HISTORY OF HOT SPRINGS NATIONAL PARK

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INTRODUCTION

Hot Springs National Park, embracing the hot springs in Garland County, central Arkansas, was the first reservation of this character made by the federal government for the benefit of the public. It has special historical interest as the nucleus of that magnificient system of national parks and monuments which is preserving for us so many of the most beautiful and wonderful works of nature in various parts of the country, some of which might otherwise have been impaired by commercial exploitation, or else have long remained inaccessible to many of those who may now enjoy them.

Unlike most of the other parks, however, the reason for setting aside this first national resort was not primarily for its scenic beauty, but was due to the fact that the federal authorities in charge of administering the affairs of the Missouri, and later of the Arkansas Territory, early realized the necessity of establishing a permanent and more rigid control over the hot springs, which even then were resorted to by many travelers for the supposed therapeutic value of the waters.

The Hot Springs, about 47 in number, are all located along the base of Hot Springs Mountain, and produce a flow of approximately one million gallons daily. Several theories are advanced as to why these waters are hot but the generally accepted belief seems to be that the spring water, somewhere in its underground course, passes near a hot igneous intrusion that has not been exposed at the earth's surface.

The first act setting the area aside as a federal reservation was passed in 1832, the lands surrounding the hot springs having been ceded to the United States by the Quapaw Indians in 1818. The area originally contained over 2,500 acres, but has been diminished by the establishment of the city of Hot Springs, to which the government ceded, by gift, lands for street and alley purposes.

With the recognition of the Territory of Arkansas, Ambrose H. Sevier, first territorial delegate to Congress, recognized the importance of the Hot Springs to the people of the United States and introduced a bill into Congress stating:

"Be it enacted by the Senate and House of Representatives that the Hot Springs in Arkansas Territory, together with four sections of land with the springs as near the center as may be, are hereby reserved and set apart for future disposal by the United States Government, and are not to be entered, pre-empted, or appropriated for any purposes whatsoever." The bill became law on April 20, 1832.

ABORIGINAL HISTORY

The earliest visitors who came to the hot springs to "take the baths" and seek health from its mysterious waters may have been a group of Indians on the Archaic level to whom some archeologists have assigned the name Gulpa after one of the creeks near which their presumed remains have been found. Undoubtedly the "Mound Builders" occupied the area that is now Hot Springs National Park as evidence of their occupation is scattered throughout the State with pottery fragments, skeletons, and other artifacts in abundance, with inescapable evidence of mounds and fallen earth lodges left everywhere. Although no actual sites have been identified within the Park boundaries, it is fairly safe to assume they did utilize the springs, as traditions contends the locality was held as a neutral territory by the various hostile tribes, and that they laid aside their feuds and their war clubs when gathered here to enjoy the gifts of the great Manitou who presided over the hot springs. These were undoubtedly Caddoan-speaking tribes, in late pre-Spanish and early historic times.

There was another incentive besides the hot springs that attracted the red men to this locality, of which substantial evidence remains: this was the deposits of novaculite, which outcrop on several of the mountains surrounding the springs, and which afforded a resource perhaps even more important to the barbarian culture of those times. Novaculite, an extremely fine-grained, dense, translucent silicious rock, variably white, pearl, gray, yellow, or reddish black, could be readily shaped into a keen cutting edge. Because of its superior quality for the

manufacture of weapons and domestic tools, it became the basis of an important primitive industry. Some of the beds were extensively, though no doubt intermittently worked, probably for many centuries, and artifacts from this source are found scattered over a wide territory, especially to the south, through the Red River Valley and to the Gulf of Mexico.

The fact that much of the Hot Springs section is underlaid with novaculite, plus the presence of salt springs in the district, must have contributed to the transient population, and to the heterogenous mixture of tribes found in this particular area. These people knew nothing of the use of iron, and were forced to find a suitable substitute from which to fashion implements of war and domestic agricultural and hunting tools.

On Indian Mountain, in Hot Springs National Park, is one of the largest quarry groups known to students of archeology. These quarries are at the crest of a narrow ridge, the largest pit being something like a 150 feet in diameter and 25 feet deep.

Actual shaping of the tools and implements probably never was done at the quarry. The "blanks" were carried to the villages and camps along the creeks and rivers, where the workmen, with the use of stone hammers, and flaking tools made from antlers of deer or elk, chipped the rock into the desired shape for knives or points.

