banks of Musconetcong River and in some sections north of it argillite constitutes about one-half of all the arrowheads

and spear points noted thereabouts. And even as far distant as Port Jervis, N. Y., the author discovered traces of a small argillite workshop on the hillside bordering the Delaware 2 miles from town.

LOCAL DETAILS.

In the following paragraphs no attempt will be made to describe or even to mention all the camp and village sites observed. Their location is accurately shown on the map accompanying this report and is also indicated in the table on p. 72. In many instances there is nothing to be added to the general statement that Indian relics in varying numbers have been found by local collectors at these places. Much more information is available regarding the rock houses which were explored, as well as the larger camp sites. This is given in the following paragraphs.

DELAWARE VALLEY SITES.

About 150 sites have been located on the banks of the Delaware or close to it in Warren and Hunterdon counties. Most of them represent small camping grounds, but several large villages have been found.

Calno.—The broad river terraces near Calno at the junction of Van Campens Brook with the Delaware, afforded excellent camp sites, and were extensively utilized. Many artifacts, including banner stones, pipe stems of steatite, Belts, tomahawks, hoes, hatchets, net sinkers, and a small carved image, have been found on the river terrace opposite Depew's Island. Flint predominates over jasper in the proportion of ten to one. The net sinkers were all of the flat oval type which appears to be characteristic of the Delaware Valley. The number of relics and the agricultural implements, such as hoes, point to a village with cultivated fields in the vicinity. The soil is a fine sandy loam easily worked even with crude tools. Potsherds used to be very common at some of the sites near Calno, but no whole pot has ever been found. The chevron design of decoration, i. e., zigzag lines incised below the rim of the pot, seems to have been the prevailing type of ornamentation.

In addition to the sites near the Delaware, a number have been found along Van Campen Brook as far as the village of Millbrook. The old Mine Road from the copper mines near Poxino Island to the Dutch settlements at Esopus on the Hudson is asserted to have followed a more ancient Indian trail, and here led over the upland fields from Calno to Millbrook.

A primeval burial place was, discovered about 1865 or thereafter on the old Andrew Ribble farm about a mile south of Calno and 1200 yards east of the river (21-32-6-6-7),¹ on the level ridge. Beads were found in some graves, and a flint cross in one. Chips and various stone artifacts were formerly quite abundant hereabouts. Presumably not all of the graves have

¹ See pp. 70 and 71 for explanation of this system of indicating exact location by numbers.

been discovered, as no systematic excavating has been done and the extent of the cemetery is unknown.

On John Stoddard's farm, near the mouth of Van Campen Brook, many fine artifacts have been gathered, including a soapstone ring and several ceremonial stones. The latter were of slaty material, thin and oval in shape and perforated at one or both ends, probably to be worn suspended from the neck.

Dimmick's Ferry.—Seven sites were located at short intervals above and below Dimmick's Ferry. Near the ferry arrowheads, tomahawks, and celts have been found. The latter, sometimes and probably erroneously called skinning knives, were wedge-shaped, highly polished stone implements, and were probably used for cutting wood. Several ancient fire pits filled with charcoal, with many fragments of fresh-water mussel shells were found here 1 to 2 feet below the surface.

Shoemaker's Ferry—In 1912, a complete skeleton of a child was unearthed here in fine sandy loam at a depth of about 2 feet, and about 20 yards from the river bank.

Between Shoemaker's Ferry and the Delaware Water Gap, terraces are for the most part absent on the New Jersey side of the river and the hills rise steeply, so that suitable camping ground is lacking. Numerous chips, arrowheads, and other objects have been found on a small terrace near Labar's Island where the outlet of Sunfish Pond cascades down the mountain side. Another site was located at Buckwood Park and two near Karamac, just above the Gap.

Delaware Water Gap.—Two rock shelters, a village, several camp sites, and a burial place were located at Delaware Water Gap. Both of the rock houses are above Dunnfield Creek and underneath the ledges of sandstone which here form the cliffs of Blockade Mountain. The northerly shelter faces west, is 150 yards distant from the river, and is protected from north winds by a projecting ledge 5 feet wide. It is about 12 feet long, 5 feet deep, and 8 to 10 feet high. When discovered the floor bore no traces of Indian habitation, although ancient smoke-stained walls and roof indicated former occupancy. Chips and arrowheads were found, however, within a few inches from the surface, and its complete excavation revealed 20 arrow and spear points, hammer stones, scrapers, and pottery, as well as innumerable chips. Beneath the surface the debris became darker through the admixture with ashes and charcoal, and large numbers of bones, and turtle and unio shells were found. The bones were chiefly from deer, but there were also several large bird bones, possibly of the wild turkey. Two fireplaces, one in the left-hand corner, the other to the right, were recognizable by the black soil and slabs of stone used in these hearths. A large celt showing marks of fire was found in the right-hand fireplace at the bottom of the culture layer, which had a thickness of 2 feet. That the shelter was a workshop where the aborigine fashioned his implements is shown by the numerous chips. The fireplaces, bones, and potsherds tell us of meals cooked and eaten here. No succession of horizons, pointing to separate periods of occupation, were detected in excavating the culture layer.

The southerly rock shelter is smaller than the one described above, and is about 500 yards distant from it and 100 yards away from the river. It has a western exposure, is 3 feet deep by 12 feet long, with a roof about 7 feet above the floor. The debris was composed of rich black earth mixed with stones, the surface bare of any remains. Potsherds, some decorated, others plain, to the number of more than 150 were found here at depths from a few inches to 2 feet. Unusually large fragments representing the bottom and sides of a big pot were found near the center, while a few bones, two or three chips, and many potsherds were found to the right of the rear wall. In the center close to the back wall a fireplace was indicated by fire-cracked stones and charcoal.

The proximity of a large camping ground near the mouth of Dunnfield Creek, the absence of stone implements, and the abundance of potsherds suggest that it was a so-called squaw shelter, used only by the women. Other rock shelters of similar character are known.

Artifacts of many kinds were formerly to be found in the fields at Dunnfield, and indicate a camp ground of considerable extent. In 1882 excavations for the railroad disclosed many human bones in the sandy fields, and even now an occasional fragment is washed out of the bank along the track. That there are other graves on either side seems reasonably certain. The evidence now at hand indicates that lodge sites and graves were intermingled, but whether the interments were made simultaneously with the occupation of the camps cannot now be determined.

Another camping ground lies south of Dunnfield Creek. Until the year 1882, when in the construction of the railroad a passageway was blasted around the projecting end of Mount Tammany, which here rose steeply from the river, this spot was difficult of access from the south. The traveler had the alternative of passing by water in a canoe, or of scrambling across the steep projection by the so-called "Indian Ladder"—two large trees placed against the cliff on opposite sides, with branches trimmed so as to serve as a crude ladder.

Columbia.—Between Delaware Water Gap and Columbia ii sites occur along the river bank or in the upland fields. During the great flood of October, 1910, human remains—undoubtedly of Indian origin,—with a long flint blade and arrow points, were washed out of the north bank of Stony Brook.

The broad loam-covered terraces bordering the Delaware at the mouth of Paulins Kill have yielded thousands of relics, many of them of a high order of primitive workmanship. This was unquestionably the site of a prehistoric village of considerable size and importance, situated as it is at the junction of the Delaware River trail with that which traversed the Paulins Kill Valley. The occurrence here of innumerable flakes, rejects, and unfinished tools demonstrates the presence of many a workshop for which the numerous flint nodules in the adjacent ledges of limestone, as well as the water-worn gravel stones of the terrace itself, would furnish abundant raw material. The relatively large proportion (15 per cent.) of jasper artifacts found here is somewhat surprising, particularly in view of the fact that no nearby sources of this raw material are known. The many hoes and

similar implements remind us of the prehistoric fields near the village where the squaws raised their crops of beans, maize, and perhaps tobacco.

Below Columbia, for a mile or two the river bank is precipitous, so any ancient Indian trail must have left the river here. The occurrence of two camp sites on top of the hill, 250 feet above the river, suggest that it may have kept as close to the waterway as possible, or it may have followed the route of the present wagon road from Warrington to Delaware.

Delaware.—In blasting for the railroad right of way three-quarters of a mile north of Delaware, many human bones were discovered in a large fissure in the rock, in which they seem to have been deposited. Presumably they were Indian remains, although no stone implements or other relics were found with them. Skeletal remains were found many years ago on top of the hill due north of the depot.

The terrace flats at Delaware are nearly half a mile in width, and are covered with fine sandy loam. These fields have yielded numerous relics, and when first tilled the plow frequently laid bare traces of ancient fireplaces built of flat stones, and of bake ovens constructed of larger stones arranged in a square. The earliest white settlers are reported to have observed sweat boxes here. These were the Indian's substitute for a Turkish bath, and to them great curative value was ascribed. The patient, naked, entered a small chamber constructed of stones around which a fire had been kindled and there remained for hours in profuse perspiration. All traces of them, however, have passed, and nothing is now found on these fields but an occasional artifact.

Smaller village sites were found on the flats at Ramseyburg and just above Manuka Chunk. At the former, potsherds are plentiful and remains of bake ovens and sweat boxes were noted years ago.

Belvidere.—There was an Indian village on the north bank of Pequest River near its mouth, at the present site of Belvidere. The fields formerly abounded in objects of Indian handiwork, among them beautifully wrought jasper points, celts, and net sinkers. Flakes of various materials picked up even now indicate the former presence of workshops. Several graves have been revealed in excavations for cellars.

Three miles south of Belvidere a rock house was found at the foot of limestone ledges about 50 yards from the river. It afforded scant protection from wind and rain, and judging by the few remains found it was but seldom visited. Chips of flint, chert, and jasper, a few crude arrowheads, some rejects, potsherds, deer bones, mussel and turtle shells are all found. Traces of a fireplace were noted close to the rear wall in the center.

Roxburg.—Fourteen sites have been located between Roxburg Station and Marble Mountain near Phillipsburg, their position being shown in detail on the map. Chips of white chalcedony and a human femur were washed out of the river bank at Hutchinson Station by the flood of 1903, and other skeletal remains were unearthed there in 1912 when digging foundations for bungalows. Two workshops have been found south of the soapstone quarry at Marble Mountain, and from the southern one, near Heitzmann's spring, Dr. Swift, a pioneer collector, in 1845 gathered much material, all of which was sent to Copenhagen, Denmark. Many of the remains were jasper.

