HISTORY OF CONCORD.

PHYSICAL FEATURES.

Topography, Streams, Ponds, Freshets, Forests, Minerals, Artesian Well, Localities.

Joseph B. Walker.

TOPOGRAPHY.

The township of Concord, which has a length from north to south of about eight miles and a breadth of about seven and three quarters, embracing an area of about thirty-nine thousand acres, forms a section of the Merrimack valley. Its surface, for the most part moderately uneven, slopes inward from its sides to the original flood plain of the river, which divides it into two unequal parts, leaving on its east side a little more than one third, and on the opposite a little less than two thirds, of its whole area.

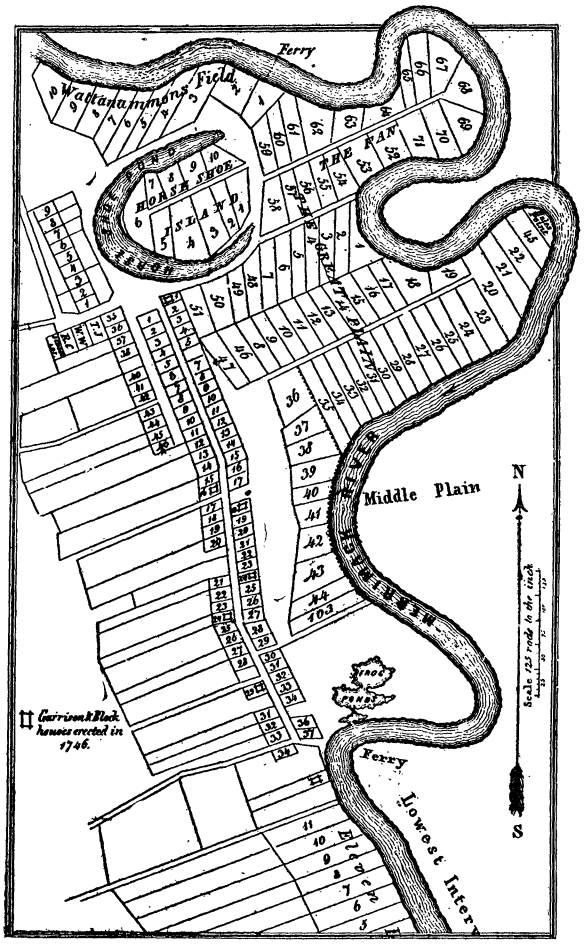
Its highest elevations are found in its northeastern and northwestern sections. Some of these rise to heights of over five hundred feet above the sea level, the highest being the summit of Rattlesnake hill, which the United States Coast Survey has found to have an altitude of seven hundred and eighty-three feet. Inasmuch as the low-water mark of the river is two hundred and twenty-five feet above the ocean, it will be perceived that the city's different elevations above that point vary from its level up to five hundred and fifty-eight feet.

Six considerable basins hold the waters of as many ponds: Great and Little Turkey ponds, having a combined area of two hundred and seventy-four acres, Long pond of three hundred and thirty-nine acres, Little pond of five acres, Horse Shoe pond of fifteen acres, Turtle pond of one hundred and forty-six acres, and Snow's pond of sixty-two acres. The four first mentioned lie in the westerly part of the township and the two last in its easterly section. These, together with the rivers and brooks, afford a water surface of about two thousand acres.

Precisely how, by ice and other eroding forces, the hand of Omnipotence carved into its present form that portion of the earth's crust which lies within the boundaries of Concord, we know but in part. As yet we see through plausible conjecture darkly, and it little becomes one to strain his vision in vain speculations beyond the lim-

its of its present power. Some of the operations of these forces, however, are patent to superficial observation, and of these it may be allowable to speak.

When, in prehistoric time, the great glacier which had filled the Merrimack valley withdrew, it left behind it an extensive plain of modified drift, composed mostly of sand. This, varying greatly in width, extended from north to south through the entire township, occupying an area of nearly nine thousand (8837) acres.



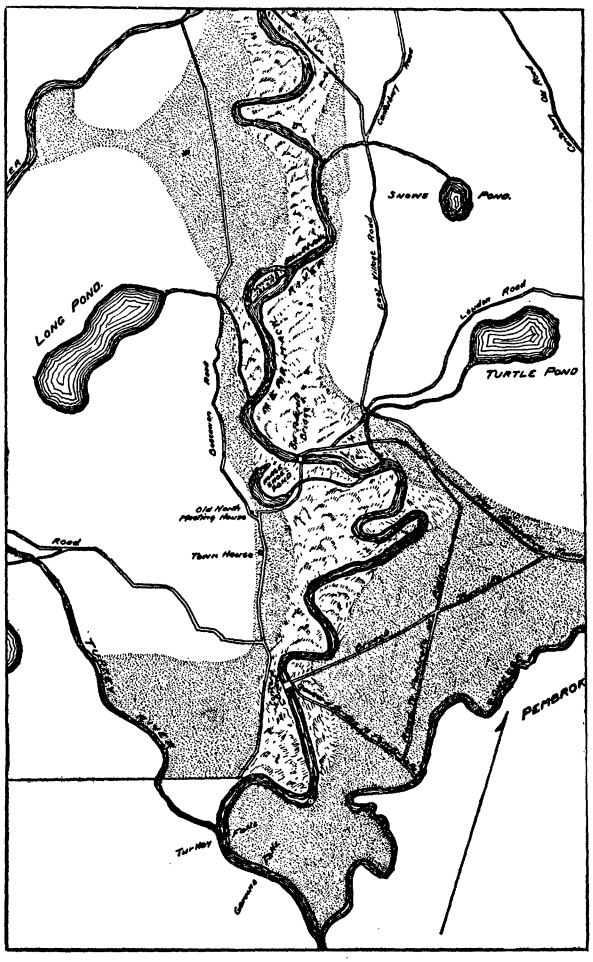
Course of Merrimack River in 1726.

This vast sheet of sand, varying in its thickness from one to one hundred and fifty feet, formed for a time the flood plain of the Merrimack. But such was its composition that the river began at once to deepen its channel and transport its excavations to the lower levels along its course and at its entrance to the sea. Pari passu with this sinking of its bed, the northwest winds swayed laterally its current from east to west, and from west to east, alternately. The action of these forces, operating in combination with gravity, formed in time new flood plains, each succeeding one being lower than its predecessor. Of these, the remains are yet visible in the broad steps which rise above the interval.

This sinking of its bed continued until the river encountered the solid material of the earlier formation, upon which the glacier had spread the expanse of modified drift before mentioned. But, while

the ledges in the former arrested the farther depression of the river's channel, it interfered but slightly, if at all, with its lateral movements. Since then it has been swayed back and forth, as before mentioned.

So serpentine, in time, became the river's course, within the limits of this township, that the Indians affixed to the locality the descriptive name of "Penny Cook," the crooked place. Since its depression ceased, the present interval has been its only flood plain. This varies but little in extent or character of surface, and has an area of about four and a half thousand (4547) acres.



Leavitt's Plan of River's Course in 1804.

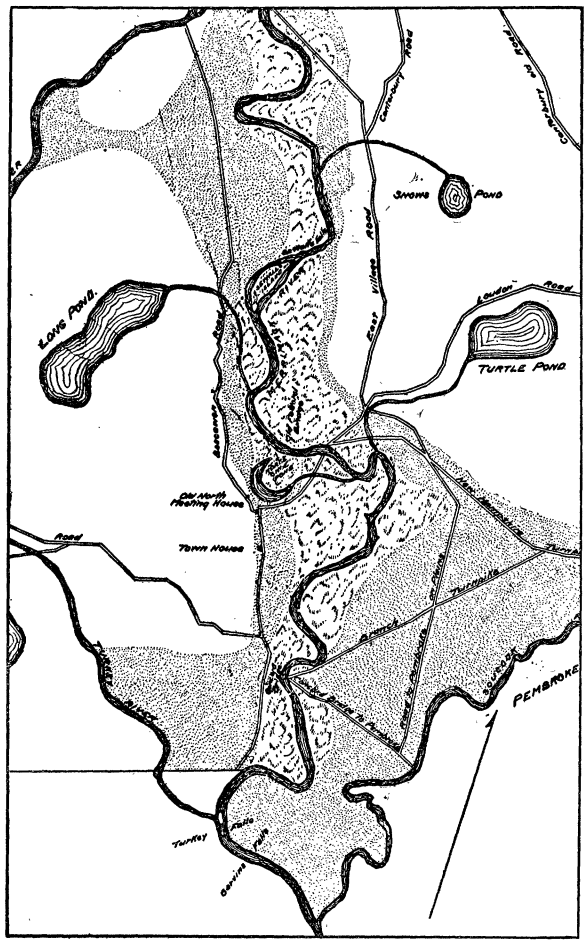
Through this,—"like Bacchus reeling and drunken," the river has staggered on its uncertain way, making six different loops in as many miles, abrading in high water its southerly bank, and, in unsatisfactory compensation therefor, filling with sand such opposite portions of its channel as in this movement it has abandoned. Upon the flats thus formed, willows and other alluvium-loving plants have sprung up, to arrest in flood times the silt suspended in its waters and there precipitate it; thereby raising these low surfaces to elevations corresponding to the general level of the interval.