Since there was evidently a large traffic in novaculite, it is likely that the knowledge of the existence of springs of hot water

within less than two miles of the quarries became widespread among Indian tribes from many sections of the country. That the Indians would consider these naturally hot waters a supernatural manifestation of spiritual significance is in keeping with what we know of the religious thought of the aborigine. Thus it is probable that these waters were used, both ceremonially and medicinally, not only by the resident tribesman but by visiting Indians from far and near.

Later, in historic times, came other Indian tribes moving west from the Southeastern United States -- the Quapaw in the 18th century, and the Choctaw, Cherokee and others early in the 19th century.

COMING OF WHITE MAN

The first white men supposed to have visited the Hot Springs region were Hernando de Soto and his followers, in September 1541. This famous expedition had set out to explore the great continental province, then known as Florida, in search of fabled mines and populous cities, which they confidently believed would rival those of Mexico and Peru. In the course of their wanderings through the trackless forests and swamps of the lower Mississippi valley, having crossed that great river somewhere below the present city of Memphis, they turned to the west, traversing parts of the rugged Ouachita region until they reached an Indian town on the Ouachita River.

Although the references by the historians of De Soto's expedition to this part of their travels is somewhat vague and uncertain, there can be little doubt that their route led them through this locality, and that it was from their winter camp somewhere in the vicinity of the hot springs that Hernando de Soto set forth on the last tragic stage of his wanderings, to end for him a few months later in a watery grave beneath the floods of the great river he had discovered.

After the visit by De Soto, the area lay unexplored for many years. In the two and a half centuries intervening between the time of De Soto's expedition, and that of Dunbar and Hunter, a party connected with the Lewis and Clark expedition of 1804, trappers, hunters, and travelers, must have found their way to the hot springs from time to time without leaving any account of the event. It is stated in the report of Dunbar

and Hunter, that white men were already visiting the springs for the purpose of taking the baths and they found "an open log cabin with a few huts of split boards all of which had been calculated for summer encampment for the recovery of their health."

The curious circumstances that this extremely interesting locality was for so long a time overlooked by the various travelers who explored and described the lower Mississippi valley and the Louisiana Territory, is only to be accounted for by the fact that it lay in a rugged and inaccessible country, some distance away from any of the great navigable rivers, which then furnished the only main avenue of travel through the uncharted wilderness.

In 1806 Manuel Prudhomme established a cabin and became the first white resident of the Hot Springs Area.

LOUISIANA TERRITORY UNDER OTHER FLAGS

1682 - 1877

French Rule, 1682 - 1762

After the passage of De Soto through the territory of Arkansas, Spain did not attempt to retain control of this new land. In 1682, Robert Cavalier de LaSalle claimed the territory in the name of France, and the era of French rule began.

The French were primarily interested in trading with the Indians, and with the exception of lands upon which to construct trading posts, and small acreages for farming, the Indians were left in possession of their lands. In the event the post was abandoned, the land reverted to its Indian owners. Under such a liberal policy it can be readily understood why the French traders were, except in rare instances, always on friendly terms with the natives.

Although the area surrounding the Hot Springs was utilized by the early French trapper and trader, no attempt was made to obtain possession of the hot springs and the adjoining land.

Spanish Rule, 1762 - 1801

With the Treaty of Fontainebleau on November 3, 1762, the French and Indian war was concluded and France relinquished all her possessions west of the Mississippi to Spain. Again the Spanish policy was placed into effect in which, despite the original humane orders of the commission to Cortez, and subsequent commanders, the Indians were exploited. Spanish authorities never accepted the idea that the Indians were the owners of

all the land, but only of such tracts as were actually occupied, or were necessary to supply the wants of the tribe. All other lands were claimed by Spain "by right of discovery", and the policy of dealing with the Indians was based upon this hypothesis. Frequent land grants were made to individuals without the authorities going through the formality of ascertaining whether such lands were occupied by the Indians and this led to great confusion in later years when ownership of the Hot Springs was brought into the Federal courts.