Phillipsburg.—The river terraces at Phillipsburg were in prehistoric days frequently occupied by the aborigines, but with the growth of the city most traces of this occupancy have been obliterated. The fields north and south of the city pumping station have yielded many flint implements and chips, and flinty limestone beds near by afforded abundant raw material. From time to time human bones and stone implements have been revealed in temporary excavations, as in 1856 at St. Luke's Episcopal Church, and in 1915 about half a mile south of the pumping station. Formerly, many jasper finds were made near the old Andover Furnace between the canal and the Pennsylvania Railroad, but now the site is covered by piles of furnace slag. A few artifacts have been found on the isolated hill in the midst of the railroad tracks, locally known as Mount Parnassus. Several rare finds were reported¹ from this vicinity, among them two pictographs. One, now the property of Dr. Geo. Cummins, of Belvidere, engraved on piece of shale, represents a village; the other, in the collection of Paul S. Tucker, of Westfield, N. J., is a fragment of a steatite bannerstone with a drawing of wigwams, a snowshoe, and a trail. It was found at the Warren limekilns near Carpentersville.

Carpentersville.—For 2 miles or more below Phillipsburg limestone cliffs front the river, but opposite Cliffords Island and thence to Carpentersville there are broad terraces which have afforded at several points numerous relics. So, too, the terraces at the mouth of Pohatcong Creek, a mile below Carpentersville, were the sites of former camps or villages.

Riegelsville.—Approaching Riegelsville and the country to the south, there is a noticeable increase in the number of artifacts made of argillite and a diminution in the proportion of flint and jasper relics. As already pointed out (p. 47), there are extensive outcrops of argillite along the Delaware River near Byram from which the aborigines obtained large quantities of this material. The location of several small sites near Riegelsville is shown upon the map.

Holland Station.—There were several camp sites along the river near Holland Station, and at the gravel pit of Alton Rapp the remains of 31 bodies are reported to have been recovered—from a depth of about 3 feet. Most of the bones were crumbling, but the teeth were generally well preserved. The graves contained also arrow points, potsherds, pestles, and two baked clay pipes of the short "bent trumpet" type. An old fireplace near by yielded bits of charcoal, several net sinkers, and argillite arrowheads. According to local tradition, which may have very little value, the bodies were of those slain in battle during the so-called "grasshopper war," caused by the children of two neighboring tribes quarreling over the possession of grasshoppers.

Milford.—There is a succession of small sites along the flats between Milford and Frenchtown, and a single grave was found in digging a well for the Warren Paper Mills.

Frenchtown.—Three skeletons wrapped in a peculiar fabric are reported to have been exhumed in grading the railroad on the farm of Elijah Case

¹ Authority of Walter P. Lewis, Phillipsburg, N. J.

north of Frenchtown, and the fields nearer the borough give evidence of having been a small village site. There was a larger site south of the borough and north of Copper Creek, and occasional camp sites between there and Byram, but for much of this distance topographic conditions were unfavorable for settlements on the New Jersey side of the river.

Byram.—Below Byram the fields along the river for half a mile or more have yielded many chips, rejects, etc., which indicate a series of workshops where the argillite material was fashioned into implements. Bull's Island was also used as a camping ground, and other workshops were located in the fields below the mouth of Lockatong Creek.

Stockton.—The argillite material was also worked out at camps in the fields between Stockton and Brookville.

Lambertville.—Several Indian graves were discovered in 1912 at the Ireland quarry on the brow of Gilboa Hill, north of Lambertville. They were marked by piles of rock and the remains lay buried at a depth of 3 feet. The fact that arrow points and several stone hatchets were dug up with the bones would seem to establish Indian origin. On the Ireland farm, south of the quarry, many artifacts have been plowed up, both on the high bank near the river and on the ridges east of it. Riverview Cemetery and the fields of the J. V. C. Barber farm north of Alexsauken Creek have yielded a profusion of relics—arrowheads, tomahawks, stone axes, and potsherds—many of which are now in the possession of Henry C. Boss, of Milford. In the cemetery stone artifacts are frequently dug up in excavating for graves.

Lambertville itself is built on the site of a very important aboriginal settlement, but with the growth of the modern city evidence of the earlier habitations has been obliterated.

South of Lambertville the river flows through a narrow rocky gorge which it has cut in the trap ridge crossing the river at this point. The river banks for 2 miles or more were unsuitable for camp sites and none are present, but immediately south of the gorge, at the county line, where the sandy terrace again borders the river, a small camp site marked by chips and broken arrow points was found.

Dr. C. C. Abbott figures in his "Stone Age of New Jersey" an axe from Dean's Island, near Lambertville.

PAULINS KILL VALLEY SITES.¹

In this group are included not only the sites along the Paulins Kill in Warren County, but also those in the rolling country between it and the Kittatinny Mountains. All except six burial places are situated close to some water supply—a stream, lake, swamp, or spring.

Shuster Pond.—There is a rock shelter containing traces of the Indians in the woods between Mud Pond and Shuster Pond on Mrs. Louisa Warner's farm. It lies at the foot of a low limestone ledge with a patch of swampy ground on the east. It faces east, overhangs about 8 feet, is 6

¹Those along the Kill in Sussex County were described in Bulletin 13, Geological Survey of New Jersey. See p. 18 of the present bulletin for summary of the group in Warren County.

feet high along the shelter line but slopes toward the rear, where it is only 2 feet high, and it is about 16 feet long. Evidently only its right-hand portion had been used. Below a layer of vegetable mould 1 foot thick, potsherds, mostly cord-marked, came to view, reaching to a depth of more than 2 feet. The soil was quite black and revealed an ancient hearth. The subsoil contained some deer bones, unio shells, a few flint and chert chips, and several heat-cracked pebbles. This rockhouse was, it seems, rarely resorted to.

A profusion of arrow points, spearheads, and other artifacts have been found on Charles Hull's farm on the north shore of Shuster Pond. Heaps of fresh-water mussel shells were once common. The neighboring limestone ledges afford an abundance of workable flint. Another camp site was noted on the southwest shore of the pond. Years ago a complete skeleton of undoubted Indian origin was found under a large flat rock in a level field half a mile southeast of the pond and about 200 yards north of the Paulins Kill.

Paulina.—A small rock shelter containing a few chips and mussel shells was discovered at the foot of a high limestone ledge one-third of a mile north of Paulina. It faces west with a small swamp in front. Across the road and a few hundred yards distant is another small shelter at the eastern base of a limestone cliff. It contained some potsherds, unio shells, chips, and a net sinker flat, oval in shape, and notched medially. There were traces of a fireplace near the shelter line. Both of these rock houses were seldom used, if we may judge by the few relics found.

Blairstown.—For many years the fields west of the Blairstown cemetery yielded to collectors hundreds of Indian relics of various kinds. Arrowheads, a large number of pitted hand hammers, net sinkers, and tomahawks have been found, and the profusion of chips scattered all around indicate the manufacture of implements on an extensive scale. Much jasper was used on this site, and some of the specimens were fashioned with remarkable skill. Potsherds were once quite plentiful. The numerous net sinkers prove that fishing was a common occupation. A large spring is close at hand. The loamy character of the surface soil was favorable to the crude methods of agriculture. The evidence all points to a village of some importance.

Some years ago, in digging a cellar, two banner stones of excellent workmanship were found in the northern part of the village, and an Indian cemetery has been identified in Blairstown on the north bank of the Kill. Scattered relics have been found at other points in and near the village.

Four rock shelters have been found among the limestone ledges northwest of Blairstown. The first is north of the village site described above, near the road from Blairstown to Jacksonburg. It is 5 feet long, 4 feet deep, and about 6 feet high. It has a southern exposure but is remote from any present water supply. About 200 potsherds were found on the surface and imbedded to a depth of 2 feet. Some of them were decorated with zigzag lines. The culture layer was black soil containing fire-marked stones. What appeared to have been a fireplace built of slabs laid in the left-hand corner of the shelter. The total absence of both stone implements and the

refuse of their making suggests that the shelter was used exclusively by the women.

A few chips were found beneath a small overhanging ledge, with eastern exposure, a few hundred years northeast of the squaw shelter noted above.

Half a mile north of Blair Hall is a high limestone cliff known locally as Sheep Rock. At the left-hand corner there is a narrow cleft or cave just large enough to admit a man. As the cliff crowns a steep slope, this shelter lies some 50 feet above the valley below. It faces the west, and the nearest water seems to have been a swampy tract, now a pond, at the foot of the slope. About 200 potsherds, cord-marked and plain, together with deer and bird bones, and a few mussel shells, were found in the floor at a depth of 1 foot or more. From the entire absence of implements and chips, this place also is believed to have been used exclusively by the women.

Half a mile west of Blairstown and south of the Blairstown-Jacksonburg road, there is a small shelter at the base of the limestone ledges. The rock faces east. A few jasper chips and one triangular flint point were all that was found here.

For several miles west of Blairstown there is a succession of camp sites along Paulins Kill, chiefly on the northern bank. These are shown in detail on the map.

Jacksonburg.—John C. McConachy has gathered from his farm a mile north of Jacksonburg and west of the creek a collection of 11 tomahawks and hatchets, 60 egg-shaped net sinkers, about 200 arrowheads (2 made of quartz, 15 of jasper, the balance of flint and chert), 1 gorget, 4 banner stones, 6 hammer stones, 1 pestle and 1 mortar. The large number of net sinkers in a locality where there was no apparent use for them is rather remarkable. They were not found in a cache, but scattered over the fields.

A small cave was found at the base of the limestone cliff surmounting the steep slope just above Jacksonburg. It is 6 feet deep, 3 feet wide, and 4 feet high near the opening, but only 2 feet near the end. Several triangular arrow points, a few chips, and bones were found, and traces of a hearth near the entrance.

Kalarama.—A cave-like rock house occurs at the southern base of a limestone ledge about 20 feet above the road on Joseph Brown's place north of Kalarama. It is 8 feet deep and 10 feet long. Its roof sloping downward toward the inside is 6 feet above the floor along the shelter line but only 1 foot farthest in. The debris under the rock was composed of rich black soil mixed with rocks. Potsherds, both plain and ornamented, lay on the surface. Many more were found under heavy flat rocks to a depth of 2 feet, particularly at the rear, where the roof slants downward. Here traces of a fireplace were shown by charcoal and smoke-stained pebbles. In addition to the pottery, some rejects, chips, and bones came to light. Although scant, the remains under this rock tell us something about the doings of its ancient occupant. They show that he fashioned a few tools, built a fire and prepared his food, which consisted chiefly of deer meat, as indicated by the bones. Although it was a fairly good covert, it may not have attracted many redskins, probably because water does not appear to have been near enough to comply with the aborigine's requirements.

An Indian skull is reported to have been found in a cleft of limestone near the top of the hill southwest of Kalarama by William J Smith, of Belvidere, about 1880.

An Indian cemetery is claimed to be on the hillside 600 feet above mean sea level about $\frac{2}{3}$ miles southwest of Kalarama. The graves were said to have been marked originally by headstones stood on end. On visiting this spot the author was shown one of these composed of red sandstones, which, however, was not in place. As all other headstones had been removed long ago nothing is now known regarding the exact position of the supposed graves.