Many of the wanderings of the river over its most recent flood plain may be easily traced and with an interest always attaching to

indisputable geologic records. Some of the most marked changes of its course may be seen by comparing with one another the five accompanying plans, covering a period of one hundred and seventy-four years:

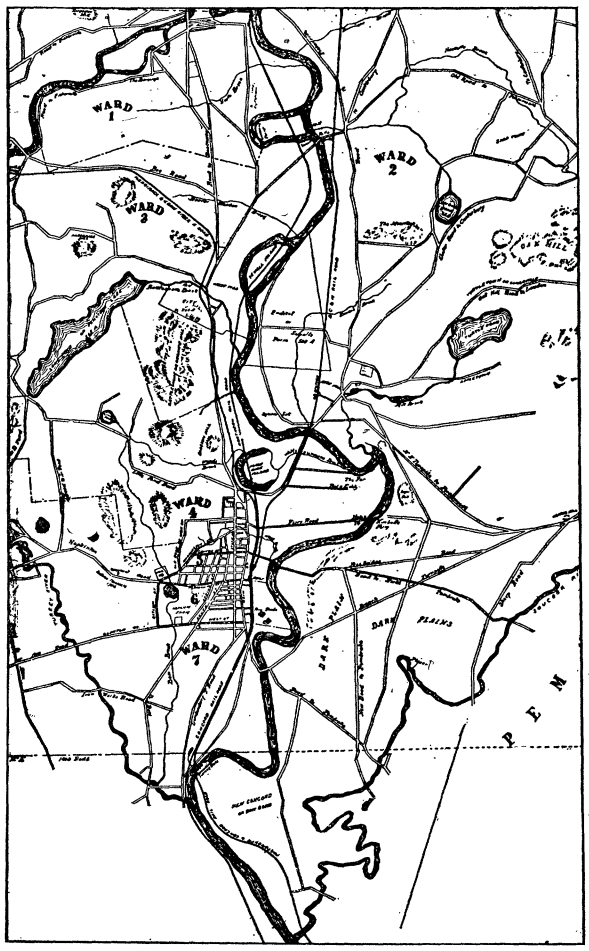
1. Plan of the Surveyors of the Township, 1726.
2. Plan of Jeremiah Leavitt, 1804.
3. Plan of Loammi Baldwin, drawn from surveys of the river made for the Sewall's Falls Canal Co. in 1836.
4. Plan made in 1855 by Stephen C. Badger for Bouton's History of Concord.
5. Plan of Will B. Howe, city engineer, of the River and Flood Plains, in 1900.

A comparison of Leavitt's plan with that of Baldwin, made thirty-two years later, shows remarkable changes during that period. On the 11th of August, 1828, the river cut for itself a new channel across the eastern end of the tongue of land projecting westward from Sugar Ball interval, and thereby transferred thirty acres of land from its eastern to its western shore. Three years later, in 1831, it reversed this action by severing about five acres from Hale's point, on its west side, and leaving it on the other. This straightening of its course by the obliteration of the two most notable bends has done much to destroy the significance of the name of "Pen-



Loammi Baldwin's Plan of River's Course in 1836.

ny Cook," originally attached to this locality. Horse Shoe island is another instance of similar severance and transfer by the river of some seventy-five acres from its east to its west side, at some remote date in the aboriginal period. This pond plainly indicates a previous river channel now largely obliterated by decayed aquatic vegetation and silt.



Badger's Plan of the Course of Merrimack River in 1855.

During the last sixty years, the river has moved eastward from its former bank, near the south end of Main street, 1500 feet and south-easterly 1200.[1] Twice since 1885 has the Wyatt house, upon the bluff opposite that point, been moved back on account of the river's encroachments.

In 1855 a tract of land situated in the upper part of Wattanummon's field, bought by the late Benjamin Farnum of the heirs of Capt. Eliphalet Emery, had an area of forty acres. Measured in June, 1900, it was found to contain but about twenty-seven acres, the river having in the meantime washed away thirteen, being an average of about twenty-nine one hundredths of an acre each year, and correspondingly increased the flat upon its opposite shore. Tradition says that this transfer was initiated by the removal of the bushes which once lined its southerly bank.

Since 1726 the largest portion of seven lots formerly abutting upon the Fan road have been washed away and about thirty-five

[1] Measurements of Maj. Lewis Downing, Jr.

acres, formerly upon the south side of the river, must now be sought for on its north side or in its channel. According to the survey of the interval, made in the year just mentioned, the river was distant from the East Concord road, by way of the Fan road, two hundred and twenty-three rods. Its distance is now (June, 1900) but one hundred and fifty. During the last seventy years the Fan point has moved eastward some fifty rods, and the bluff opposite has receded a like distance.

A marked change in the river's course has occurred at Penacook, a few rods below the Northern Railroad station. Here many acres have been washed away from the northerly side of the Rolfe interval, while its easterly side has been greatly enlarged at the expense of the land adjoining the river's opposite shore.

One result of the turning of the entire volume of the river into its east channel, at the upper end of Sewall's island, has been a severe abrasion of its east bank for a distance of half a mile or more and a corresponding accretion to its opposite shore of some twenty-five acres.

Another has been a later infringement of the river upon its western shore, just below the south end of this island, whereby land to the amount of three or four acres has been washed away and serious injury done to the fields below by covering their rich soil with coatings of barren sand.

A large portion of its former channels on the west side of Sewall's island and of Goodwin's point, from which the Northern Railroad excluded the river in 1846, has since been filled with sand and decayed vegetation. Eventually but few traces of its occupancy will remain.

It is interesting to observe upon the river's present flood plain its more recent changes of course. Those of prehistoric dates, however, are mostly obscure, and, like the movements of the aborigines, can be traced with difficulty and uncertainty.

The changes of the river's course thus far mentioned have been natural changes. Allusion should not be omitted to an artificial one, made, and before alluded to, by the Northern Railroad in 1846, whereby the peninsula known as Goodwin's point, of about forty acres, was cut off by the river's diversion to a new channel excavated across its junction to the main land.

The abrasions above mentioned have been often arrested by coating the slopes of endangered banks with rubble. In a few years bushes generally take root beneath it, around which sand gathers and renders them sufficiently firm to successfully resist all assaults of floods and ice, and breakings no longer occur. About fifty years

ago some one hundred and twenty-five rods of the river's south bank above Federal bridge was thus protected, and no loss by washing has since taken place. Like action, with like results, has been taken at other exposed sections.

From the foregoing statements it will be seen that the surface of Concord consists, approximately, of:

Post-tertiary drift, of various elevations .	23,666 acres.
Modified drift, mostly of plain surface .	8,837 "
River alluvium	4,547 "
Water areas	2,000 "
Whole area	39,050 "

The soil varies, from the dry and porous sand of the pine plains and the fine humus-bearing alluvium of the interval, to the more or less rocky and clayey formations of the post-tertiary age.

Somewhat more than half of the land in Concord is suitable for tillage, while the remainder, too rough for the plough, is well adapted to grazing and to the production of wood and timber. Here and there, on limited areas, the underlying rock formation protrudes above the surface and supplies material for one of the city's greatest industries. Millions of cubic yards of choicest granite have been taken from Rattlesnake hill, and millions of millions more await the quarryman's drill.

The importance of the subject seems to warrant farther allusion to the soils of Concord. There are four leading varieties:

1. *The alluvial soil of the interval.* This is fine grained, fairly moist, granitic, and contains assimilable plant food sufficient to produce moderate crops of ordinary farm products without amendment. It is free of stones and easily manipulated. Adequate fertilization renders it highly productive.

2. *The modified drift soil of the plains.* This is of coarser texture than the foregoing, is more porous, contains but little humus, is easily affected by droughts, holds manures in a loose grasp, and is subject to early frosts. It is better adapted to cereals than to grasses. It is a little more easily wrought than the land of the interval. With proper culture, it yields moderate crops of rye, oats, corn, buckwheat, grass, and roots.

3. *The upland soil.* This is usually warm, friable, retentive of moisture, well supplied with humus, and adapted to the production of almost all ordinary farm crops. But it is often pretty full of stones when first cleared of the forest. Until these are removed, its manipulation is laborious and expensive.