With the advent of Spanish rule over the territory of Louisiana, their system of granting title to lands was often highly irregular. No written contract or deed was considered necessary to establish title to land. In some cases a written petition was submitted by the person asking for a grant of land, and this petition, bearing the indorsement of the proper official, was often the only record of the transaction. Transfers of real estate were made the same as transfers of personal property - the consideration being accepted, the purchaser was placed in possession and this completed the deal. The Spanish had no probate courts to settle estates. When a man died, his heirs, creditors, and other interested parties assembled at the parish church, where the estate was settled according to the recommendations of the parish priest. After the Spanish came into possession of Louisiana, the French inhabitants adopted the Spanish customs and it is not surprising that, under such a loose system, titles should become a matter of dispute.

French Rule, 1801 - 1803

By secret treaty of St. Ildefonso, March 24, 1801, possession passed from Spain back to France. Since the provision of the treaty provided for secrecy, the Spanish Viceroy in New Spain continued to grant rights and privileges that were to breed considerable confusion as to land titles, etc., in the years to come.

United States Rule, 1803- Present

With the purchase of the Louisiana territory from France, April 30, 1803, for $15,000,000, and the transfer of Upper Louisiana to the United States on March 9, 1804 at St. Louis, Spanish and French rule ended in all Louisiana, and Arkansas became recognized as a territory of the United States.

Again the Indians were scorned and neglected, and by the conclusion of several treaties the Indians were relieved of their lands and forced to move westward. In 1818 a treaty was entered into with the Quapaw Indians who ceded to the United States all lands south of the Arkansas River, including the lands on which the Hot Springs were located.

With the increased popularity of the hot springs some individuals were aware of the potential commercial value of ownership and considerable effort was expended to lay claim to title to the hot springs.

One of the most persistant claimants of the area surrounding the Hot Springs was Joan Filhiol, alleging it had been granted to him by Governor Miro, a Spanish administrator of the Louisiana Territory, in 1787. About the time the United States came into possession of Louisiana,

Filhiol, in order to strengthen his claim, transferred the land to Narcisso Bourgeat, who a little later sold it back to Filhiol. United States commissioners appointed in 1805 to study land titles, etc., found the evidence of title insufficient and recommended that the grant not be confirmed. Upon this finding, the government refused to issue a patent to Filhiol.

Grammont Filhiol, son of the original grantee, assigned the claim to a speculator named William Ball, and in 1829 Ball began proceedings in the Federal Courts to obtain title to and possession of the land. Then the Spanish records of St. Louis and New Orleans were carefully examined, but not a line could be found to indicate that Governor Miro had really granted the land to Jean Filhiol.

The courts decided that Ball has no legal title. Through newspaper articles, continued over a period of several years, Grammont Filhoil tried to create a sentiment in favor of his claim, but the courts refused to grant another hearing.

Meanwhile, development of the Hot Springs area continued although the title to the lands was not settled.

In 1820, Elias Rector, purchased a New Madrid certificate from Francois Langlois, and located on a tract, including the springs. Application of the entry of this tract was made as early as January 27, 1819. The following year it was surveyed, and application was made to the general land office for a patent. The commissioner withheld a patent

on the grounds that the Indian title had not then been extinguished. A little later William Wirt, attorney-general of the United States, rendered an opinion that the New Madrid certificate could not be located upon lands south of the Arkansas River. In 1813, Henry M. Rector settled in Hot Springs and began an effort to have the claim upheld by the Government, and a patent issued. The Supreme Court of the United States upheld the opinion of the attorney-general, thereby invalidating the Rector claim.

Another claim was that of the Belding heirs, who claimed title under the pre-emption act of 1816, upon the settlement at the springs in 1828 of Ludovicus Belding. In 1851, Major William H. Gaines, married Maria Belding, one of the heirs, and assumed the management of their claim.

The Hale claim was based upon the settlement and occupation by John Percival. After Percival's death in 1846, John C. Hale, located at the springs in 1840 and purchased from Percival's widow and son their claim to the hot springs.

In 1852, the three claimants began litigation to determine which was entitled to the property. They found themselves handicapped at the start by an Act of Congress of 1832, which had set apart four sections of land, including the springs, as exempt from private ownership "by purchase, settlement, or pre-emption".

In 1875, Senator Rise from Arkansas, introduced a bill in Congress requiring all litigents to file suit in the Court of Claims in Washington. These were filed and settled in favor of the Government, and upon being appealed to the United States Supreme Court, Justice Bradley delivered the courts' opinion on March 4, 1877, affirming the decree of the Court of Claims, vesting title of the lands in the United States.