Ancient charcoal pits may still be distinguished on a site a mile southwest of Kalarama between the road and a small brook.

Walnut Valley.—Human bones, with stone hatchets and other artifacts, have been repeatedly plowed up on the southern slope of a hill about a mile northeast of Walnut Valley. The level fields of Walnut Valley—so-called from the profusion of large walnut trees which grew here previous to 1812, when they were cut down for gun stocks, have afforded many indications of Indian habitation, the largest site being on the north bank of the Kill on the farm of Edward Jones.

Yards Creek.—Only at seven points along the entire course of Yards Creek have traces of the Indian been found. A fishing camp was located near the southern end of Catfish Pond on Kittatinny Mountain.

Tradition holds that there was a prehistoric burying ground on the southernly slope of the mountain east of a creek, but the exact site is hard to find except by those familiar with the region. Each grave is said to be marked by a large flat rock lying in a shallow depression. The author could obtain no evidence to substantiate this tradition, but the fact is here recorded that the residents of that vicinity always refer to the place as the Indian burial ground.

South of the mountain and between its foot and the road there seems to have been a large workshop along the old trail leading to Catfish Pond. Chips, mostly of flint, were found by the author scattered over a considerable area in the woods. Two other sites were noted near the creek at Mount Vernon.

Hainesburg.—Two miles northeast of Hainesburg a rock shelter was located at the base of a high limestone cliff in the woods. It has no well-defined roof, but the face of the cliff overhangs slightly, and forms a shelter barely 3 feet in width. Its length is 15 feet, and it faces southeast. There is no water near at hand. Many potsherds and some bones were exhumed at depths of 1 to 2 feet. (24-42-2-9-7.)

There is a rock shelter about 70 feet above the Paulins Kill on the hill above the depot at the base of a cliff facing north. Nothing was found here but two slate spearheads about 2 inches deep close to the rear wall. The roof projects 5 feet, but the length is only 6 feet. (21-42-5-4-5.)

A small rock house resembling a cave was found a few feet up the face of a limestone cliff west of the milldam at Hainesburg. It has an easterly exposure and its dimensions are: 8 feet wide, 7 feet high at the front but only 3 feet high at the rear, the floor sloping upward, and 12 feet deep.

There were no outward indications of ancient occupancy except smoke-stained walls. The floor was composed of sand and rocks. The excavation yielded some small potsherds—plain and cord-marked—a few flint flakes, deer bones, and unio and turtle shells. Traces of a fireplace were discernible both at the right and left of the entrance. The remains occurred from 3 to 20 inches down. There were none in the portion farthest within. With the Kill only a few steps distant, it was a convenient shelter for the redmen angling in this part of the stream. From the paucity of remains, however, we conclude that it was not often visited. (21-42-5-4-4.)

Mt. Pleasant.—There are two sites a few hundred yards apart on the south bank of Stony Brook called by the Indians Sapakooshen, amid the foothills of Kittatinny Mountain at an altitude of about 720 feet above sea level. Mr. Meshach, the owner of the land, has collected here many implements, among them scores of flint arrow points and a few of jasper.

VICINITY OF GREAT MEADOWS.

The distribution of sites in this region is shown in detail on the map accompanying this report. Only the most significant will be described here.

Jenny Jump Mountain.—There is an Indian cave, called a "Fairy Hole," at the northernmost end of Jenny Jump Mountain, a few hundred yards west of a ravine known as "Shades of Death" (24-4-1-1-18). It lies at the foot of a ledge of gneiss which surmounts a steep rocky slope. Having a southern exposure and a wide unobstructed entrance, the cavern receives a generous amount of fresh air and sunshine. Yet the fact that the nearest water supply appears to be at least 300 yards away seems to have constituted a serious defect, since the archaeological harvest resulting from its exploration was rather poor. The cavern is about 8 feet wide by 12 feet deep, and is 6 feet high in front, but only 2 feet farthest within. Traces of human occupancy were absent on the surface, but digging revealed them at depths of from 2 to 15 inches. Potsherds came to view near the outside to the left. Farther down there were a few flint flakes, some rejects, and one triangular arrow point. Back of a large boulder imbedded deeply in the subsoil near the shelter line, on the left-hand side, charcoal and fire-cracked pebbles indicated a fireplace, within which lay large fragments of pottery and a number of deer bones. The side wall nearby was smoke-stained. Traces of occupation were absent in the inner portion of the cave where the roof is low and on the right-hand side. In view of the few remains left behind we may assume that this shelter was not often visited.

According to local tradition, there was an aboriginal burial place near David's Old Silver Mines about three-quarters of a mile southwest of this shelter site, at an elevation of more than 1,000 feet above mean sea level.

Danville.—Human bones, probably of Indians, have been plowed up along the north bank of Pequest River south of Danville (24-3-9-2-9) and several camp sites were found along the river toward Vienna. Other camp sites occur along the south and west sides of the meadows at Danville and north-westward, as shown on the map.

Vienna.—North of Vienna, within the great curve of the Pequest, is the site of an Indian village of considerable extent. The ground is level, relatively high above the stream, well-drained, and the soil is gravelly loam. Hundreds of arrow points, spear heads and potsherds have been found here along with other objects less common. Large numbers of flakes indicate extensive implement-making. (24-4-4-7-2, 3.)

Directly north on the opposite side of the river is another large camp or village site, partly on the terrace bordering the river and partly on the higher land adjoining. Here, too, many artifacts have been found, including hammer stones, pestles, and axes, besides innumerable flakes. (24-4-4-4-8, 9.)

At a site east of these villages and south of Cat swamp an unusually long and nicely pecked pounder has been found, and also a number of agricultural implements. (24-4-4-8-1.)

Warrenville.—A mile northwest of Warrenville (24-4-2-9-5) a workshop was found east of the swamp near the foot of Panther ledge. There is a large cave-like cleft at the foot of the ledge about 100 yards north of this site which may have been used as a shelter, but it was not explored.

Roe's Island.—Roe's Island is the largest of several which rise above the swampy level of Great Meadows. Scattered relics were formerly found over the island and two well-defined camp sites have been located (24-3-6-5-5; 2-9). The ruins of a rock shelter were found on the east side near the meadow, but owing to the fall of its roof and closure of its entrance, it could not be explored. A large spearhead was found some years ago beneath the debris. (24-3-6-6-1.)

A small camp site occurs on Young's Island, and another on Post's Island.

BEAVER BROOK AND TRIBUTARIES.

Franklin Schoolhouse.—A spacious rock house shaped like an inverted V was discovered amid the cherty limestone ledges south of the Franklin Schoolhouse, between Hope and Johnsonburg. The ledge is locally known as "Black Rock." The shelter is about 20 feet wide and 12 feet deep, faces south, and is formed by a huge slab of rock leaning against the cliff. It is open both front and rear, hence was not a snug camping place, in spite of the fact that water was near at hand. A few flakes and chips, and fresh-water mussel shells were found in the humus near the center, 5 feet from the entrance and an inch below the surface. The shelter was evidently but little used. (21-43-6-8-8.)

Shiloh.—Southeast of Shiloh, high on the western slope of Jenny Jump Mountain, a rock house was located at the entrance of a deep gap across the mountain. It lies at the foot of a gneiss ledge facing the west. A huge rock obstructs the center so only the front was available. Here a few potsherds, bones, and one triangular flint arrow point were exhumed, some near the shelter line, others partly underneath the rock in the center. Here, too, were indications of a fireplace. The shelter was probably not often used, although the entrance to a gap across the mountain to the camps along Great Meadows. (24-3-3-5-7.)

Hope.—About a mile northeast of Hope a small rock shelter was found at the foot of a ledge of cherty limestone overlooking a narrow valley, on George Dill's farm. Its length is 12 feet, its depth 5 feet, and its height is 7 feet in front and 5 feet in the rear. It faces southeast, and is about 200 yards from the brook. Excavation brought to light some chips, two broken arrowheads, a few bones, potsherds, and unio shells. Most of these lay close together, near the shelter line, where the enclosing soil was very black—one of the signs of an ancient hearth. The shelter was probably not much used. (24-3-2-5-7.)

Camp sites were noted south of Hope on both sides of Trout Brook near its mouth, and along Beaver Brook at the millpond and at intervals north to Febletown. On the knoll near the schoolhouse at Hope are two bowl-shaped hollows in the rock, each about 2 feet in diameter, which are supposed to have been used as mortars.

Kerr's Corners.—A small Indian cave called "The Devil's Kitchen" is situated south of Kerr's Corners and about half a mile northeast of Ebenezer on Mrs. Coursen's farm. It is south of the railroad, a small and thickly wooded swamp intervening, at the foot of a limestone ledge. Great masses of fallen rock make access to this cave difficult. Moreover, its presence is not revealed to one below owing to the shape of the ledge which hides it from sight until one stands within a few feet of its entrance. The ledge faces north, but the cave faces east since it is at the side of a large projecting rock.

When first seen its entrance was almost completely closed by a large boulder which had evidently been put there within recent years. On removing this rock a rich black soil was discovered, itself a most promising sign of the former occupation of this spot. However, there were no chips or bones on the surface to show that the Indians had once camped there. It was only after more rocks had been dug out that their former presence was revealed. Every thrust of the trowel then turned up considerable quantities of broken pottery lying for the most part in the cleared space in front of the cave. The excavation extended to a depth of about a foot and a half, where rock bottom was reached, and throughout all this subsoil fragments of pottery came to view.

Most of the pieces were plain but others were either cord-marked or decorated with zigzag lines—the so-called chevron design. Among them were several fragments of pot rims incised along their upper edge. Altogether, more than 200 pieces were recovered, some almost as large as a man's palm, but most of them about the size of a silver dollar. Judging from the varying thickness, design, and color of the clay used, remains of at least a dozen pots were found. Mingled with these were a few bones, mostly of deer, a few birds' bones, and fresh-water mussels. The blackness of the subsoil and the bits of ancient charcoal plainly indicated a large fireplace.

Thus far the exploration had been confined to the space immediately in front of the cave. With all the dirt removed its opening was about 3½ feet high by 4 feet wide. The cave proper was 12 feet deep, 6 feet wide and between 3 and 4 feet high. Two narrow clefts large enough for a fox to crawl through radiated from its rear. Enough light entered from the

outside to make everything visible. The floor was of dirt with a few rock obstructions, but its excavation did not furnish any further traces of former Indian occupation except a foot or two from the opening. Nor was the subsoil discolored by ancient fires such as was the case in the space near the outside. This fact seems to prove that the cave itself, owing to its low height, was not much used unless for sleeping, the savages doing their cooking in front of it.