4. *Mucky Soils.* Frequent tracts of these, of varying areas, are

found in all considerable sections of Concord. Some of them consist of decomposed vegetation and the wash of surrounding hills, some of decayed aquatic plants, mingled with river silt. They are all more or less rich in nitrogen and some of them in potash. When properly drained, they make grass fields of much value. As yet, but few of them have been very thoroughly improved.

The soil-sheet which covers the underlying rock formation of Concord varies much in thickness. The latter undulates in sudden elevations and depressions, and the stratum of earth resting upon it conforms, more or less, to these. At the works of the Page Belting Company, on Penacook street, the surface of the bed rock has been found at a depth of about eighty feet below that of the ground; at Toof's laundry, just west of Main street, between School and Warren streets, at fifty-seven and a half feet; at the Concord & Portsmouth Railroad bridge, at Turkey Falls, at about twenty feet.

It may be further remarked of the surface of Concord that it rises on each side from the river's level by three broad steps to elevations of from four to five hundred feet on its western and the northern half of its eastern border. Along the southern half of the latter it sinks to the level of the Soucook river, which forms the city's southeastern boundary.

The first step upwards from the Merrimack to the interval makes a rise, varying from three or four to fifteen feet. The second from the interval to the plain makes another of from a hundred to a hundred and twenty feet. From the plain the ground ascends in irregular slopes to the side lines before mentioned.

The surface of the two first steps is nearly level, the variations therefrom rarely exceeding ten feet. That of the third is very uneven. On the west side of the river it is characterized by three parallel ranges of hills and intervening valleys, the crests of the former sometimes rising into conspicuous summits designated by particular names.

Along the first or most easterly range, on the west side of the Merrimack, are found Rum, Parsonage, Dagody, and Rattlesnake summits, rising to the respective altitudes of five hundred, six hundred and seventy-five, six hundred and forty, and seven hundred and eighty-three feet above the level of the sea.

In the second are found the summits known as Silver hill, having a height of four hundred feet; Jerry hill, of seven hundred and twenty-five; Pine hill, of eight hundred and ten; and Horse hill, of seven hundred and sixty.

Along the third range, which skirts the Hopkinton line, rise Stickney hill, having an altitude of five hundred feet; Dimond Hill, of six hundred and eighty; and Beech hill, of seven hundred and seventy-five.

On the east side of the river the high ground is confined to a single chain of hills, commencing near Sewall's Falls and sweeping around easterly and southeasterly, in a semi-circle to the Soucook. In this are found the rounded elevations known as the Mountain, Oak hill, and the broken ground, having in the order of their mention altitudes of seven hundred, nine hundred and thirty, and seven hundred and twenty feet.

STREAMS.

Merrimack River. The principal river of Concord is the Merrimack. The headwaters of its most northern west branch are found about the bases of the Pemigewasset, Profile, and Flume mountains, in Lincoln and Franconia; while those of its most northern east branch may be traced to the feet of Mount Willey, in Bethlehem, and of the mountains in Waterville and Livermore.

Along its banks and those of its main tributaries, in aboriginal times, lay important Indian trails from the mountains to the ocean. These formed sections of one of the great Indian routes from the Canadas to the Massachusetts coast. As the red man receded westward, they were broadened to carriage highways, to be paralleled in time by steam and electric railroads.

From the top of Sewall's Falls dam to the foot of Garvin's Falls, the Merrimack makes a descent of fifty feet, furnishing to Concord a single water-power of about fifteen feet at the falls first mentioned. Its volume, which has an average summer width of about four hundred feet, is considerably increased within this city's limits by the waters of the Contoocook, which enter it at Penacook, and by those of several minor streams along its banks.

The population of the Merrimack valley, if it be allowed to consist of the two tiers of towns which line its banks from its main forks at Franklin to its mouth at Newburyport, is probably denser than that of any other extra-urban section of the United States. While, in 1890, the population of New Hampshire numbered 41.31 persons to the square mile, of Massachusetts 278.41, and of Rhode Island 318.44, that of the Merrimack valley was 471.

Contoocook River. The stream next in size to the Merrimack is the Contoocook. It enters the city near its northwest corner, and after flowing southerly and easterly in a tortuous course of about seven miles, joins the Merrimack at Penacook. It has an average width of some two hundred feet, and from the top of the dam at Contoocook River Park to its outlet it makes a descent of one hundred and eleven feet, furnishing at different points four important water-powers. To these the flourishing village just mentioned is largely indebted for its prosperity.

Turkey River. Turkey river, a much smaller stream than the Contoocook, drains the ponds bearing this name. It has a varying width of some twenty to thirty feet, and a length of about three miles. At the end of a total fall of a little more than three hundred feet, it joins the Merrimack in Bow, near the north line of that town, having furnished six mill privileges along its course, the upper four of which are in Concord. Of these, only two are now utilized. Formerly the four at and near St. Paul's School were occupied by a grist-mill, a clothing mill, and two sawmills.

This stream has interesting associations with literary celebrities. Upon its bank Nathaniel H. Carter, Concord's earliest and sweetest poet, was born, September 17, 1787. During the last half century it has had intimate relations with the boys of St. Paul's School, similar to those existing between the Thames and the boys of the ancient school at Eton. Half a mile from it Dr. John Farmer, in his day the most distinguished historian and genealogist in New England, breathed his last, on the 13th day of August, 1838. In the same house, some five years later, passed from earth the spirit of the gifted Mary Clark, on the 9th day of May, 1841.

Soucook River. The Soucook forms the southeastern boundary of Concord, separating it from Pembroke and belonging in part to each township. From the point where it first touches the territory of the latter in a straight line to its mouth, the distance is about six miles and three quarters. By the stream it is a little over ten. It has an average width of some forty-five feet and furnishes two small water-powers of seven and nine feet fall, respectively, and in its entire course makes a descent of one hundred and eight feet.

Mill Brook. This stream receives the overflow of Turtle pond and, after pursuing a westerly and southwesterly course for some two miles and a quarter, enters the Merrimack near East Concord village. In this distance it falls nearly one hundred feet. While its volume is not large, it affords three small mill powers, two of which were improved as early as 1729, the first utilized in Concord.

Hackett's Brook. This is a small stream, supplied by the overflow of Hot Hole and Snow's ponds. From the former to the river, which it enters just above Sewall's falls, it makes a descent of two hundred and thirty-three feet.

Bow and Wood's Brooks. These, starting in a single stream from the east side of Little pond, take separate courses at the junction of the Little pond and Woolson roads. The first pursues a southeasterly course for about four miles through the woods, the county jail lot, the state hospital farm and other estates, to Turkey river, in Bow. The latter passes easterly through the woods, Blossom Hill

cemetery and other lands for a distance of about a mile and a half, to Horse Shoe pond. Some fifty years ago it furnished power to a small sawmill located a few rods east of the main entrance to Blossom Hill cemetery. Of late years the removal of the forest has restricted its flow to a portion only of the year.

In addition to these streams there are others in different parts of the city, varying in length from one to three miles each, of which the limits of this chapter allow no extended mention. Of this number are Wattanummon's brook, which connects Horse Shoe pond with the Merrimack; Ash brook, which rises at the foot of Beech hill and joins Turkey river near St. Paul's School; Beaver Meadow brook, which drains the bog at West Concord; Willow Hollow brook, which enters the Merrimack from the west about a mile south of Penacook; Burnham's and Bowen brooks, which also discharge their waters into the Merrimack at East Concord, and others of yet minor importance.

Various causes have operated to the reduction of the several volumes of these streams. They all carry less water than formerly. Yet the statement is made that, upon the Merrimack and its tributaries, more cotton is spun and woven than upon any other river in the world; a fact which accounts for the important towns and cities which occupy its banks, at intervals, all the way from Lake Winnepesaukee to the sea.

PONDS.

In depressions among the hills may be found the seven ponds before mentioned, each of sufficient area to claim a brief mention. Of these two are in the northeasterly section of the city, one, Snow's pond, lying between the Mountain and Oak hill; and Turtle pond, situated about a mile south of it, between Oak hill and the Broken ground. The former has an elevation of one hundred and ninety-five feet above the river, an area of sixty-two acres and a watershed of four hundred and ninety-two. The latter lies ninety-nine feet above the Merrimack, has an area of one hundred and forty-six acres and a watershed of fourteen hundred and fifty. On the west side of the river, in the southwest section of the city, are two ponds, respectively designated as Turkey and Little Turkey. They lie near to each other in the depression between Silver, Stickney, and Dimond hills. The first has an area of two hundred and thirty-nine acres and a watershed of fifteen hundred and seventy-one. The second has an area of thirty-five acres and a watershed of five hundred and fifty-five. The former lies one hundred feet above the river and the latter ninety.

In the depression surrounded by Rattlesnake, Jerry, Pine, and Parsonage hills, a little west and north of the centre of the city, lies Long pond, the largest within its limits, one hundred and seventy-

nine feet above the river. It has an area of three hundred and thirty-eight acres and a watershed of nineteen hundred and twenty.