In 1877, Congress authorized the appointment of Commissioners to settle the rights of possession. The Commissioners placed valuations upon the various parcels of land and decided who were entitled to purchase them. In this way Belding and Hale claimants were able to purchase at least a portion of the land claimed, but the Rector claim was barred under the ruling of the attorney-general.

HOTELS - BATHHOUSES

With the consummation of the Louisiana Purchase in 1803, President Jefferson appointed several expeditions to explore this acquired territory and report as to just what the government had purchased. One of these expeditions, Dunbar and Hunter, visited the Hot Springs in 1804, made several analyses of the waters, and collected information on the geology, geography, and vegetation of the region. The report recorded cabins at the springs which had evidently been built and utilized by the early French traders and trappers.

In 1806 Manuel Prudhomme established a cabin and became the first white resident of the Hot Springs area, remaining until 1808 when he returned to his original home near Natchitoches Parish in Louisiana.

In 1807, John Purcival purchased Prudhomme's holdings, and later claimed pre-emption rights to the springs that were never recognized by the Government. From this date forward, for many years, parties came from the south to spend the hot summer months, utilizing the springs, and renting cabins from Purcival.

In 1828, Ludivicus Belding and family, used one of Purcival's cabins. Later he built other cabins and opened a little store, exchanging provisions for pelts, and constructed the first hotel.

In 1830, Asa Thompson leased the hot springs, apparently from Belding, and operated the first bathhouse, having one wooden tub, in which he gave three baths for one dollar. Normal bathing facilities at that time were very primitive, being mere cavities cut in the tufa rock,

into which the water ran, serving as tubs, with a screen of bushes lending an inadequate touch of privacy. The first vapor bath facility was a niche cut into the tufa rock, the hot water being conveyed into a pool under an open floor, over which a rude seat for the bather to sit upon was constructed. The niche was covered overhead with rocks and boards, and in front with a blanket. The cooling room was the "out-of-doors".

In 1832, John C. Hale constructed the second hotel. At this time the permanent resident population of Hot Springs was approximately 250.

In 1839, there were five bathhouses. David Dale Owen, in his geological report on the State in 1858-59, gave a diagram indicating there were seven bathhouses and three small pavilions built over the springs or mud holes.

As late as 1860, water was conveyed from the spring to bathhouses in wooden troughs supported on wooden frames. From the tanks above the bathhouses, the water shot down on pulling a rope and raising a plug, into a top made of thick boards or hewn from a log.

With the settlement of the major question as to the rightful ownership of the Hot Springs, and the establishment of a commission to regulate the use of the government reservation in 1877, a permanent plan of improvement was announced together with the promulgation of rules and regulations designed to properly administer the area.

By this time the resident population had multiplied to 3,554, with a total estimated annual visitor population of 50,000. A newspaper was established and the following account appeared in the Hot Springs Illustrated

Monthly for February, 1878:

"In this city bathing is the chief employment of the invalid. Upon rising in the morning, if the weather is suitable, and it usually is, a short walk around the city is taken for exercise and a cup or two of hot water indulged in, then breakfast is taken. After breakfast an hour or two is devoted to reading the morning papers, chatting, etc., then it is about time to visit your physician; after seeing him, you go to your hotel and prepare for your bath. Upon reaching the bathhouse the servant prepares the water for you, and you are notified that the bath is ready. The water you will find to be from 98 to 100 degrees as your physician advises; upon getting in it a delightful feeling is experienced, produced it is supposed by the therno-electric condition of the water. From six to ten minutes is usually spent in the tub during which time you take frequent potations of hot water. Then into the vapor room you go, this is a small box room, having a slat floor under which water of from 120 to 150 degrees flows, the temperature of the vapor rooms vary in some of the rooms it is as high as 120 degrees. At the expiration of from one to two minutes, during which time you have been drinking hot water, you again go into the tub room where the servant has prepared

your blankets in the tub for packing you as it is called, which consists in wrapping you up in blanket, where you stay for nine or fifteen minutes, and drink hot water. The perspiration by this time is flowing quite freely, and you begin to feel slightly depressed. You are then wiped off vigorously with a rough towel by the servant, until you are thoroughly dry. After putting on your clothes as rapidly as possible, you wrap up closely and go to your room, where you remain for half an hour or more, and then take dinner. This process is gone through daily, and generally, each day, you feel improved, and thank God for having created the celebrated Arkansas hot springs."