The total absence of chips and of implements used by men appears to show that this place was used only by the squaws, for if men had occupied it they certainly would have left traces in the form of chips and arrow points. On the other hand, the large quantity of pottery, a product always made by the women, seems to indicate a squaw shelter. (21-43-6-2-4.)

Silver Lake.—Arrowheads, net sinkers, hammer stones, hatchets, and various other objects were formerly abundant on the low flat land at the north end of Silver Lake and east of the brook. The abundance and variety of implements and the area covered indicate the site of a village, or a much frequented camp. (21-43-5-8-6.)

Ebenezer.—There is a small rock shelter about a quarter of a mile southwest of Ebenezer Church near the brow of a limestone ridge on Milton Wildrick's farm. Its length is 15 feet, and its height 4 to 5 feet, but the roof overhangs only 3 feet, so it affords but little protection, and was probably little used although it has a south exposure. A single arrowhead was found about 1½ feet below the surface. (21-43-5-6-2.)

Mt. Herman.—Half a mile south of Mt. Herman, a gravelly knoll on the Larue farm, surrounded on three sides by the swamp and accessible only from the north, known locally as "The Island," seems to have been the site of an important camp or a village, since numerous artifacts of many types have been found here and fresh ones are still being turned up by the plow. No other sites are known in this locality. (24-3-1-4-5.)

Swayze's Mills.—A camp site was located on the brow of the hill east of Swayze's Mills and several large hatchets have been found along the ridge still further east. (24-3-4-1-1.)

There is a tradition that the Indians fought a battle on the meadow lands of Edward Huff, about 1½ miles south of Swayze's Mills, where scores of arrowheads are said to have been found. There is a camp site on the hillside northwest of the meadow. (24-2-6-6-5.)

Beaver Brook.—Thirteen camp or village sites were located along or closely adjoining Beaver Brook between Hope and Sarepta, their exact location being shown on the map, but nothing of importance was learned concerning any one of them.

Jenny Jump Mountain.—An Indian burial place is said to be located on top of the mountain near its southwestern end, at an elevation of about 1,000 feet. The ground is rough and stony but quite level. Scattered over it are about 50 heaps of stones supposed to mark the graves, and large trees have sprung from some of the heaps. Although nothing authentic could be learned regarding the burials, tradition is emphatic in declaring it to be an Indian cemetery. (24-2-9-6-1.)

HIGH BRIDGE AND VICINITY.

Readingsburg (Stone Mill).—There is a small rock shelter at the foot of a gneiss ledge at Readingsburg on the west bank of the river above the bridge. It is about 6 feet in length, and the overhang is 5 feet. A single jasper chip and 31 pieces of pottery were exhumed from 6 inches to 2 feet below the surface, but no fireplace was found. This rock house, and another near Milford, are the only ones found in Hunterdon County. (24-24-4-5-6.)

High Bridge.—A large argillite workshop was located north of High Bridge on the west side of the millpond (24-24-4-8-1), and a much larger one on the west bank of the river not far below the railroad bridge. (24-24-7-1-1.)

The high and rugged country north of High Bridge presented to the Indian few attractions for permanent homes, and the few places which show signs of his occupancy are small and were probably only camps of hunting parties which followed up the streams from the lower country on the south. The few artifacts found are chiefly argillite, indicating that the hunters obtained the raw material for their weapons from the Flemington region, and were probably from the region themselves.

Clinton.—The top of quarry hill in Clinton, 100 feet above the river, seems to have been a favorite camp site since in former years collectors have gathered here a rich harvest of various types of the Indians' handiwork. (24-23-9-8-8.)

An Indian grave is said to have been unearthed about 30 years ago in building the store of Hall & Son in Clinton, but inasmuch as a flintlock gun was found in the grave with the bones, the remains were of no great antiquity.

Pattenburg.—West of Clinton there are a few sites along Mulhockaway Creek, which seems to have been formerly known as Munselonghaway Creek according to the inscription "Munselonghaway, 1836," cut on a stone which once formed the keystone of a culvert south of Pattenburg. This stone has been placed at the big spring in the Bellwood picnic grounds, west of Pattenburg. There is a group of three sites about a mile east of Pattenburg, one north and two south of the railroad. At one of these, on Floyd Dalrymple's farm, between the forks of a brook, a stone ring an inch in diameter, a pounder, tomahawk, scores of argillite points, and a few of flint and jasper, have been picked up.

NEW GERMANTOWN AND VICINITY.

As previously noted (p. 23), this region was much frequented by the aborigines, 59 sites having been located here, most of them being along Cold Brook or at the sources of its tributary waterways. A site of considerable size lies east of Silver Hill on the W. C. Melick farm, where several hundred arrowheads and other articles of Indian origin have been found within recent years. Near the source of Cold Brook, on John Rinehart's farm, the surface was littered with thousands of chips—testimony of the Indian industry. Numerous relics have been found by John W. Vroom on his

farm on the west bank of Cold Brook not far from its mouth. A mile and a half north of New Germantown an important camp site was found on Samuel Clark's farm on the west bank of Cold Brook. Thorough inspection showed that practically all the tools made at this camp were of argillite. Mr. Clark has a finely worked stone hatchet found here, and many other objects of ancient origin.

FLEMINGTON AND VICINITY.

Flemington.—Except towards Reaville, the region around Flemington is thickly dotted with signs of Indian habitation, so this area seems to have been one of the most important centers of population. This was probably due in part to an abundant supply of raw material for stone implements in proximity to the waterway and fishing ground afforded by the South Branch of the Raritan. Ledges and boulders of argillite occur abundantly along the streams, which have cut deep valleys in the edge of the tableland west of Flemington. Ancient workshop sites strewn with chips and rejects are particularly numerous along Mine (Walnut) Brook as far as Klinessville. It is highly probable that partly-shaped implements from these "quarries" were carried in large numbers to distant camps and villages for finishing. The distribution of the sites which have been recognized is shown on the map, but a few deserve particular mention.

Fifteen sites occur near the springs and along the brooks immediately north of Flemington, while on Bonnell Street in the Borough an Indian chief named Tuccarmirgen is reported to have been buried about 1800.

South Branch of Raritan River.—An almost continuous line of camps and villages mark the south bank of the river between. Three Bridges and Flemington Junction, the longest lying between the Flemington Branch of the Lehigh Valley Railroad and the South Branch Railroad. The abundance of chips and flakes at most of these sites shows that the finishing of their implements here was an important industry.

Mt. Carmel.—Twelve sites were located along and near the creek flowing from Cherryville to the South Branch, most of them east of Mt. Carmel. At one (24-34-8-7-8) a remarkably fine collection of triangular points was found.

Minneacong Brook.—Every acre along this little stream is pregnant with the telltale marks of primeval activity. Seven sites are known along its one-mile course on which pitted hammers are still abundant. From these fields Mr. H. E. Deats has secured a large part of his collection.

Stanton Station.—About ten sites have been noted close to Stanton Station, 5 west of the river, the others on its east bank near the mouth of Prescott Brook. There was a larger workshop south of the station on low ground on the west bank near a big spring.

Mine Brook.—For 3 miles along the upper course of Mine Brook (called Walnut Brook on the State map) enormous quantities of chips and many unfinished or rejected blades of argillite indicate the former existence of an industry both intense and long continued. Here were the so-called Indian quarries to which the redman came probably from, a relatively wide area to obtain the raw material for his stone implements. Here in the bed of the

brook he found a brittle, smoothly-breaking argillite, both in ledges and in boulders broken by Nature for his use. The fields, too, afforded countless fragments of the same easily-worked material. Here he shaped out roughly his arrow point, his spearhead, his axe, or his hoe. Here in many cases he doubtless made the finished tool, but much of the final work was done at his other camps. Unquestionably, many blocks were partly shaped out when flaws developed and the half-finished tool was thrown aside. This is probably the meaning of the large number of unfinished blades found at these sites, for it can hardly be supposed that the Indian was so careless as to lose or throw aside deliberately so much good material on which he had expended considerable labor. On these quarry sites there is an almost total absence of chips of flint and jasper—raw materials not found nearby.

The northernmost workshop was the largest and probably the most important. It bordered the brook on the east for a mile or more from its source. There was another on the west bank just north of the intersection of the Klinsville and Croton roads. A third, much smaller, occupied the Shantung meadow just west of Flemington.

Neshanic River.—There is a group of sites near the source of the Neshanic River, 2 miles south of Croton, and an important settlement, called Neshanic, in the sharp bend of the river north of Copper Hill. The region a mile west of Copper Hill was anciently known as Paatquacktung, a name which has been preserved in an ancient deed conveying land to the whites.

JOHNSONBURG AND VICINITY.

Twenty-nine sites were located in the vicinity of Johnsonburg, the most significant of which are here described. The others are shown on the map and listed on pp.

Johnsonburg.—A rock shelter lies at the base of a limestone ledge north of the road high up the southern slope of a wooded hill about midway between Johnsonburg and Quaker Church. It faces southeast and affords sufficient shelter from wind and rain, but the nearest water seems to have been a spring 300 yards distant at the foot of the hill. Although minute search established the fact that the aborigines had camped under it, it does not seem to have been long or frequently inhabited, perhaps because of its distance from water. Small pieces of pottery were on the surface, especially in the left-hand portion near its front. On digging more potsherds came to light, mostly at a depth of from 3 to 5 inches, but some at a maximum of 12 inches. Mingled with them there were a few bones and a score of flint chips. The right-hand portion appeared to be devoid of traces, nor were there any indications near the rear wall where the roof was only a foot above the floor. The remains occurred only in the fore part of the shelter, where the roof was high enough to permit one to stand up. An ancient hearth at and even beyond the shelter line was indicated by a patch of black soil about 2 feet square which contained charcoal and fire-fractured pebbles. Here, also, lay most of the bones and potsherds. This fireplace had the shape of a pit about a foot deep and it was clearly distinguishable from the yellow soil all about. (21-44-5-5-1.)

Another large rock house close by at the foot of the same ledge contained no traces of former occupation.

Indian Hollow.—Half a mile west of Johnsonburg, there is a rock house amid limestone ledges in a locality called Indian Hollow. It is a small shelter at the foot of a ledge facing north, with a swale near by. It is about 10 feet long, 7 feet deep, and its roof is 8 feet above the floor at the front but very low in the rear. A large mass of rock lying in the center of the shelter could not but detract from its usefulness.

Underneath a layer of humus covering most of the forward portion there was rich black soil suggestive of fires, but without any sign of aboriginal occupation on its surface. Chips and broken pieces of pottery were first turned up at a depth of 2 inches and more, and some chips and bones occurred as deep as 20 inches. Most of the pottery lay in the upper stratum, most of the bones in the lower. There were also a few rejects or unfinished arrow points. What seemed to have been an ancient fireplace lay between the shelter line and the boulder above referred to. Its debris contained traces of charcoal and some fire-fractured stones. Most of the potsherds and bones were dug up here along with a few mussel shells.