In a small hollow, high on the Rattlesnake range, is found a small body of water known as Little pond. It covers some five acres and lies within a watershed of about thirty-five.

Just above the north end of Main street, in a former channel of the river, may be found a semi-circular body of water known as Horse Shoe pond. It originally had an area of some sixty acres. By the growth of aquatic vegetation, successive deposits of river silt in times of inundation and drainage, its surface has been reduced to about fifteen acres and its original form changed from that of a horse shoe, whence has come its name, to that of a semi-circle. It is fed in part by springs and in part by Wood's brook, which carries to it a portion of the outflow of Little pond and the drainage of some of the southeastern slopes of Rattlesnake hill. It has an elevation above the summer surface of the Merrimack of about three feet.

All of these ponds, with the exception of Long pond, are wholly or partially surrounded by low, wet, and level meadows, composed largely of decayed vegetable matter, the accumulation of unknown periods, which have encroached upon their original areas. Of this process Horse Shoe pond furnishes a marked example.

To the ponds already mentioned might be added a small one at Fort Eddy, formed by the Merrimack, in 1828, when it cut for itself a new channel; and another at Sugar Ball, produced in the same way, three years later.

In addition to these are several artificial ponds, the largest of which are the Asylum pond, made in 1848 by the damming of Bow brook, which has an area of about six acres; the semi-circular pond near Sewall's Falls, made by the Northern Railroad in 1846 by a transfer of the river to a new channel cut for it across the base of Goodwin's point; and the pond on the west side of Sewall's island, formed at the same time by this railroad, which closed the west channel of the river and forced its whole volume into that on the east side of the island.

FRESHETS.

The Merrimack has ever been subject to occasional overflows, resulting from heavy rains or melting snows upon its watershed and those of its tributaries. These have varied in height from a few feet up to a score or more, and inundated more or less of its interval. In some instances the interval has been entirely submerged.

Of these freshets we possess but imperfect records. Tradition says that one of the highest occurred about 1784 and also that, in 1799, the timber of the house now occupied by Dr. William G.

Carter (No. 244) at the north end of Main street was floated to its destination on the waters of a freshet.

Benjamin Kimball, who lived for many years near the east bank of the river at Sugar Ball, and there kept a ferry, makes mention in his diary of a winter freshet in January, 1772, which broke up the ice in the river and strewed it far and wide over the interval. He also records the occurrence of two other ice freshets; one on the 5th of April, 1819, and the other on the 10th and 11th of February, 1824; the first of which swept away Federal bridge and the second a part of it.

Of the first of these, the *New Hampshire Patriot and State Gazette* in its issue of April 13, 1819, remarks: "The heavy rain of Sunday night last week (April 4) producing a sudden breaking up of the ice in Merrimack river, the northerly bridge in this town and the turnpike bridge at Isle Hooksett was rendered impassible by carrying away three piers in the former and one pier in the latter. Preparations had been made for the erection of a new bridge in this town, in the anticipation that the old one would be unfit for use after the present season; so that the inconvenience, though great, will be only temporary."

Of the latter the same paper says, on the 16th of February, 1824:

"On Thursday last a flood, the most tremendous ever known in this part of the country, took place. The extreme cold of the preceding week was followed on Tuesday and Wednesday by southerly winds, which increased to a gale on the evening and night of that day, during the greater part of which rain descended in torrents. The solid coat of ice which covered the ground, while melting it added to the quantity of water, prevented the earth from receiving it, and the whole rushed toward and filled the smaller streams, pushing thence into the river; in a few hours the thick ice giving away, swept bridges and everything else in the way into the mass of undistinguished ruin. . . . The cakes of ice, some of which are more than two feet in thickness, lie pile on pile on the interval ground in this vicinity. . . . The following is the best information of damage we have been able to gather: . . . Concord lower bridge, two stone piers and a part of the body of the bridge carried off. Concord upper bridge (new), one wooden pier and about two thirds of the body carried away."

Mr. Kimball further states that, in 1826, during the 30th of August freshet, the river rose twenty feet above low-water mark, and that, upon its subsidence, three days later, forty-seven men were engaged in digging potatoes at Sugar Ball that they might prevent the loss of them by decay.

Dr. William Prescott says (Bouton's Hist. Concord, *p.* 773) that the April freshet of 1850 submerged the whole interval; while twenty years later Mayor John Kimball remarks in his address to the City Council that the ice freshet of 1872 "did serious injury to four of the seven bridges across the Merrimack and Contoocook rivers."

Twice, certainly, within the last fifty years has high water washed away so much of the road-bed of the Concord & Montreal Railroad, between the Concord station and its East Concord bridge, as to render it impassable for nearly a week in each instance.

In a communication to the *Concord Daily Monitor*, January 29, 1894, H. N. Robinson of Pittsfield says: "I remember a Mr. Moulton, who lived near us, saying that he rowed his boat into several houses in East Concord, and in one he had run the nose of his boat into the brick oven. I can remember the ice piled high on the Free bridge road, between the bridge and the hill to the east, some four feet deep; left there by a mid-winter freshet. The last of these high freshets which I recall was in October, 1868, when the railroad between Concord and East Concord was submerged."

The recent freshet of 1895 covered the iron of the Northern Railroad at Penacook street to a depth of from three to four inches, and the water about the Rolfe and Rumford Asylum rose to within eighteen inches of the first floor of the institution. This freshet, the highest within the remembrance of persons now living, covered the entire interval in the central part of the city with the exception of some ten square rods of the summit of Wattanummon's hill. The water of the freshet of 1896 rose nearly as high and covered most of the river's flood plain.

ELEVATIONS.

Dates.	Elevations in feet above datum line.
1851	18.99
1859	17.98
1862, April 22	19.64
1865, March	18.93
1869, April 22	18.22
1869, Oct. 5	20.18
1870, April 20	19.90
1873, Oct. 22	16.68
1874, Jan. 9	16.78
1878, Dec. 12	20.09
1886, Jan. 6	16.60
1895, April 17	21.65
1896, March 2	21.53
1897, July 15	17.48
1900, April 20	16.12

The foregoing list of the flood elevations above the city's datum line (low-water mark) at the Concord bridge, since 1851, a period of forty-nine years, has been kindly furnished by Frank A. Merrill, assistant chief engineer of the Boston & Maine Railroad.

To this may be added, for facility of consultation, the additional partial list of freshets which, with two exceptions, occurred previous to 1851.

1772. A great flood.

1784. Tradition reports a very high freshet this year.

1799. A freshet upon whose waters the timber of Dr. W. G. Carter's house was floated to its destination.

1818. A freshet which carried off Federal bridge.

1820, Oct. 17. Great inundation of the interval.

1824. Federal bridge partially carried away.

1826, 1828, and 1831. Very high freshets, causing important changes of river channel.

1841, Feb. 8. Federal bridge and Free bridge both badly damaged.

1850, May 1 and 6. Federal bridge injured and embankments of B., C. & M. Railroad washed away.

1865. Sewall's Falls, Federal, Free, and Concord bridges damaged by freshet.

1868, October. B., C. & M. Railroad embankment between Concord and East Concord submerged.

While the above list does not contain a record of all the Merrimack river freshets occurring at Concord during those forty-nine years, it gives the several elevations above the city's datum line of fifteen of the more notable ones, the highest having been twenty-one and sixty-five one hundredths feet, while the lowest was sixteen and twelve one hundredths, and the average eighteen and seventy-two one hundredths.

These inundations are usually attended with results both good and evil. They temporarily obstruct travel, wash away valuable land in some places, and in others bury it beneath sheets of barren sand. Occasionally, division fences, farm animals, and growing crops are injured or destroyed. At the same time they elevate the surfaces of low grounds, leave upon the lands submerged deposits of silt of more or less value, and, if their advent be in spring, they increase materially the coming grass crop.

Some thirty years ago, serious complaint was made by some of the farmers upon the interval above Concord, of the withholding in reservoirs of considerable portions of the spring waters which had before contributed to the inundation of their fields, which was done for the

benefit of the manufacturing companies at Manchester and lower points along the river's course. In their view, they were deprived of a natural benefit attaching to their land and had received no compensation for it. The inequality of the parties interested prevented any reference of the grievance alleged to the legislature or to the courts and its importance has never been determined.

It is, however, an undoubted fact that much value attaches to grass lands from a thorough wetting of their soil in early spring, which renders them moist for a long period thereafter. To such the Merrimack inundations are of much benefit, making them, when properly drained, perennially productive of fair crops of second-class hay without fertilization.

Regarding the value of the sedimentary deposits left upon these lands by freshets, various opinions are held, based largely upon loose observations of different persons. That they vary more or less goes without saying. How much of the benefit received results from water and how much from silt can be settled only by the most careful examination by competent persons of particular cases. Such are yet to be made.