Steadily the visitation to the Hot Springs increased, and promotional literature was circulated to stimulate this interest. In Cutler's Guide for the year 1889 the following account was written:

"The waters are clear, tasteless and inodorous; they come from the sides of the ridge pure and sparkling as the pellucid Neva; holding in solution, as they rush up hot and bubbling from natures most wonderful alembic, every valuable mineral constituent. In the cure, especially of nearly all manner of blood and chronic diseases, they are unequalled, and their wonders have become mainly known to all the world by the living and breathing advertisements of those who have proven in their own persons their wonderful curative powers."

By 1890, twelve bathhouses were in operation on the government reservation, with the following dates listed as the granting of the original leases:

Arlington	December 15, 1878
Rector	December 16, 1878
Old Hale	May 10, 1879
Rammelsburg	May 7, 1880 (present Buckstaff)
Independent	June 15, 1880 (present Maurice)
Big Iron	July 25, 1880
Palace	January 26, 1881 (Present Fordyce)
Ozark	April 7, 1881
Magnesia	May 28, 1883 (present Quapaw)
Horseshoe	June 12, 1883 (present Quapaw)
Lamar	July 24, 1883
Superior	December 7, 1883

Together with the twelve houses on the reservation, there were scattered throughout the city the following bathhouses:

Avenue	July 14, 1881
Eastman	January 17, 1889
Alhambra	March 1, 1889

The remaining houses were utilizing water, but no records of original leases can be found. According to "Musick" the following houses did not have leases but only "verbal permission" to take the water:

Rockefeller

Grand Central

Hot Springs

French

Sumpter

Park

The number of bathhouses fluctuated up and down during the ensuing years, but visitation continued on an upward trend until at the present date eighteen bathhouses are in operation; eight on government property, and ten situated at various points throughout the city. The 1950 census of the city of Hot Springs listed 29,307 residents within the city limits, with an additional 7,500 living in close proximity. Visitation to the Hot Springs National Park for the year 1953 totaled 338,828.

The following bathhouses were operating in 1954, each authorized under a contract with the Secretary of the Interior:

Alhambra	Majestic
Arlington	Maurice
Baptist	Moody
Buckstaff	Ozark
De Soto	Pythian
Fordyce	Quapaw
Hale	Rockafellow
Jack Tar	St. Joseph
Lamar	Superior

Eight of the bathhouses - viz., Buckstaff, Fordyce, Hale, Lamar, Maurice, Ozark, Quapaw and Superior occupy lease sites in the federal

area of Hot Springs National Park, bordering the famous magnolia and holly tree sidewalk which parallels Central Avenue in the municipality of Hot Springs.

Ten bathhouses exist in the city of Hot Springs, viz., Alhambra, Arlington Hotel, De Soto Hotel, Jack Tar Hotel, Majestic Hotel, Moody Hotel, National Baptist Hotel, Pythian Hotel, Rockafellow, and St. Joseph Hospital. There are also two under water therapeutic pools, one at the Maurice Bathhouse the other in the Leo N. Levi Memorial Hospital.

In addition there is the Leo N. Levi Memorial Hospital, which is not open to the general public, and the Government Bathhouse. The latter is operated by Hot Springs National Park to provide baths without charge for indigents, as authorized by Act of Congress, December 16, 1878 (20 Stat. 258).

TRANSPORTATION

Pioneer visitors to Hot Springs found very poor transportation facilities available. In 1800, the old Southwest Trail was the only road into Arkansas Territory, and the road to Hot Springs from Little Rock was an obscure path. Later, Congress became interested in roads, and in 1831 appropriated funds for the construction of what was known as the National Road. This extended south from St. Louis through Cape Girardeau, Little Rock, and what is now Arkadelphia. A trail connected with this National Road at Malvern, making a 24-mile overland trip into Hot Springs by foot, horseback, or carriage.

With the construction of the St. Louis-Iron Mountain-Southern Railroad into Malvern, Arkansas, the overland journey was terminated when Joseph Reynolds completed the "Diamond Joe" railroad into Hot Springs in the 1870's.

The Hot Springs Branch Railroad Company, the "Diamond Joe Line", was chartered on July 28, 1870, under the general railroad laws of Arkansas. The president, secretary, and treasurer of the company from the time of incorporation until 1891 was Joe Reynolds, whose address was given as Chicago, Illinois. His first board of directors were, besides himself, W. Fleming and J. T. Bassett of McGregor, Iowa; P. W. Ellsworth of Hot Springs, and P. C. Rumbough of Little Rock. The capital stock was $600,000, representing the cost of the road. Built to a 3-foot gauge (narrow gauge) and laid with 52-pound rail, it was opened for traffic in November, 1875.