Between the boulder and the rear wall where the shelter was only from 2 to 4 feet high, there was a deposit of yellow soil which gave no indications of fire. Here, however, several potsherds were lying on or near the surface, bleached and weatherworn from exposure to the air. (21-44-4-2-1, 4.)

There was a large site or village on the level field south of the brook on Ramsey's farm. Hundreds of artifacts have been collected here ever since it was brought under cultivation. Numerous chips littering the field testify to the industry of the Indian in his manufacture of tools. The gravelly loam of the field was easy of cultivation. (21-44-1-9-7.)

Two human skeletons, probably Indian, were found in digging the foundations for a barn three-quarters of a mile southeast of Johnsonburg, east of Bear Creek, and north of the road to Quaker Church. There is a likelihood that other skeletal remains are near here. (21-44-4-3-9.)

Southtown.—A few chips and, potsherds were found in a small stone cave called Wolf Den or Waterfield Cave, in the woods a quarter of a mile north of Southtown. It is 12 feet deep, 6 feet wide, and barely 4 feet high. A narrow passage about 12 feet long connects it with another cavern the entrance to which is now almost completely closed by a large mass of fallen rock. The floor was heavy black soil mixed with stones and more than a foot thick. No human remains appeared on the surface, but potsherds and chips were found an inch or two down; others lay under a large boulder. All were near the front of the cave. No fireplace could be clearly discerned. (21-44-4-7-5)

Yellow Frame Church.—Four camp sites were found on the broad hilltop south of Yellow Frame Church, and scattered relics occur in the adjoining fields. These sites differ from most of those located in that they are on the upland and not in the valley, and are not near a brook.

Big Woods.—Midway between Huntsville and Johnsonburg is a rocky, densely-wooded tract locally known as Big Woods. Numerous limestone ledges, jagged and irregular in outline, with projecting roofs, afforded abundant hiding places for wild animals, and shelter for the hunter. A score of

overhanging rocks were noted, where the redman might have camped, but only one was explored with care. This is a little more than half a mile south of the Yellow Frame Church, on the southeastern slope of a hill at the foot of a long cliff. Similar ledges occur on the hillside above and below. Me shelter is about 16 feet long, 12 feet deep, and 8 feet high in front but very low within. Springy ground nearby affords sufficient water at probably any season of the year. No traces of human occupancy appeared on the surface, but a few thrusts of a trowel brought to light chips and small potsherds in the top layer of dirt near the shelter line. Other fragments were found at greater depths and still others under one of the large rocks which obstructed the floor. At one point there were signs of a hearth several inches below the surface where the soil was darker and was mixed with fire-stained pebbles. The writer's excavation extended only to a depth of 6 inches, and was limited to the right-hand portion near the front. Enough was found to prove that the shelter had been used by the aborigines (22-44-2-5-1.)

MUSCONETCONG VALLEY.

Forty-nine sites have been located along this valley, most of them on the banks of the river but a few at a distance from it. Their exact location is shown on the map and given in the table on p. 76. There is little to be said regarding any one of these beyond calling attention to its existence and location. One fact may be worthy of note. Although the underlying rock is limestone, and no argillite occurs in this region, argillite chips are very abundant on several sites, notably in the bend of the river northwest of Junction (24-23-1-6-8), and at several others nearer Asbury. It is also worth noting that from Junction southeast there is an easy route through Musconetcong Mountain, now followed by the highway and railroad, which gave access to the lower country and camp sites near Clinton and High Bridge, thence to the open valley of South Branch and so to the argillite quarries near Flemington about 15 miles distant from the Musconetcong.

New Hampton.—There was formerly a limestone cave on the west bank of the river near Supplee's Mills, but within recent years it has been filled with rock and almost obliterated. It is said to have been of considerable size, where many chipped stone implements were found. (23-23-1-6-6.)

Warren Paper Mills.—There is a camp site at the Warren Paper Mills on the flood plain on the west bank of the river (24-31-2-3-3), and on Musconetcong Mountain one was found a mile east by south of this place, on the McCollough farm (24-31-3-2-7). A prehistoric burial ground is claimed to be situated on a sloping sandy field high on the mountain a mile southeast of the Mills, south of the road to Spring Mills (24-31-3-4-6). Petroglyphs (figures carved on rock) are reported as occurring in this vicinity, but were not seen by the writer.

POHATCONG VALLEY SITES.

Relatively few sites have been located in this valley or on the slopes of the adjoining mountains. There are four along the creek north of Mt. Bethel near its headwaters and three near Karrville, and one opposite Stew-

art's Gap. Here was found a fine stone mortar, now in the possession of Mr. Geo. M. Borton, of Bridgeville. Other camps were situated near Port Colden, Washington, Pleasant Valley, Broadway, New Village, and Willow Grove. A deposit of human bones was found near Vulcanite in blasting along the Lehigh Valley Railroad three-quarters of a mile north of Pohatcong Creek (24-21-8-2-8).

PEQUEST VALLEY SITES.

Many of the sites in the Pequest Valley have already been noted under the heading of "Great Meadows." Those between Townsbury and Bridgeville are considered here. There are eleven places in a distance of 6 miles along the river where the redman lived more or less continuously, and nine other places at some distance from the stream. Two of the latter are a mile south of the river on the hillside at the northern entrance to Stewart's Gap. Many jasper flakes were noted on a site north of the river and near the wagon-bridge at Pequest Furnace (24-13-1-3-6).

Pequest River.—There was a village midway between Townsbury and Pequest Furnace on a low ridge just west of the railroad bridge (24-3-8-8-1). Specimens of Indian handiwork were once abundant here and numerous chips of flint and chert even now strew the fields, showing that many tools were made here, the raw materials being probably obtained from an Indian "quarry" located a few hundred yards west of the village on the lower slope of Mount Mohepinoke. Here there is a great outcrop of workable flint and chert, and formerly rough blocks together with "rejects" and broken points were scattered all along the ledge. It seems evident that here the Indians were wont to quarry the raw material from the bed rock and were not content merely with fragments broken off by nature (24-3-8-7-6).

About half a mile southwest of the village and 700 yards from the river a rock house was found. Here there is a high gneiss ledge at the foot of which there is a small spring and a short distance away a shelter 12 feet long, 5 feet deep, with roof about 7 feet above the floor. The left-hand portion where the floor was level and covered with a thin layer of vegetable mold was excavated; the right-hand portion, less even, was not.

Beneath the mold was black top soil but no traces of human occupancy. Potsherds were exhumed at depths from 1 to 12 inches—more near the top than the bottom. Bones, mussel shells, chips and broken points were mingled with them and were also more common near the top. Bits of charcoal and fire-fractured stones by their wide distribution indicated a succession of fireplaces all the way from the back wall to beyond the shelter line, probably built at different times. This suggests repeated occupation of this shelter (24-3-8-7-8).

High Rock Mountain.—Three-quarters of a mile southeast of Green's Pond (Mountain Lake) a rock house was located on the eastern slope of the mountain at the base of a westward facing ledge in a ravine. Structurally, the shelter is an admirable one, but a near water supply is lacking, and although only a part of it was explored the paucity of remains found indicated that it had not been much occupied. The shelter is 12 feet in

depth, with 7 feet front; its height is 8 feet near the shelter line but only 5 feet in the rear owing to the rise of the floor. Only the left-hand portion near the shelter line where the floor was level and free from rocks was examined.

Black soil was found beneath an accumulation of vegetable mold, but there were no Indian relics on the surface. A few broken bits of pottery were found at a depth of 4 inches, and at 8 inches more potsherds, with a few unio shells and flint and jasper chips. Several fire-stained rocks within this area pointed to an ancient hearth, but the usual accompaniment of bones was absent. It is probable that the shelter was occupied only by an occasional hunting party, and that only rarely. (24-3-7-6-5.)

About 1880 a cache or hoard of 12 axes, some arrowheads, and a human skull were found at a depth of 2 feet in an excavation for foundations of a barn on George Wildrick's farm about three-quarters of a mile south of the rock shelter just described. These are now in the collection of Dr. Hoagland, of Oxford Furnace. (24-3-7-9-4.)

Bridgeville.—The fields on George M. Broton's farm south of the Pequest at Bridgeville have yielded a large number of prehistoric objects, including arrowheads, hammerstones, hoes, axes, and a ceremonial stone made of steatite. (24-2-9-7-7.)

A rock shelter is said to lie in Hixson's woods, back of the creamery at Bridgeville, but it was not explored. Near by there is a series of steps called the "Indian staircase," that forms part of a path along the edge of the cliff.

One and a half miles west of Bridgeville there is a village site covering several acres on the north bank of the Pequest at the mouth of Beaver Brook. Innumerable arrowheads, pitted hand hammers, tomahawks, celts, and banner stones have been gathered from these fields. The large number of chips and flakes show that the manufacture, or at least the finishing of stone implements, was actually prosecuted on this site. From this site there were unquestionably divergent and much-traveled trails—one to the numerous camps along Beaver Brook towards Hope and Johnsonburg, the other to those along Pequest River and around Great Meadows. Moreover, the great thoroughfare along the Delaware lay only one mile to the west. The multiplicity and variety of the remains noted here indicates prolonged occupation, and the well-drained fields and soil of stony loam lent themselves to the crude methods of agriculture of the redman. (24-2-8-8-1.)

Green's Pond.—The level fields at the southern end of Green's Pond (Mountain Lake) has for years yielded many types of stone tools to collectors. Most of the arrowheads seen from this site are of flint, a few of jasper. The great profusion of flakes which still litter the fields points to more or less frequent occupancy and much making of weapons and tools. Jenny Jump Mountain on the northwest would tend to shelter it from the northerly winds so that perhaps it was a winter quarters. (24-3-7-4-3.)

Several other camp sites were found east of the pond and near its northern end.

NORTH BRANCH OF ROCKAWAY CREEK.

In the mountainous region north of Mountainville, seventeen places have been found along the tributaries of Rockaway Creek which the Indians had occupied. Two of them at the forks of the brook a mile southwest of Farmersville were of considerable size and, as evidenced by the chips and flakes which still litter the fields, were workshops (24-24-3-4-9, 24-24-3-5-7). It seems probable that these sites were headquarters for the parties which penetrated to these mountainous districts from the neighboring valleys, the other sites being all small and probably only camps of hunters. Since all are located along the brooks, the conclusion is warranted that the Indians followed up the stream courses and camped along their banks in penetrating this region.