An analysis of three specimens of river silt collected upon Horse Shoe island in 1896, made at the New Hampshire Experiment Station, in Durham, indicates that, at this locality, their fertilizing value is not great.

It is to be regretted that the records of the exact times, heights, and characteristics of the Merrimack river freshets are so imperfect; a fact due in part, doubtless, to a general lack of appreciation of their importance and the want of some established scale by which their varying elevations may be determined, similar to the Nilometers of Egypt, used to mark the varying heights of the Nile. But the records which we have suffice to show that our ordinary freshets attain elevations of from five to ten feet above the river's low-water mark, and that the higher ones rise to eighteen and twenty. At these latter heights the interval in the central part of the city is nearly all submerged.

The height of the water in the time of a freshet is not the same over all submerged localities. It varies to the amount of one or two feet and in some instances even more. When the river overflows its southern bank at the upper end of Wattanummon's field, and is swept onward by its current and a northwest wind, which generally prevails at such a time, forcing the water into the triangle formed by the embankments of the Northern and of the Boston, Concord & Montreal railroads, it is found to be considerably higher on the west than on the east side of the latter road. It was to the action of these forces

that the carrying out the section of its embankment, before mentioned, was due. Various causes produce similar but lesser irregularities of surface at other places. The following are records of the heights of water in the Merrimack river during the flood of April 17, 1895, furnished by Mr. Merrill:

At East Concord passenger station	24.12
At new bridge near N. E. Granite Co.'s sheds, west side of track	24.22
At new bridge near N. E. Granite Co.'s sheds, east side of track	22.59
Opposite Concord passenger station	21.65
600 feet south of gas house bridge	21.32
2,900 feet south of gas house bridge	18.79
At Bow Junction	16.32

The above elevations are all above the city datum, low water at the lower bridge, by Governor Weston's survey.

FORESTS.

When the first settlers came to Concord they found its territory covered by primeval forest, with the exception of its water surfaces and small portions of its interval, which the Indians had cleared and on which their squaws had raised small crops of corn, beans, and pumpkins. Limited sections also produced the indigenous grasses, still found on the low, sandy soils near the river, which the plow but rarely, if ever, reaches, called by the earlier generations "old interval grasses," and by the botanists various species of "Andropogon."

Besides shrubs of little worth, the Concord forests still contain thirty-three different species of native trees of commercial value. In them may be found:

The Basswood (*Tilia Americana*).

Four species of Maple—The Sugar or Rock Maple (*Acer saccharium*), the Red Maple (*Acer rubrum*), the White Maple (*Acer dasycarpum*), and the Striped Maple (*Acer Pennsylvanicum*).

The Black Cherry (*Prunus Serotina*).

The Sassafras (*Sassafras officinale*).

Two species of Elm—The American Elm (*Ulmus Americana*) and the Slippery Elm (*Ulmus fulva*).

The Oilnut or Butternut (*Juglans cineria*).

The Walnut (*Carya alba*).

Three species of Oak—The White Oak (*Quercus alba*), the Yellow or Black Oak (*Quercus tinctoria*), and the Red Oak (*Quercus rubra*).

Two species of Ash—The White Ash (*Fraxinus Americana*) and the Brown Ash (*Fraxinus samibucifolia*).

The Beech (*Fagus ferruginea*).

The Chestnut (*Castanea vulgaris*).

The Lever Wood (*Ostrya Virginica*).

Four species of Birch—The Black Birch (*Betula lenta*), the Yellow Birch (*Betula lutea*), the White Birch (*Betula papyrifera*), and the Grey Birch (*Betula alba*).

The Black Willow (*Salyx nigra*).

The American Aspen (*Populus tremuloides*).

Three species of Pine—The White Pine (*Pinus strobus*), the Pitch Pine (*Pinus rigida*), and the Red Pine (*Pinus resinosa*).

The Black Spruce (*Picea nigra*).

The Balsam Fir (*Abies balsamea*).

The Hemlock (*Tsuga Canadensis*).

The Hackmatack (*Larix Americana*).

In early days grand aboriginal pines of great size were cut for masts and drawn to the river's bank to be thence floated to the shipyards near its mouth. One hundred oxen, gathered from a large neighborhood, were sometimes employed to move such from the forest. "Masting," as it was termed, was a rough, laborious, and somewhat hazardous business. A large mast rolled into the river represented what was then a considerable amount of money. If it encountered disaster on the way to its destination, a serious loss befell its owner. The late Simeon Abbott once remarked that on one occasion a prominent mast master[1] of Concord followed on horse back along the river's bank a valuable mast stick, which he was transporting to its destination, as far as Amoskeag Falls. Here it floated athwart the current, struck a rock in mid-channel and was broken in two parts. This ruin of the mast was the ruin of its owner. He relied upon the money which he expected to receive for it for the payment of debts he had no other means of discharging. Disheartened, he turned from the river and was never seen again.

"The next famous master was Capt. Reuben Kimball. The manner in which he carried on the business was as follows: Taking a strong team in the winter, of twenty yoke of oxen or more, with sleds and an adequate number of men, he went into the woods and camped. His men were divided into sections for particular parts of the work, called swampers, teamsters, choppers, peelers, and tailsmen. The swampers cleared the way; choppers cut down the trees; peelers peeled off the bark; teamsters drove the oxen; and two tailsmen walked beside the hind team, and in case at any time the tongue of the sled, in passing a hollow place, run so high as to lift the hind oxen up by the neck, then the tailsmen seized the tails of the oxen

[1] The first mast-master of whom we have particular knowledge was Lieut. John Webster. . . . Timothy Walker remembers that Lieutenant Webster cut a mast in Northfield which measured thirty-eight inches in diameter at sixty feet from the butt, and took one hundred and four oxen, or fifty-two teams, to draw it.

and drew them outward, so that in coming down the tongue of the sled would not strike them."—Bouton's History of Concord, *pp.* 537, 538.

The Rev. Mr. Walker, the town minister, in his diary for 1764, says:

"Jan. 17. At night Prince, with one yoke of oxen, went into y^{e} mast camp.

"Jan. 18. Mr. Webster hauled his great mast at night.

"Jan. 20. Prince returned from masting."

In early days, when wood was consumed in large quantities and forest clearings were in progress, collections of ashes were made and the manufacture of potash was prosecuted to some extent.

Judge Timothy Walker had a potashery in the rear of his garden, the well of which remains in good condition to this day. In his diary for 1766 he remarks:

"February 10. John Colby brot a L. of ashes from C^{t} Page's.

"June 23. J^{n} Colby went to Haverhill with a load of Potash."

There was but little other than the small local demand for lumber previous to the construction of the canals, at the various falls of the Merrimack. Consequently masts and potash were, until then, the only forest products which could be conveyed to a market. Upon the opening of these the transportation of lumber was made possible and that industry was greatly promoted. They came too late, however, for the manufacture here of rosin, spirits of turpentine, pipe staves, and other wood products, once extensively pursued on and near the sea-coast. The want of practicable transportation facilities had before prevented the establishment of these industries so far distant from a market.

Fifty years ago there might have been found in Concord a considerable number of very ancient white pines of colossal dimensions and great ages. Some of them contained from two to three thousand feet of lumber, board measure. They were nearly or quite coeval with the settlement of New Hampshire by the English. Now and then one might be found whose preservation was due, perhaps, to having once borne the mark of the broad arrow placed upon it by the Surveyor of the King's Woods, when New Hampshire was a British province, to indicate its reservation as a mast tree for the royal navy.

These giants of the woods, commonly called "old growth pines," to designate them from younger trees of the same species, which, far from small, had diameters of from two to three feet, a foot above the ground, although long past their prime a half century ago, were still

stalwart in their great age. Forest Nestors, erect, of commanding stature, stately, grand and majestic, they towered above all their fellows, bearing green coronals which daily received the sun's earliest greetings, and reflected his latest rays as he descended below the horizon of the west.

In all probability, not one of those old patriarchs of the woods now survives within the limits of Concord. Like the Indian, of whom they were companions in youth, they have passed in the great progression of the world's movements, and the places which once knew them will know them no more.

The wood and timber of Concord forests grows less rapidly than is generally supposed. The writer found some years ago, by counting the rings and measuring the butts of forty white-pine logs, averaging about fifty feet in length, taken from various localities, that their average diameter was twenty-two and eighty-two one hundredths (22.82) inches, their average age eighty-six and seventy-six one hundredths (86.76) years, and their average contents three hundred and sixty-three (363) feet, showing an average growth of four and two tenths (4.2) feet a year, board measure.

A similar examination of twenty chestnut logs, averaging thirty feet in length, showed their average diameter to be twenty-one and four tenths (21.4) inches, their average age seventy-four (74) years, and their average contents two hundred and ninety-six (296) feet, having increased at an average rate of four (4) feet a year.