Historical legend has it that "Diamond Joe" built this railroad because he had made the overland trip from Malvern to Hot Springs, and was so incensed at his discomfort that he promised to build a railroad into the town, reducing the inconvenience to visitors who wished to avail themselves of the thermal waters.

During the entire period the road was controlled by Reynolds no financial or operating statistics were issued to the press, financial journals or to the general public. However, it is known that the road owned three locomotives, seven passenger cars, and forty-one freight cars in 1890. The gauge was changed to the standard 4'8½" on October 17, 1889.

Other presidents of the company were:

1892 - L. D. Richardson, Hot Springs

1894 - E. M. Dickey, Chicago, Illinois

1896 - Jay Morton, Hot Springs

1901 - Francis I. Gowen, Philadelphia, Pa.

On May 3, 1902, the franchises and property were purchased by the Choctaw-Oklahoma-Gulf Railroad, a Rock Island subsidiary, for $600,000 in stock, and thereafter remained Rock Island property.

At the present time, Hot Springs is served by the Missouri Pacific and Rock Island Railroad. Due to a decrease in rail traffic, with the greater percentage of travel to the area arriving by automobile, Rock Island discontinued passenger service on September 22, 1951, although freight service is still available from the railroad.

Other means of access to Hot Springs National Park are the Chicago and Southern Airlines, with connection to all major air services; and by automobile on U. S. Highways 70 and 270, and State Highways 7 and 88.

BOUNDARY STATUS

With the passage of the original act on April 20, 1832, it was enacted "that the Hot Springs in Arkansas Territory, together with four sections of land including such springs, as near the center thereof as may be shall be reserved for the future disposal of the United States and shall not be entered, located, or appropriated for any other purpose whatever." Under the provisions of this act the south half of Sections 28 and 29, and all of Sections 32 and 33, township 2 south, range 19 west, of the fifth principal meridian, and the north half of Sections 4 and 5, township 3 south, range 19 west, were set apart and designated as the original hot springs reservation.

On December 11, 1879, the Hot Springs Commission was created by appointment of the President of Messrs. Aaron H. Cragin, John Coburn, and M. L. Stearns, authorized by an act of Congress, approved March 3, 1877. This commission made their final report to the Secretary of the Interior in which they state that "the claims for the right to purchase land have all been adjudicated, the records made up, the appraisements have been made, the surveys have been completed, and the unreserved land laid out as a town....." As a result of their work, the original Hot Springs reservation, containing 2,529.10 acres was subdivided as follows:

Hot Springs Mountain	264.93 acres	
North Mountain	224.74	
Sugarloaf Mountain	129.02	
West Mountain	281.94	
City Lots	1,270.10	
Streets and Alleys	358.37	
Total		2,529.10 acres

On the basis of the above gifures, reports submitted by Superintendents at various times through the ensuing years showed discrepancies as to acreages within the reservation. To establish a base upon which to prepare land ownership records, a survey was conducted by the General Land Office, and a map compiled, dated July 13, 1932, which has been taken as the point of origin, and subsequent acreage figures were tabulated from this material. The acreage shown on land ownership records, as of this date, is as follows:

Hot Springs and North Mountain		499.65 acres	
Less Army & Navy Hospital Grounds	24.03		
Less Deed No. 1	16.14		
Total		40.17	
		459.48	
Sugarloaf Mountain		127.14	
West Mountain		282.96	
Whittington Lake Area		11.55	
Block 82 (Donated by Chamber of Commerce for Free Bathhouse 8/9/19)		0.74	
Total Area			881.87 acres

Subsequent boundary revisions were as follows:

June 5, 1924 - Campground donated by Chamber of Commerce Park W½SW¼ Sec. 27	16.14
April 20, 1932 - Fordyce Donation. Indian Mountain. Tract crossed by paved county highway	60.13
August 22, 1937 - Perry McGlone donation. Park entrance lots. Lot 5, Block 188	1.50
June 25, 1938 - Purchase from B. L. Wright. Parts of Lot 1, Block 188	0.15
October 3, 1938 - Purchase from Gertrude Durr. Part of six lots in block 185-188	5.82
June 24, 1938 - Transfer from public domain. Blocks 188 and 189	16.20
November 22, 1938 - Purchase from O. M. Henderson. Part of Lot 1, Block 188	0.24