The proportion of argillite to flint and jasper on these sites was about 10 to 1, although the argillite is not the country rock. The hunters frequenting this territory evidently secured the raw material for their weapons from the region further south, probably the argillite quarries near Flemington. No pottery was noted on any of these sites, its absence being further evidence in favor of the view that this region was visited by hunting parties and had no permanent inhabitants.

East of the Highland border sites are numerous along and near North Branch of Rockaway Creek. Although the writer found here none of the better class of specimens, such as tomahawks, hatchets and celts, he was told that they had been picked up in former years. Even mortars, usually consisting of boulders hollowed out on top, have been discovered here and there, and indicate places where the savages pounded their corn.

A flint quarry and workshop was located near the creek on Garret Stryker's farm north of White House Station. Here the ground is covered with innumerable chunks of flint, some of them, rudely broken by the hand of man. Nodules of red and yellow jasper mingle with the flint. Some broken arrow points were picked up after careful search (24-35-1-3-6). Directly southwest of this "quarry" on a high and level field west of the railroad, abundant traces indicating a camp site and workshop were observed, as if this was the spot where the Indian worked up the material obtained at the quarry. (24-35-1-5-1.)

SOUTH BRANCH OF ROCKAWAY CREEK.

The most important settlement in this vicinity appears to have been situated on the farm of Linden Swackhamer near East Whitehouse. It lay on a high bank south of the creek. Among the hundreds of specimens gathered there, was a beautifully finished banner stone made of hornblende. Most of the artifacts were made of argillite. While the early occupants of this camp may, not have lingered there permanently, it is quite certain that they often resorted to it.

Many traces of former Indian occupancy were noted along the banks of the South Branch, between White House and Lebanon. There is a workshop site south of the tracks of the Central Railroad of New Jersey, and

about a mile west of White House. A little to the west of it there is a camp site of some size on a ridge near the source of a small brook flowing into the creek (24-35-1-4-2). About 2 miles west by north of White House on a high bank south of the creek there were abundant flakes, large chunks of jasper and flint, and some broken arrow points (24-34-3-3-2). This spot was also a workshop and probably a fishing place as it is situated near the banks of the creek. Another workshop lay on the north bank of the creek about 1¼ miles northwest of White House Station (24-35-1-2-3). The surface soil in all places mentioned is red shale loam. Other sites are shown on the map.

CHAMBERS BROOK.

At the seven sites located along this brook and its tributaries argillite implements predominate, those of jasper and flint being less than 100 per cent. of those noted. At a large camp on the farm of Alvah L. Pickell, south of White House Station (24-35-1-9-6), a paint bowl, hammer and a score of arrowheads—mostly argillite—have been found. The other sites presented nothing noteworthy, but their location is shown on the map.

MINOR TRIBUTARIES OF DELAWARE RIVER.

Hakihokake Creek.—An Indian name of this creek is said to have been Queequawkomisikunk. Several camp sites were found near the headwaters of its tributaries west of Little York and near Spring Mills (see map). There is a rock shelter on its east bank about half a mile north of the center of Milford, at the foot of an overhanging ledge of red shale. It is 15 feet long and 6 feet deep. There were traces of an old hearth in the left-hand corner, and excavation of the floor brought to light potsherds, argillite and flint chips, and a few shells, at depths from 6 to 15 inches. (24-32-4-7-2.)

Nishisakawick Creek.—There are three sites along this creek south of Everittstown, the largest of which lies on N. R. Shuster's farm, on high level ground in a sharp bend of the stream. Several mortars and pestles have been found there, together with artifacts of the common type. A cave nearby, now much broken down, may have been used by the Indians, as it is remembered to have been in better condition not many years ago. (24-32-9-1-7.)

Locketong Creek.—There is the site of a large settlement on Dr. Woolverton's farm near the source of Locketong Creek southwest of Quakertown. Many chips and roughly-worked blades and rejects, mostly of argillite, plainly indicate a prehistoric workshop. On this site there were also found a number of large mortars. Two large springs near at hand furnish abundant water (24-33-8-5-1). There was also a smaller camp on the opposite side of the brook.

Just north of Kingwood and below the junction of Locketong Creek and Mud Run there is a large argillite workshop covering several acres. (24-42-6-8-1.)

Alexsauken Creek.—There is abundant evidence of aboriginal activity both along this creek and on some of its tributaries. A burial place occurs on a

knoll midway between Ringoes and Mount Airy south of the junction of the road from Rocktown and the Ringoes-Lambertville road (27-4-4-8-2). There was a workshop about half a mile northeast of Alessauken station between the railroad and highway. Here the ground was strewn with hundreds of pieces of argillite, most of them crudely broken as though in the first stage of implement-making. (27-3-8-3-8.)

LIST OF SITES.

In the following pages there are listed all places where traces of Indian occupancy have been observed. The system of location is that adopted by field workers in the Division of Geology, by which combinations of numbers are used to indicate the exact location of any spot upon the atlas sheets of New Jersey, published under the direction of the State Geologist. This system was described in Bulletin 6 of the Geological Survey, and in brief is as follows:

1	2	3	4	5
1 1	1 2	1 3	1 4	1 5
2 1	2 2	2 3	2 4	2 5
3 1	3 2	3 3	3 4	3 5
4 1	4 2	4 3	4 4	4 5

Fig. 1.

The one-inch per mile topographic atlas sheets of the State are used as a basis. On each sheet the parallels of latitude and longitude are engraved at intervals of two minutes, thus dividing the sheet into rectangles. Beginning in the upper left-hand cor-

ner of each sheet, an area measuring six minutes of longitude by six minutes of latitude, and including nine of the two-minute rectangles, is numbered 1. The next group of nine to the east is numbered 2, the next 3, the next 4, and on the right of the map the remaining portion, measuring two minutes of longitude by six of latitude and comprising three of the two-minute rectangles, is numbered 5.

Beginning at the left, the first group of nine in the second tier, under 1, is numbered 11, the next to the east 12, the next 13, etc. The third tier is numbered 21 to 25 from left to right, the next 31 to 35, and at the bottom of the map an incomplete tier, of six rectangles each, is numbered 41 to 45. Fig. 1.

Each of the two-minute rectangles in the group of nine is numbered from 1 to 9, as shown in Fig. 2. Each is also divided into nine subdivisions, and each of these subdivisions is still further divided into nine parts, all similarly numbered. Fig. 2.

An example of the application of this system may be given. A camp site is located at 21-33-1-8-1. The first figure, 21, refers to atlas sheet No. 21, which embraces the extreme northwestern part of the State. The figure 33 refers to the fourth tier of six-minute rectangles, and the third from the left (Fig. 1). The

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7			8	9									

Fig. 2.

figure 1 indicates the two-minute rectangle in the upper left-hand corner of the group (Fig. 2). The figure 8 is the middle subdivision in the bottom row, and the last figure, 1, refers to the smallest division in the upper left-hand corner of that subdivision.

This system is most conveniently applied by ruling on transparent tracing linen or celluloid the outline of a six-minute rectangle and its subdivisions. The boundaries of the six-minute are ruled in red on an atlas sheet and the areas numbered. By placing the transparent, ruled guide on the map the location number of any point can be read off with ease, or the location corresponding to any number can be determined.

In the following list numbers included in brackets refer to large sites extending beyond the boundary of a single area. The repetition of a number indicates the existence of two or more sites in a single area.

DELAWARE VALLEY.	21-32-8-2-5,6	24-2-4-3-6
	21-32-8-7-8	24-2-5-1-9
Calno:	21-32-7-5-7, 8	24-2-4-3-5,8,9
21-33-1-8-1	Buckwood Park:	24-2-4-6-3
21-33-1-7-3	21-31-9-9-5,6	Ramseysburg:
21-33-1-7-2, 5	Karamac:	24-2-5-4-5,8,9
21-33-1-7-4,7	21-41-3-1-5, 8	Manunka Chunk:
21-32-3-9-9	21-41-3-1-8, 9	24-2-5-8-4,5,8
21-32-6-3-2	Delaware Water Gap:	24-2-5-9-2
21-32-6-3-4	21-41-3-4-1	24-2-5-9-2
21-32-6-2-6	21-41-3-4-4	24-2-5-9-5
21-32-6-2-8	21-41-2-9-3	24-2-8-2-4
21-32-6-5-2,5	21-41-3-7-4	24-2-8-4-5
21-33-4-2-1	Dunnfield:	24-2-8-4-6
21-33-4-1-3,6	21-41-3-7-4,5	Belvidere:
21-33-4-1-2	21-41-3-7-4,5	24-12-1-2-1
21-33-4-2-4	21-41-3-7-5,6	24-12-1-2-2,3,5,6
21-33-4-1-5	21-41-3-8-4	24-12-1-5-4
21-32-6-3-8,9	Browning:	24-11-6-3-6
21-32-6-3-9	21-41-6-2-4	Buckhorn Creek:
21-33-1-7-7	21-41-6-2-8	24-12-4-2-3,6
21-32-6-6-2,3	21-41-6-5-2,5	24-12-4-2-3
21-32-6-6-7	21-41-6-5-6	24-12-4-2-5
21-32-6-5-8	Decker's Perry:	24-11-6-6-7,8
21-32-6-5-9	21-41-6-6-7,8	24-11-6-8-4
21-32-6-8-2,3	21-41-6-9-2	24-11-6-7-7
Poxino Island:	Stony Brook:	Roxburg Station:
21-32-6-7-5,6	21-41-6-9-2	24-11-6-4-6
21-32-6-7-7	Columbia:	24-11-6-5-1, 4
Millbrook:	24-2-1-1-1,4,5,8,9,6	24-11-5-9-6
21-33-1-9-3	24-2-1-2-4	24-11-7-8-4
21-33-1-9-4	24-2-1-5-1	24-11-6-7-1
Dimmick's Ferry:	24-2-1-6-7,8	24-11-5-8-6,9
21-32-5-9-9	24-2-1-9-2	24-11-4-9-2
Shoemaker's Ferry:	Delaware:	24-11-7-3-1
21-32-8-3-2	24-2-1-9-7	24-11-7-3-8
21-32-8-3-1,4	24-2-4-3-3	24-11-7-4-2,5