Twenty red-oak logs of an average length of thirty feet, and an average diameter of eighteen and two tenths (18.2) inches, had an average age of seventy and one tenth (70.1) years, and contained on an average two hundred and fifty-three feet, having grown at the rate of three and six tenths (3.6) feet each year.

Five hemlock logs, averaging thirty-five feet in length and seventeen and two tenths (17.2) inches in diameter, had an average age of seventy-seven (77) years, and an average measurement of two hundred and seventy-one (271) feet, having increased at the rate of three and a half (3 1-2) feet a year.

MINERAL RESOURCES.

The mineral resources of Concord have been iron, clay, potash, and granite.

Iron. In a section of the city known as the Iron Works, small quantities of iron were manufactured many years ago, and the same was also done at Forge pond at West Concord. Where the ore was generally obtained does not appear. Some of it, however, was taken from a spot near the Sheep Davis road on the Plain. It has also been

found at the foot of Oak hill, near Turtle pond. This industry, never of great importance, has been described in another chapter.

Clay. The best of clay is found in several localities. It underlies the superincumbent formation at depths so inconsiderable as to render it easily accessible. Beds of it have been utilized near Mill brook, in East Concord, on Turnpike street near the Margaret Pillsbury hospital, and farther south, near the Bow line, upon the State Hospital farm, near the foot of Dimond's hill, and elsewhere.

Bricks were made in Concord quite soon after its settlement. They were somewhat smaller than those now used, being thinner, with one side a little thicker than the other, and not quite so hard. Some, made as early as 1734, and perhaps before, are still doing good service to-day. Though not an extensive industry, the manufacture of bricks has always been an important one, and has partially met the local demand.

Fifty years ago, considerable quantities of brown pottery were manufactured in the vicinity of St. Paul's School and disposed of in Concord and neighboring towns. Twenty years ago flower pots, jugs, vases, etc., of attractive forms were produced, evincing not only good taste but skill and fidelity on the part of the manufacturers.

Granite. The granite industry dates from the early part of the last century. In its early days the undressed stock was obtained from surface boulders. These yielded large quantities of choice stone, one to the amount of eleven thousand cubic feet. When this source of supply failed, ledges were uncovered and regular quarrying was commenced. Top sheets, more or less stained, were originally made use of and were split into the required forms by steel wedges driven into narrow holes made by flat drills. The round drill was in but little, if any, use seventy years ago. Gunpowder was not much used until deep quarrying began.

The erection of the walls of the state prison in 1812 and those of the state house in 1816-1819, brought Concord granite into notice and created a demand for it. It was quarried in considerable quantities for building purposes and prepared for use by the convicts of the state prison, whence it was shipped by the Boston & Concord Boating Company to Boston, and thence to New York, Philadelphia, Baltimore, and New Orleans.

For some years the dressing of stone was the chief employment of the state prisoners. When, about 1840, the convict labor was transferred to other industries the stone business was assumed by private parties. Prominent among these was Luther Roby, who for many years pursued it extensively. Gass & Johnson, Benjamin Speed, and Alexander Nichols also followed it.

These supplied the local demand and sent stone, both dressed and in the rough, to other places. The United States post-office at Portsmouth and the Horticultural and Merchants bank buildings in Boston afford fair specimens of the stone sent from the Concord quarries some thirty to forty years ago. Inasmuch as the history of this industry is ably described elsewhere, it is unnecessary to say more of it here than that the greatest mineral resource of Concord is to be found in the granite ledges which form so large a part of Rattlesnake hill, exhaustless, and thus far but partially developed.

Potash. Before the Revolution and for many years after, the manufacture of potash, elsewhere mentioned, was pursued to some extent in Concord. In the clearing of land for farming purposes, large quantities of ashes were produced. This fact led to the establishment of the business which continued to be prosecuted until the scarcity of the raw material rendered it unprofitable.

By the reduction of the alkali of this waste product to the concentrated form of potash, its transportation to a market became practicable. Mr. Richard Herbert carried on this business down to about 1825. Sixty years before that time, Judge Timothy Walker, as before remarked, had a potash manufactory on his premises, which was occupied for a considerable period. Its well, like that of the patriarch Jacob, in the Valley of Shechem, is in good preservation at this day.

ARTESIAN WELL.

Concord has but one artesian well. This is located about one hundred and fifty feet south of School street and midway between Main and State streets.

In 1897 and 1898, John H. Toof, wishing to obtain superior water for his laundry, sank such a well to the depth of thirteen hundred and twenty-five feet. The bed rock was struck at forty-nine feet below the ground's surface, and thence the drilling proceeded for the remaining distance of twelve hundred and seventy-six feet, through a coarse granite formation which varied considerably from time to time in the mixture of its elements. At one point a stratum of pure quartz was encountered fifteen feet thick, which tested severely the temper of the drills and slackened the progress of the work.

Water was reached in small quantity at fifteen feet below the rock's surface, and in larger measure later at the depth of nine hundred and thirty-five feet.

This well has a diameter of six inches and yields each day between five and six thousand gallons of pure water by a pumping of ten hours. This is raised from a point three hundred and twenty-five feet below the ground's surface and has a uniform temperature of

seventy-one degrees Fahrenheit. Thus far, experience has indicated that this amount marks the well's capacity, which is unaffected by atmospheric conditions of moisture or temperature.

The quality of the water is of perfect clearness, is soft, and answers admirably the purpose for which it was sought.

The sinking of this well has demonstrated the fact that if at some future time the water from Long pond shall fail, from pollution, insufficiency, or other cause, Concord's citizens have in reserve an inexhaustible supply of pure water to which they may freely resort.

LOCALITIES.

Concord, like other New England towns, contains various localities which were better known in former times than now. While these are of some interest to the general reader, they are of much importance to a careful student of this city's history. A part of the following descriptions of these has been taken from Dr. Bouton's History of Concord, pages 4 to 7. The localities on the west side of Merrimack river are as follows:

"1. *Horse-Hill* is the name of the territory included in School District No. 1, lying northerly of Contoocook River;—so called from the practice, in early times of the settlement, of turning young horses and cattle there to pasture, in spring and summer. Oliver Hoit was the first settler there, in 1772.

"2. *Mast Yard* on the Contoocook River, about a mile and a half from Horse Hill bridge; so called from the heavy timber that used to be hauled thither from adjacent forests and rolled into the river, to be floated thence into the Merrimack and down to the Atlantic Ocean. Opposite Mast Yard, about a mile southerly, is *Broad Cove*, in School District No. 4.

"3. *Dagody* or *Dagodon Hill* and *Brook*, on or near the northerly boundary line between Concord and Boscawen; so called from a man named Dagodon, who formerly resided there. The brook is famous for trout fishing. Lieut. Marshall Baker, when a young man, on a fishing excursion to this brook, in his haste to catch a large mess, took off his pantaloons, tied a string around the bottom of the legs, buttoning the waistband and opening them with sticks, set them for a fish-pot at the mouth of a little dam which he threw up. Then, driving the fish down the stream, he caught in a short time about ninety fine trout, one weighing over three pounds.

"4. Within the Horse Hill territory, partly in Boscawen, is a *Little Pond*, sometimes called Catamount, abounding more with snakes and turtles than with fishes.

"5. The *Borough*, School District No. 2, settled originally by the

Elliots; now the residence of old Mrs. Lydia Elliot, at the age of 102 years. Among the ancient men distinguished in this locality in former times and known by their honorary titles were 'Governor Elliot,' 'Lawyer Elliot,' and 'Judge Baker,' grandfather of his Excellency, Nathaniel B. Baker.

"6. *Hoyt's Brook*, which crosses the road to Boscawen, about one mile south of Fisherville.

"7. *Beaver Meadow Brook*, about a mile south of Hoyt's Brook. Near this is Beaver Meadow *bog road* to Horse Hill.

"8. *Sand Banks*, about a half mile easterly from Hoyt's brook, where logs and timber were rolled into the Merrimack River. Capt. Joseph Pratt, of Oxford, with a two horse sleigh, drove off this bank one night by accident, and, though precipitated to the bottom, escaped without material injury.

"9. *Horsing-Downs* was the name given to a long, narrow neck of land lying at the foot of Sand Banks on the east side, as the river formerly ran, but since cut off by turning the river for the track of the Northern Railroad, better known now as *Goodwin's Point.*

"10. *Dustin's Island*, at the mouth of Contoocook River,—the scene of the famous exploit of Mrs. Hannah Dustin, who killed and scalped her Indian captors.

"11. *Sewall's Island* and *Falls*, so called from Judge Samuel Sewall, of Massachusetts, who formerly owned the premises.

"12. *Rattlesnake Brook*, running from Long Pond through West Village.