March 29, 1939 - Purchase from E. C. Ellsworth. Part of Lot 1, Block 188		0.09 acres
July 30, 1940 - Purchase from E. T. Housley. Lot 6, Block 188		0.60
January 3, 1941 - Donation from City Council Hot Springs, Abondonement of certain streets.		2.75
May 22, 1941 - Purchase from O. H. Belding. Lot 11, Block 101		0.90
June 11, 1941 - Donation from City Council. Abondonment of certain streets.		0.80
July 28, 1944 - Donation from J. Earl Housley. Public Health Service Medical Center		33.02
By Act of Congress, June 24, 1938.	Minus	0.36
Act of Congress, August 24, 1954	Minus	33.02
1955 - Total Acreage this date		986.11

FEDERAL REGISTRATION BOARD

The Annual Report of the Superintendent of the Hot Springs Reservation, to the Secretary of the Interior, for the year 1905 contains the following outline of the need for, and the creation of, a Federal Registration Board to regulate the practice of physicians and to enforce the Rules and Regulations of the Secretary of the Interior applicable to the United States Hot Springs Reservation:

> "The year just ended has marked a decided advance movement on the part of the Department in the enforcement of its rules and regulations for the better government of this reservation and in the methods adopted for the protection of its patrons. Aside from the loyal support of the Business Men's League (the principal commercial organization of the city), the organization known as the Visitors' Protective Association, and a few private citizens, the Department has battled almost single handed and alone for the elevation of this resort and protection for the sick and afflicted who come here for relief, while the manucipality, the greatest beneficiary of the successful operation of this property by the National Government, sits idly by, engrossed in a masterly inactivity.
>
> "This lack of active aid from the city proper is not so much due to disinclination of officials or want of sympathy with or appreciation of the general objects aimed at by the Government as it is to the adverse influence of municipal politics, which is largely controlled by the corrupt, demoralizing, and nefarious

drumming system which has flourished here for years-a vicious practice whose ramifications have indisiously permeated and corrupted the morals, integrity, and honor of the community; a vicious monster who fattens and feasts on the sick and afflicted; the creation of a propaganda of professional brigands who solicit patients through the medium of paid solicitors called drummers, who, after gaining the confidence of the sick visitor, sell him to some incompetent, conscienceless doctor, who charges an exorbitant fee, which fee is divided with the drummer. The easy and successful accomplishment of this end by the drummer is best understood when considered that the victims are sick and debilitated in body, their minds enfeebled in sympathy with their physical infirmities, rendering them an easy prey for these vultures in human form.

"For years this Department has been engaged in a laudable effort to destroy this hydra-headed monster, through its rules and regulations, with varying degrees of success. Under the rules and regulations approved June 6, 1903, provision was made that a board of medical commissioners should pass upon the qualifications and character of physicians who desired to prescribe the baths, and prohibiting the patients of drumming doctors from bathing in the various bath houses having franchise from the Government, establishing a registered list of those found competent, which list was filed in this office for the guidance of the superintendent in the enforcement of the rules. Under that

registration 94 names were certified to the superintendent as qualified, while 25 were finally rejected. From this registration an appeal was taken to the United States circuit court, eastern district of Arkansas, by the nonregistered doctors, who prayed an injunction against the superintendent restraining him from enforcing the rules and regulations, which cause was sustained by the court and decided against the Government; on the grounds that the law of Congress approved March 3, 1891, known as the Hot Springs Act, did not explicitly confer the power and authority upon the Secretary of the Interior to make rules governing the prescribing of the baths. In conformity with this decision Congress passed an act, approved April 20, 1904, entitled, "An act conferring jurisdiction upon United States commissioners over offenses committed in a portion of the Permanent Hot Springs Reservation, Arkansas," in which, among other provisions, the powers and authority of the Secretary of the Interior are enlarged, and full power is vested in him to make all needful rules and regulations for governing this reservation, the uses of the water, and prescribing the baths by physicians and others, and prescribing penalties for violations of said rules.