24-11-7-4-4,5	Byram:	21-43-2-4-8
24-11-7-7-2,3	{ 27-2-5-4-2,3,6 }	21-43-2-7-2
24-11-7-8-4	{ 27-2-5-5-4 }	Blairstown:
24-11-7-8-8	27-2-5-5-5	21-43-2-5-7
North of Phillipsburg:	27-2-5-6-4	21-43-2-5-4
24-21-1-5-2	Raven Rock:	21-43-2-4-6
24-21-1-5-1,4	27-2-5-9-3	21-43-2-4-8
24-21-1-7-2,5	Lockatong Creek:	21-43-2-4-7
24-21-1-7-4,7	{ 27-2-6-8-3 }	21-43-2-4-8
Phillipsburg:	{ 27-2-6-9-1,2 }	21-43-2-4-4
24-21-1-7-7	Stockton:	21-43-1-6-6
24-21-4-1-1,4	27-3-4-9-7,8	21-43-2-4-1
24-21-4-5-4,5	{ 27-3-4-9-9 }	21-43-1-3-9
24-21-4-5-8	{ 27-3-7-3-3 }	21-43-1-6-6,9
Shimer's Corner:	Lambertville:	21-43-1-6-5
24-21-5-7-3	27-3-8-9-8,9	Sand Pond:
24-21-4-9-1,2,3	27-3-8-4-3,6	21-33-5-2-5
Carpentersville:	27-3-8-5-4,5,8	21-33-7-7-5
24-21-7-4-2,5,8,4,7	27-3-8-5-4,7	21-43-1-2-1
Clifford's Island to Mt. Joy:	{ 27-3-8-8-3,6,9 }	Jacksonburg Creek:
24-21-7-4-6,9	{ 27-3-8-9-7 }	21-43-1-2-1
24-21-7-8-4	27-13-2-9-5	21-43-1-2-3
24-31-1-2-7	PAULINS KILL VALLEY.	Jacksonburg:
24-31-1-2-5,8		21-43-1-2-8
24-31-1-2-8	Shuster Pond:	21-43-1-6-7
24-31-1-5-1	21-33-9-3-8	21-43-1-8-2, 3
24-31-1-4-4,7	21-33-9-3-9	21-43-1-5-7
24-31-1-7-6	21-33-9-3-9	21-43-1-4-9
24-31-1-8-7	Paulins Kill:	21-43-1-4-8,9
24-31-4-2-1	21-34-7-4-2	21-43-1-4-8
24-31-4-4-6,9	21-34-7-4-7	Cedar Lake:
Holland Station:	21-34-7-7-5	21-43-1-8-5
24-31-7-3-3	{ 21-43-3-4-9 }	21-43-1-9-7
24-31-8-1-2	{ 21-43-3-4-5 }	Kalarama:
24-31-5-7-9	Marksboro:	21-43-1-7-1
24-31-5-8-4,5	21-43-3-3-6	21-43-1-7-2
24-31-5-8-5	21-44-1-1-4,7	21-42-3-9-2,3,5
Spring Garden:	21-43-3-3-4,7	21-43-1-7-7,8
24-31-6-4-8	21-43-3-3-4	21-42-3-9-9
Milford:	21-43-3-5-9	21-42-6-3-6
24-32-4-7-4	White Pond:	21-42-6-3-9
24-32-4-7-7	21-33-9-9-7	Vails:
24-32-7-1-2	21-33-9-8-8	21-42-6-3-1
24-32-7-1-3,6	21-43-3-2-1	21-42-6-2-6
24-32-7-1-6	Paulina:	21-42-6-3-1,4
24-32-7-2-4,5	21-43-2-6-4	West of Jacksonburg:
24-32-7-2-7,8	21-43-2-6-7	21-42-3-5-5,6
24-32-7-5-3,6	21-43-2-6-7	21-43-1-1-9
24-32-7-6-4,7	21-43-2-5-9	21-43-1-1-8
Frenchtown:	Blair's Creek:	21-43-1-4-2
24-32-7-9-3	21-33-5-9-1,2	21-42-3-6-9
24-32-8-7-1,4	21-33-5-8-5,8	21-42-3-5-2
24-42-2-4-1	21-33-5-8-2,3	21-42-3-5-6
24-42-2-4-1,2	21-33-5-4-3	21-42-3-6-6
{ 24-42-2-4-7,8 }	21-43-2-2-3	21-42-3-6-8,9
{ 24-42-2-7-1,2 }	21-43-2-2-2,3	Walnut Valley:
24-42-2-7-8	21-43-2-2-2,5	21-42-3-9-1,2
Kingwood Station:	21-43-2-2-4,7	21-42-3-9-4
24-42-5-4-5	21-43-2-1-9	21-42-3-8-8

21-42-3-7-3	Near Kishpaugh Mine:	Shiloh:
21-42-3-7-8,9	24-3-5-3-8	24-3-3-5-7
21-42-6-2-2	24-3-6-4-4	24-3-3-5-4
21-42-3-8-3	Danville:	24-3-3-4-4
21-42-3-8-5	24-3-6-7-2	Ebenezer:
21-42-3-8-4	24-3-6-8-8	21-43-5-6-2
Vails to Hainesburg:	Pequest River:	21-43-6-4-7
21-42-6-1-5	24-3-9-2-8	21-43-5-6-2
21-42-6-1-4	24-3-6-9-8,9	21-43-5-6-1,4
21-42-5-3-9	24-3-9-2-9	21-43-5-6-1
Catfish Pond:	24-3-9-3-5	Silver Lake:
21-32-6-9-6,9	24-3-9-3-3	21-43-5-8-6
Kittatinny Mountain:	24-4-4-7-7	21-43-5-8-7
21-32-9-3-3,6	Blanket Brook:	Cook's Pond
21-33-7-1-4,7	24-4-7-4-8	21-43-5-2-8
Yard's Creek:	24-4-7-5-7	21-43-5-4-5,8
21-42-3-1-2	24-4-7-5-1,4	Febletown:
21-42-2-3-6	24-4-7-5-1	21-43-4-9-7,8
Northeast of Haines-	24-4-7-2-8	24-3-1-3-3
burg:	24-3-9-3-9	24-3-2-1-6,9
21-42-2-9-7	Vienna:	
Hainesburg:	24-4-4-7-2,3	Hope:
21-42-5-4-3	24-4-4-4-8,9	24-3-2-5-5
21-42-5-4-5	24-4-4-8-1	24-3-2-5-7
21-42-5-4-4	Petersburg:	24-3-2-7-1,2
Mount Pleasant:	24-4-4-6-7	24-3-2-7-5
21-42-4-3-1	24-4-4-6-9	24-3-2-4-2
21-42-4-2-6	24-4-4-6-6,9	24-3-2-4-1
Northwest of Haines-	24-4-5-4-5	24-3-2-4-4
burg:	24-4-5-2-9	24-3-2-4-7
21-42-4-3-8	24-4-5-3-7	24-3-2-7-1
Warrington:	East Side of the Mead-	24-3-1-9-4
21-42-4-9-1,2	ows:	24-3-1-8-6
21-42-4-8-9	24-3-6-9-2,3	24-3-1-9-9
24-2-1-3-1	24-3-6-6-8	24-3-2-7-7
24-2-1-2-2	24-4-4-4-2	24-3-4-3-5
	24-4-4-3-6	Mount Herman:
GREAT MEADOWS AND	24-4-5-1-4	21-42-6-9-7,8
VICINITY.	24-4-2-7-5	24-3-1-4-5
	24-4-2-7-3	
West of Long Bridge:	Warrenville:	Swayze's Mill:
24-4-2-3-5,8	24-4-2-9-5	24-2-3-9-8,9
24-4-2-3-8	Roe's Island:	24-3-4-1-1,2
24-4-2-3-7	24-3-6-5-5	24-3-4-1-3
24-4-2-5-1	24-3-6-2-9	24-2-6-6-1
24-4-2-4-5	24-3-6-6-1	24-2-6-6-5,8
24-4-2-4-2	Post's Island:	24-3-4-2-8
24-4-2-1-8,9	24-3-6-3-6	24-3-4-2-9
24-4-2-1-7	24-4-4-1-4	24-3-4-2-6
24-4-1-3-3	Young's Island:	24-3-4-5-4
24-4-1-3-4,5,7,8	24-4-1-9-1	24-3-4-7-3
24-4-1-3-1		24-3-4-7-1,2
24-4-1-5-2	BEAVER BROOK AND	24-2-6-9-2
24-4-1-5-4,5	VICINITY.	Sarepta:
Jenny Jump Mountain:		24-2-9-2-2
24-4-1-1-8	Franklin Schoolhouse:	24-2-9-2-1
24-4-1-1-7,8	21-43-6-8-5	24-2-9-1-6
24-3-3-8-6	21-43-6-8-7	24-2-9-4-2
24-3-3-9-7	21-43-6-8-8	24-2-6-7-8,9
24-3-6-2-1,2	24-3-2-3-3,6	24-2-9-1-2,5

Jenny Jump Mountain: 24-2-9-6-1	NEW GERMANTOWN AND VICINITY.	25-21-7-3-3 25-21-7-3-3,6
HIGH BRIDGE AND VICINITY.	West of Pottersville: 25-21-1-1-7 25-21-1-1-2,3 25-21-1-5-2 25-21-1-2-9	Lamington River: 25-21-8-1-7 25-21-8-7-2,3 25-21-8-7-8 25-31-2-1-3,6
Stone Mill: 24-24-4-5-6 24-24-4-5-9	25-21-1-6-3,6 25-21-1-6-6 25-21-1-6-6,9	Rockaway Creek (North Branch): 25-21-7-1-8 25-21-7-7-6 25-21-7-7-8
North of High Bridge: 24-24-4-8-1,4 24-24-4-7-1,4 24-24-4-7-4 24-24-4-7-7 24-24-4-7-7 24-23-6-9-5 24-23-6-9-8	West of Lamington River: 25-21-5-1-2 25-21-5-1-2,3 25-21-5-1-6,9 25-21-5-1-9	Rockaway Creek: 25-31-1-1-5 25-31-1-3-6 25-31-2-1-5 25-31-2-1-9
West of High Bridge: 24-23-6-8-3 24-23-6-8-3 24-23-6-8-6 24-23-6-9-7 24-23-6-9-8 24-23-9-3-1,2 24-23-9-3-5	Cold Brook: 25-21-1-9-1 25-21-1-8-3 25-21-1-8-8 25-21-4-3-4 25-21-4-2-9 25-21-4-6-1 25-21-4-5-6 { 25-21-4-5-9 } { 25-21-4-6-7 }	FLEMINGTON AND VICINITY.
South of High Bridge: 24-24-7-1-1,4 24-24-7-4-3 24-24-7-1-8 24-24-7-1-4,7 24-23-9-3-8 24-23-9-3-7 24-23-9-3-7 24-23-9-6-1,2 24-23-9-6-3,6 24-23-9-6-4,5 24-23-9-5-6,9 24-23-9-6-7	{ 25-21-4-6-4 } 25-21-4-6-5 25-21-4-9-2 25-21-5-7-4,7 25-21-4-9-5 25-21-4-9-9 Silver Hill: 24-25-4-9-2 24-25-4-9-3,6 24-25-4-9-6 25-21-4-7-4	South Branch of Rari- tan River: 24-34-8-5-4 24-34-8-5-8,9 24-34-8-9-5 24-34-8-9-9 24-44-2-3-5 { 24-44-2-3-5,8,9 } { 24-44-3-4-1 } 24-44-3-6-2,3 24-44-3-6-5 24-44-3-4-4 24-44-3-4-2,3,6 24-44-3-1-8 24-44-3-2-5 24-44-3-5-4 24-44-3-5-5,6 24-44-3-6-4
Spruce Run: 24-23-6-8-2 24-23-6-8-4,7 24-23-6-8-7 24-23-9-1-2,3 24-23-9-1-4 24-23-9-1-9 24-23-9-4-2 24-23-9-5-5	New Germantown: 25-21-4-4-2 25-21-4-4-9 25-21-4-7-3 25-21-4-7-6 25-21-4-8-1 25-21-4-8-1 25-21-4-8-2,5 25-21-4-8-3 25-21-4-8-3,6 25-21-4-8-9	24-44-3-6-6,9 24-45-1-1-8 24-45-1-5-7 Mount Carmel: 24-34-7-2-7 24-34-7-4-6 24-34-7-4-8,9 24-34-7-8-1 24-34-8-4-1 24-34-7-9-2 24-34-7-9-3 24-34-8-7-1 24-34-8-7-4 24-34-8-7-7 24-34-8-7-8 24-34-8-7-7,8
Clinton: 24-23-9-8-2 24-23-9-8-1,2 24-23-9-8-4 24-23-9-8-8 24-23-9-8-9 24-23-9-9-7 24-33-3-2-3,6	South of New German- town: 25-21-7-5-3 25-21-7-6-1 25-21-7-6-4 25-21-7-6-2 25-21-4-9-8	Minneacong Brook: 24-44-2-1-2,3,5 24-44-2-1-6
Mulhockaway Creek: 24-23-9-5-7	25-21-7-3-2 25-21-7-3-3	