"13. *Rattlesnake Hill*, so called on account of the snakes of this species that formerly had their dens here, well known as Granite Hill, about two miles northwesterly from the Main Village.

"14. *Parsonage Hill*, so called from the eighty acre lot laid off to the parsonage right, west of Isaac Farnum's.

"15. *Long Pond.* (See Ponds.)

"16. *Pine Hill*, belonging to the farms of Nathan K. and Jeremiah, S. Abbot, west of Long Pond, is estimated to be the highest point of land in Concord.

"17. South and westerly of Long Pond is a range of hills, of which the highest is '*Jerry's Hill*,' so called from Jerry, or Jeremiah, Bradley, who formerly owned the land. From the summit of this hill a grand and picturesque view is had far to the north and east, taking in the Franconia Mountains, White Hills, Red Hill, and on the southwest the grand Monadnock. North of Jerry's is a hill having a large and curious cave on the southwest side of it.

"18. *Little Pond*, or District No. 6, is so called from a small pond, situated northeast from Nathan Ballard's. This neighborhood was

settled about 1789, by Nathan Ballard, Nathan and Henry Chandler, and Eben Fisk on farms bought of the estate of Col. Paul Rolfe.

"19. *Beech Hill*, on the westerly line between Concord and Hopkinton, so called from the abundant beech wood there found.

"20. *Dimond's Hill*, about four miles westerly of the Main Village, on Hopkinton road, so called from Ezekiel Dimond, a large landowner, who formerly resided on or near the place where Joseph S. Abbot now lives. In 1828 Mr. Nathan Call moved a two story dwelling house, thirty by forty feet, on wheels, with forty yoke of oxen, from Hopkinton to Concord.[1] In descending this hill, then much steeper than at the present time, he put three yoke of oxen before and the remainder behind, to hold back. It took four days to move the house. The distance was about five miles.

"21. *Ash Brook*, running at the foot of Dimond's Hill, through the farm of Atkinson Webster, into Little Turkey Pond.

"22. *Fush Market*,[2] on the Hopkinton road, three miles from Main Street, origin of name not known, long distinguished for excellent brick and earthenware there manufactured.

"23. *Powell's Hook*, at the ravine near the upper mills in Millville, so called from one Powell, a drummer, who lived near there.

"24. *Millville*, a name recently given to the settlement where Moses Shute resides, including the house and land of Dr. George C. Shattuck, of Boston, which house was the first of brick in Concord and was built by Jacob Carter, father of Jacob Carter, now postmaster. This house and farm were recently given by Dr. Shattuck for the purpose of a school, to be called 'St. Paul's School.'

"25. *Runnell's Mills* were situated on the stream from Great Turkey to Little Turkey Pond on the road to Stickney's Hill. Formerly well known, these mills have fallen into entire decay. *Stickney's Hill*, about a mile southwest of Runnell's Mills, so called from first settlers of the name.

"26. *Bog Road*, running from Concord through the bogs of Turkey Pond to James Hall's, thence to Dunbarton. Before reaching Mr. Hall's this road crosses Tury brook and *Peter's* or *Bela's* brook, the latter so called from former owners of land.

"27. *Rum Hill*, including the high land northwesterly of road to Hopkinton, owned by Benjamin Gale and others, about a mile and a half from the State House, so called from a drunken carousal and fight which took place there in early times, at a coal pit.

"28. *Eleven Lots*, extending, according to the first survey, from

[1] This house now stands on the east side of State street, the second house south of Pleasant street.

[2] Extends along the old Hopkinton road from Ash brook to Turkey river, at Powell's Hook.

the residence of the late Countess of Rumford to near the old Bow line.

"29. *The Bend* (that is in Merrimack River) near the southern boundary line and taking in a small section of Bow. On the bank at this bend is a beautiful view, north, of the Main Village.

"30. *Iron Works*, southwest part of the town, including School District No. 18. In the Revolutionary War the 'Iron Works' were owned by Daniel Carter, Daniel Gale, and Dr. Philip Carrigain. A forge was built in the lot easterly of the bridge which now crosses Turkey River, where iron was wrought from native ore.

"31. *Frog Ponds*, on the interval east of the residence of the late Gov. Hill, who owned the premises and made various experiments to improve them. Name derived from the 'serenades' of their principal inhabitants.

"32. *Hale's Point*, the extreme point of land on 'Ferry Road,' by Richard Herbert's, named from Joseph Hale, who in early times owned the land. From the 'Point' across the river was formerly a ferry, extensively known as '*Kimball's Ferry*.' Hale's Point was cut off by a great freshet about 1831, and the ferry is discontinued since the opening of the Free Bridge road.

"33. *Fort Eddy*, about half a mile north of Hale's Point, on land owned by Richard Bradley, opposite Sugar Ball. According to tradition this was the location of an old Indian fort.

"34. *The Fan*. A tract of land bordering the river, north of Fort Eddy, valuable for natural mowing and deriving its name from a fancied resemblance in shape to a lady's fan. Chiefly owned by the late Abiel Walker.[1]

"35. *Wattanummon's Brook*, the principal feeder and outlet of Horse Shoe Pond on the east, crossed by a bridge and so called from the name of an Indian chief who owned and cultivated the land adjacent. There is an outlet from both ends of the Pond.

"37. *Wood's Brook*, the little stream from '*Little* Pond,' crossing the Boscawen road north of Richard Bradley's, and formerly turning the 'dry saw mill' which was built there, deriving its name from David Wood, original proprietor.

"38. *Paradise*, about forty rods northerly from Wood's Brook, so named from a beautiful grove and the scenery around it, including a charming view of the interval and meandering of the river on the east. It was owned by Capt. E. S. Towle. The grove being recently cleared away, it may be called '*Paradise lost*.'

"39. *Blossom Hill*, a pleasant eminence covered with a fine growth, opposite 'Paradise.'

[1] Mr. Walker was hardly "chief" owner. The larger part was owned by Richard Bradley and Samuel Coffin.—EDITOR.

"40. *The Gulf*, or *Steep Hill Bridge*, on the main road to Boscawen, about twenty rods south of the railroad crossing, near Benjamin Farnum's. East of this Gulf is *Farnum's Eddy*, so called from a current or whirl in the river.

"41. *West Brook*, formerly 'Meeting-house Brook,' rising in swamp land west of the State Prison, crossing Main Street near the house of the late John West, senior, whence the name. The space between this brook and 'Tan-yard Brook' was neutral ground between the north and south end boys.

"42. *Clay Pits*, and tan yard brook (which runs under the road), in the valley of Mr. Ivory Hall's house. The late Capt. Richard Ayer carried on an extensive tannery on the west side of the road; and clay of good quality was formerly dug here. Opposite the tan-yard stood the old hay scales, and here was 'the great elm tree,' marked on the plan of Main Street.

"43. *Bow Brook*, partly flows from Little pond, runs by the new Jail and the Insane Asylum, and empties into Turkey river.

"44. *Free Bridge* and *Free Bridge Road*, across the Merrimack and interval, nearly opposite Center Street. This road was first opened and bridge built in 1839."

"Localities on the east side of the River, beginning on the northern line at Canterbury.

"1. *Burnham's Brook*, running from Canterbury by Chandler Choate's to Merrimack river, opposite the eastern point of Rolfe's interval.

"2. *Hackett's Brook*, so called from a man of that name who once leaped across it, and then turning around, said to *himself*—'I'll bet a mug of flip you can't do that again, Hackett.' Then attempting to leap it again, as his feet struck the opposite bank, he fell backwards into the brook. The brook has its principal source in 'Hot Hole pond,' easterly on the Loudon line; empties into the Merrimack just north of Sewall's Falls bridge. On this stream is situated Lovejoy's Mills, so called, and also a saw-mill near its mouth.

"3. *Snow's Pond.* (See Ponds.) *Oak Hill* is a high eminence east of Snow's pond, or northerly of Turtle pond. (See pages 543, 544.)

"4. *Hot Hole Pond.* (See Ponds.)

"5. *Snaptown*, the section comprising School District No. 14, in the northeasterly part of the town, near Loudon line. The origin of the name is uncertain. One tradition is, that it is derived from a man by the name of Blanchard, who had a habit of *snapping* his eyes, or winking quick: on which a woman remarked, that 'she should think the children in the neighborhood would snap.' Another tradi-

tion is that an early settler in the locality, thinking himself *crowded* by others who moved in within a half mile of him, was cross or *snappish.*

"6. *The Mountain*, comprising School District No. 21, and extending from the dwelling house of Jacob Hoit to the residence of Abraham Bean and John L. Tallant.

"7. *Bowen's Brook*, crossing the road to the Mountain in the valley near Meshech Lang's; origin of name not ascertained.