24-44-2-2-1,4	27-3-3-8-1,2	MUSCONETCONG VALLEY.
24-44-2-2-4,5	27-3-3-8-2	Saxton Falls:
24-44-2-2-2	27-3-3-6-7	24-5-4-5-5
24-44-2-2-2,3,5,6	27-3-3-9-2	24-4-6-6-7
24-44-2-2-3	27-4-1-7-6	Hackettstown :
Flemington:	{ 27-4-1-5-9 }	24-4-9-7-9
24-44-1-6-5	{ 27-4-1-8-3 }	24-4-9-8-4
24-44-1-6-6	27-4-1-6-7	Beattystown:
24-44-1-6-3,6	27-4-1-6-8	24-14-2-3-6
24-44-2-4-1,4	27-4-1-6-5,6	24-14-2-3-9
24-44-2-4-4	27-4-1-6-3	24-14-2-6-2
24-44-2-4-4,5	27-4-1-6-1	24-14-2-4-9
24-44-2-4-2	27-4-1-3-7	24-14-2-7-3
24-44-2-4-5	24-44-4-9-4	24-14-2-8-4,5
24-44-2-4-7	24-44-4-9-7	24-14-2-7-6,9
24-44-2-4-8	24-44-4-9-6,9	Rockport:
24-44-2-1-7	24-44-5-7-3	24-14-1-6-1
24-44-2-1-7,8		Port Murray:
24-44-2-5-2		24-13-6-2-6
24-44-2-5-5		Penville:
24-44-2-6-1	JOHNSONBURG AND	24-13-6-6-6
24-44-2-7-4	VICINITY.	24-13-6-6-6,9
Mine Brook (Walnut		24-13-6-9-2,3
Brook):	Trout Brook:	24-13-6-9-2
{ 24-34-7-7-3	21-44-5-5-1	24-13-6-9-3
{ 24-34-7-8-4,7,8 }	21-44-4-9-6	24-14-4-7-1
{ 24-44-1-2-1,2,3 }	Bear Creek:	The Point:
24-44-1-2-4	21-44-5-1-4	24-13-9-2-5,6
{ 24-44-1-1-9 }	21-44-4-3-9	24-13-9-2-7
{ 24-44-1-2-7 }	21-44-4-6-4	24-13-9-2-7
{ 24-44-1-4-3,6 }	21-44-4-9-1	24-13-9-2-8
{ 24-44-1-5-1,4 }	Southtown:	Port Colden:
24-44-1-5-6,9	21-44-4-8-4	24-13-8-3-1,4
24-44-1-9-1	21-44-4-7-5	24-13-8-3-1
24-44-1-9-1,4	21-44-4-7-8	Changewater:
24-44-1-9-8	21-43-6-9-9	24-13-8-6-9
South of Flemington:	Yellow Frame Church:	24-13-8-6-8
24-44-4-2-2,5	21-44-2-1-4	New Hampton and Junc-
24-44-4-2-3	21-44-2-1-8	tion:
24-44-5-1-7	21-44-2-1-8,9	24-23-1-6-6
24-44-5-1-8	21-44-2-1-9	24-23-1-6-8,9
Plum Brook:	21-44-2-1-7,8	24-23-1-8-2,5
24-43-3-6-5	21-44-2-4-2	24-23-1-7-9
Second Neshanic River:	21-44-2-5-1	24-23-4-1-2,3
{ 24-43-6-1-6 }	21-44-2-4-6	Asbury:
{ 24-43-6-2-4 }	Kerr's Corners:	24-22-6-3-5,6
24-43-6-2-7	21-43-6-2-4	24-22-6-3-5
{ 24-43-6-2-7 }	21-43-6-3-1	24-22-6-2-4
{ 24-43-6-5-1 }	21-43-6-3-2	Bloomsbury:
24-43-6-2-5,8	21-43-3-9-8	24-22-5-5-7
24-43-6-3-2,3	21-43-3-9-7	24-22-5-8-1,2
24-44-4-1-8	21-43-3-9-5	24-22-5-7-4
24-44-4-1-6	Johnsonburg:	24-22-5-2-2,5
24-44-4-4-1	21-44-1-7-7	24-22-5-4-4,5
24-44-4-5-7	21-44-1-7-5	24-22-5-4-5
24-44-4-5-5	21-44-4-2-1,4	24-22-5-6-7
24-44-4-5-6	21-44-4-2-4	Warren Paper Mills:
24-44-5-4-4,7,8	21-44-1-9-5	24-31-2-3-3
Third Neshanic River:	21-44-1-9-7	Musconetcong Mountain:
27-3-3-8-4,5		

24-31-3-2-7	Northwest of Mount	24-24-3-5-7
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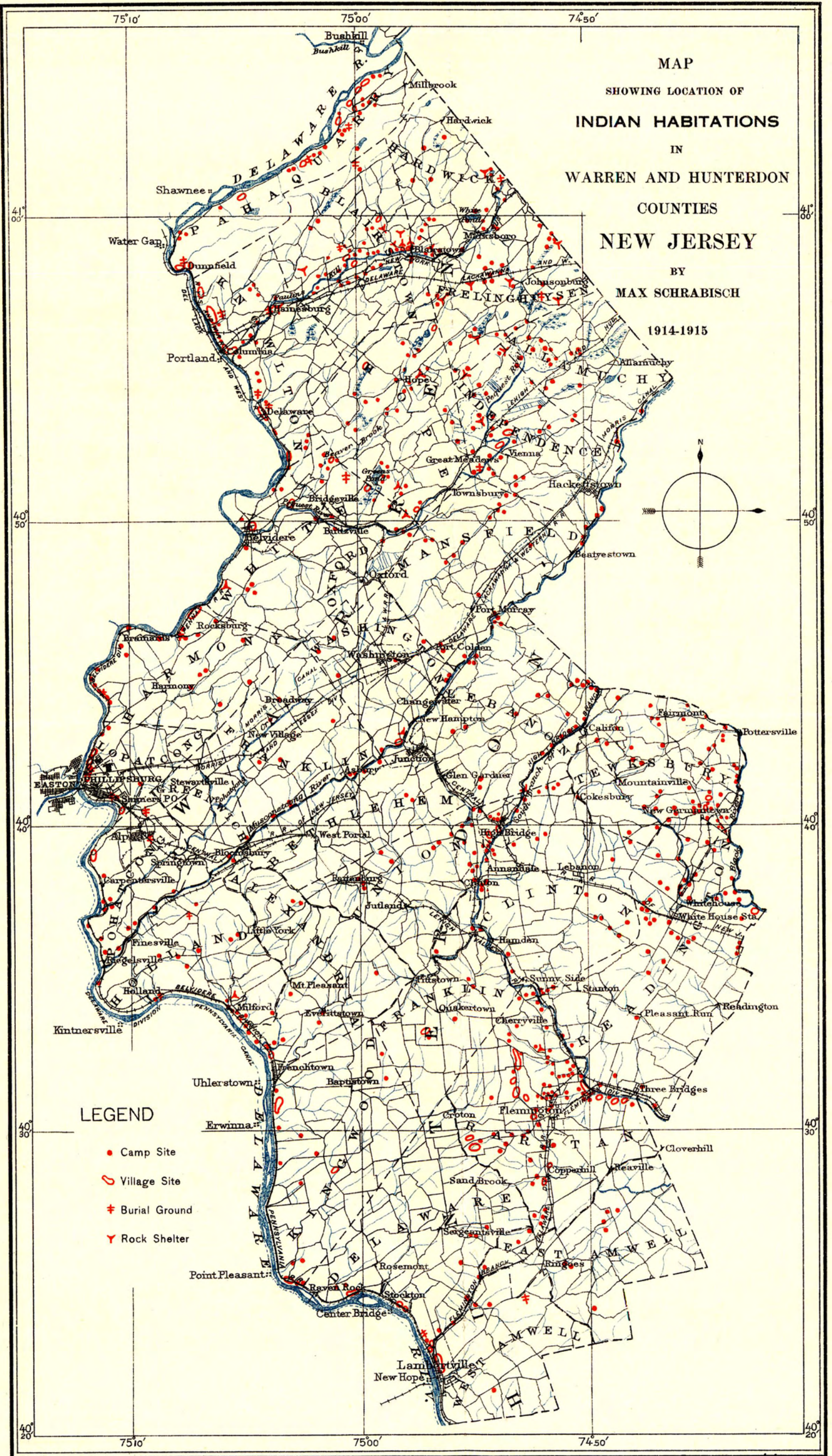
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MAP
 SHOWING LOCATION OF
INDIAN HABITATIONS
 IN
 WARREN AND HUNTERDON
 COUNTIES
NEW JERSEY

BY
MAX SCHRABISCH

1914-1915



LEGEND

- Camp Site
- Village Site
- ✕ Burial Ground
- Y Rock Shelter

SCALE: 1:250 000 (approximately 4 miles to an inch)

Alton & Co. Lith. Baltimore