"8. *Turtletown*, comprising School District No. 15, derives its name from the large pond in that vicinity, which abounds with turtles. (See Ponds, page 543.)

"9. *Apple Town*, southerly of Turtle pond, supposed to derive its name from the abundance and excellence of apples there raised.

"10. *Leather Lane*, the section from the fork of the road to Appletown to the old burying ground in the East Village.

"11. *The Fort*,—including the East Village—deriving its name from the 'Irish Fort,' or from the garrison of Capt. Ebenezer Eastman, which stood directly west of the residence of Israel W. Kelley, Esq.

"12. *Squaw Lot*, westerly of Federal Bridge. (See Indian History.)

"13. *Mill Brook*, the outlet of Turtle pond, affording a fine water power in the East Village, on which the first saw and grist mill were built, in Concord, 1729.

"14. *Death's Hill*, on the Portsmouth turnpike, near the school house on 'Dark Plain,' a short, steep ascent, which the road now runs around on the south and east side, derived its name from the circumstance that a traveller, with a loaded team from Portsmouth, was killed in going over it by a hogshead of molasses rolling from his wagon.

"15. *Sugar Ball*, the first prominent sand bluff northerly of Kimball's Ferry, or Samuel Clifford's residence, and opposite Fort Eddy. On this, according to invariable tradition, stood the old Penacook fort.

"16. *Mount Pleasant*, a high and steep sand bluff, about eighty rods northwesterly from Sugar Ball, recently so called from the extensive and beautiful view it affords of the interval of the Merrimack and the Main Village; of hills of the West parish and scenes more distant.

"17. *Garvin's Falls*, formerly the residence of the Garvin family, including a portion of the 'Southern Bow gore.' In the ancient records it is known as the *Penny Cook Falls*, and not, as on the map, 'Soucook Falls.'

"18. *Head's Mills*, on the Soucook river, near the old line of Concord, a little north of the old road to Pembroke, about two miles from Concord bridge.

"19. *Placer*, a favorite place of resort in the summer, at a great bend in Soucook river."

To the foregoing may be added the following localities not mentioned by Dr. Bouton:

1. *Pond Hill*, the bluff at the north end of Main street, overlooking Horse Shoe pond, the interval, and the distant mountains. It was formerly a popular place of resort of pedestrians and used as a parade ground by the military companies of Concord. Here, also, for a time, was located the town pound. Since its depression by the Concord & Claremont Railroad, some fifty years ago, and the subsequent erection thereon of the ice house, it has been rarely visited except for business purposes.

2. *Wattanummon's Hill*, the slight eminence above the highway at the crossing of Wattanummon's brook by the Concord & Montreal Railroad. It is the highest land on the interval of the central part of the city, and is not known to have ever been submerged by a freshet.

3. *Brimstone Hill*, the southern termination of the terrace upon which has been built most of the compact part of the city at the south end of Main street, at the intersection of Turnpike and Water streets near the old Butters tavern.

4. *Tucker's Ferry*, the ferry of Lemuel Tucker, at East Concord, located, when in use, upon the site of Federal bridge, to which it gave way.

5. *Merrill's Ferry*, the ferry of Deacon John Merrill, near the south end of Main street, about one hundred and fifty rods above Concord bridge, discontinued upon the erection of that bridge.

6. *Bradley's Island*, originally a tongue of land on the east side of the Merrimack, attached to Sugar Ball interval, transferred to the other side of the stream, in 1831, by a freshet which cut for the river a new channel across the base of it. Portions of the old channel are now filled up and it is no longer an island but a peninsula.

7. *St. Paul's School*, the delightful hamlet two miles west of the state house, which takes its name from the important school to which its origin is chiefly due.

8. *Rolfe's Eddy*, a small bay of still water on the south side of Contoocook river, near its junction with the Merrimack, where sawed lumber was formerly held within booms for rafting down the river.

9. *Christian Shore*, a section of interval at East Concord, half a mile above Federal bridge, embracing, fifty years ago, the farms of

Samuel B. Locke, John Locke, Samuel B. Larkin, and Henry S. Thatcher.

10. *The Break of Day*, a small hamlet on the Dark Plain, near the intersection of the old Portsmouth turnpike and the road to Loudon, some three miles from the state house,—a locality better known and more frequently visited during the Civil War than before or since.

11. *The Broken Ground*, a section of hilly land mostly covered with forest trees, in the northeast part of Concord, lying between Turtle pond and the Loudon road,—a locality best known to woodsmen and hunters.

12. *The Shaker Road*, a road leading to Shaker Village, Canterbury, laid out some fifty years ago, from a point on the old Canterbury road, near the East Concord Congregational church, past the easterly side of Snow's pond to the southeasterly part of Canterbury.

13. *The Dark Plain*, that section of pine plain land which lies opposite the main settlement of Concord, extending from the interval, on the west, to Soucook river, on the east, and from Turtletown, on the north, to Pembroke line, on the south.

14. *Smoky Hollow*, the valley between Pitman and Montgomery streets, through which Tan Yard brook formerly ran, now largely filled up and occupied by stores and dwelling-houses.

15. *Whale's Back*, a glacial moraine, some twenty to thirty feet high, composed mostly of coarse gravel and extending along the westerly part of the compactly settled portion of the city from Washington to Pleasant streets.

16. *Birch Dale*, a locality in the southwest part of the city, near Great Turkey pond, where the late Dr. Robert Hall formerly had medical springs, whose waters he sold in considerable quantities and exported to different parts of the United States. Here he erected a hotel for the accommodation of patients, which was destroyed by fire in 1885 (July 26), causing a loss of about twenty-five thousand dollars.

17. *Sand Hill*, the elevation north of Centre and west of Spring street, from which cannon salutes were formerly fired, before it was covered with streets and houses.

18. *Glover's Hill*, the slope from the interval up to the Dark Plain, situated some eighty or ninety rods southeasterly of Concord bridge, at the top of which John Glover once resided.

19. *The Silk Farm*, a farm situated in the southwesterly part of Concord, at the intersection of the road leading to Dunbarton with that from St. Paul's School to Bow. It was purchased by a company, organized in 1835, for the manufacture of silk, an enterprise which was prosecuted for a few years but failed of success.

20. *Over the River.* In early times, the section now designated East Concord was spoken of as "Over the river," and bore that name until the middle of the last century, when the Boston, Concord & Montreal Railroad was built.

21. *Wattanummon's Field*, a section of interval lying along the southerly bank of the Merrimack, between Farnum's eddy and Federal bridge. It takes its name from the Indian, Wattanummon, who claimed to own it when the first white settlers came to Concord.[1]

22. *Horse Shoe Island*, a section of interval, of about one hundred acres, once a peninsula nearly encompassed by the Merrimack, converted to an island by a prehistoric change of the river's course.

23. *The New Colony*, a small hamlet, no longer existing, near the intersection of Franklin and Jackson streets, which was once occupied by a rough class of people, whose manners and morals had not risen to the highest standard of excellence.

24. *Farnum's Eddy*, a sharp turn of Merrimack river into its western bank, at the lower end of Rattlesnake interval. This was converted into a still pond in 1846, by the construction across its mouth of the embankment of the Northern Railroad.

25. *Garvin's Landing*, a place on the east bank of the Merrimack, at the "Bend," below the Concord bridge, where lumber was put into the river to be floated thereon to a market. It took its name from Patrick Garvin, who lived a mile or more farther down, on the opposite shore, in Bow.

26. *Ewer's Mill*, a sawmill on Hackett's brook, in East Concord, six miles from the state house, near the intersection of the roads leading to Canterbury and the old road to Portsmouth. Much lumber was once manufactured at this mill, but of late years the great reduction of the timber supply and the introduction of portable steam sawmills have greatly reduced its operations.

27. *Fisherville*, the former name of Penacook, named for Francis and Freeman Fisher, who introdueed cotton manufacturing to this locality about 1836.

28. *The Ivy Field*, a considerable section of unoccupied ground lying west of State and south of Monroe street, near the Rumford schoolhouse. Fifty years ago it was a place of resort for recreation, but it is now occupied by streets and houses.

29. *Dunklee's Fair Ground*, a large tract of open ground, extending on both sides of Broadway from Downing street to Rollins park. Here fairs of the New Hampshire Agricultural Society were held in 1856 and 1857. Here, too, some of the New Hampshire troops were temporarily quartered during the Civil War.

[1] See Bouton's Hist. of Concord, *pp.* 40–42.

30. *The West Parish*, the northwesterly section of Concord. Known for the last fifty or sixty years as West Concord.

31. *Fosterville*, a short court north of the pumping station of the Concord Water-works, extending from State street to the brow of the hill overlooking Horse Shoe pond. It was laid out some fifty years ago by Reuben L. Foster, and lined with dilapidated houses, transported from different sections of the city. It is now absorbed in the large settlement which has since grown up around it.