"In accordance with the provisions of this act, under date of October 31, 1904, the Secretary of the Interior appointed a board of commissioners, consisting of William H. Barry, M.D.,

Capt. Samuel L. Steer, U. S. Army, and Hon. Charles D. Greaves, to pass upon the qualifications and character of physicians desiring to prescribe the waters from the Hot Springs Reservation, and also approved an amended series of rules and regulations for the guidance of the board and the superintendent.

"Following the registration of January 25, 1905, suit was again brought by S. C. Van Leer in the United States circuit court against the superintendent and the medical board, attacking the constitutionality of the act of Congress and validity of rules and regulations, praying for an injunction against the superintendent and the board restraining them from carrying into force and effect the rules and regulations and the orders of the Secretary of the Interior, and asking for damages in the sum of $10,000. Upon trial of the case the court held that the United States by virtue of its ownership of the reservation had full power to pass the act of April 20, 1904, conferring authority on the Secretary of the Interior to make the rules and regulations; that they are valid and have the force of law; that the medical board was duly created and exercises quasi judicial power; that their action can not be inquired into except for malice or fraud."

The present Federal Registration Board consists of 4 registered physicians, Hot Springs National Park, the Commanding Officer of the Army and Navy General Hospital and the Superintendent of Hot Springs National Park, the latter acting as Secretary of the Board. The duties of the Board are covered by the Rules and Regulations as promulgated by the

Secretary of the Interior, viz., to determine the qualifications and character of applicants to prescribe the Hot Springs waters and to advise the Superintendent concerning the use of the Hot Springs waters.

On September 28, 1954, the Secretary of the Interior approved the establishment of an Examining Board for Technicians to consist of one registered physician, one registered physiotherapist, one registered masseur, one registered bath attendant and one member of the staff of the Superintendent of Hot Springs National Park, to prescribe the requirements and conduct examinations for all applicants seeking to be registered physiotherapists, hydrotherapists, masseurs and bath attendants.

LEGISLATIVE HISTORY

Many legislative acts were passed that had a bearing on the administration of the area. Some of the most notable were:

April 20, 1832 (4 Stat. 505)

An Act authorizing the Governor of the Territory of Arkansas to lease the Salt Springs, in said territory, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that the Salt Springs lying on the Washita River, on Little River, and on Saline Creek, in said territory of Arkansas, together with as many contiguous sections to each of said springs as shall be equal to one township, and every other salt spring which may be discovered in said Territory, with the section of one mile square which included it, shall be reserved for the future disposal of the United States, and shall not be liable to be entered, located, or appropriated, for any other purpose whatever.

Section 2. And be it further enacted, that the Governor of said Territory shall be, and is hereby, authorized to let out or lease said springs for a term not exceeding five years; and the rents and profits arising from said springs shall be applied by the Legislature of said Territory, to the opening and improving such roads in said Territory as said Legislature may direct, and to no other purpose whatever.

Section 3. And be it further enacted, that the Hot Springs in said Territory, together with four sections of land including such springs, as near the center thereof as may be, shall be reserved for the future disposal of the United States, and shall not be entered, located or appropriated, for any other purpose whatever.

June 11, 1870 (16 Stat. 149)

Section 1. Persons claiming title to Hot Springs Reservation may bring suit in Court of Claims to settle same, provided that such suit be initiated within 90 days of passage of act or forever barred.

March 3, 1887 (19 Stat. 377)

Appointment of three Commissioners to lay out Hot Springs Reservation and to assess tax on waters from springs and to submit report to Secretary of Interior within 30 days covering permission for lands to be filed upon in the Reservation.

December 16, 1878 (20 Stat. 258)

To correct an error in not establishing funds for payment of duties assigned. The leasing of bathhouses for 5 year periods at a tax of $15.00 per tub including land rent. To prevent monopoly no bathhouse with more than 40 tubs and water for same. Free baths for indigents. Titles to land given by United States shall exclude the right to drill for water. Hot Springs and Mountains forever free from sale or alienation.

June 16, 1880 (21 Stat. 288)

Section 1. Land titles adjudicated by the commissioners. Sole right of entry and payment preserved by payment of 40% assessed value for 18 months after notice.

Section 2. Certificate issued for condemned buildings (except #162) made receivable for entries and purchase money for lands in Hot Springs reservation.

Section 3. Mountainous districts defined and dedicated to public use forever and to be known as U. S. Hot Springs Reservation.

Section 4. Cemetery lot shall be vested in town.

Section 5. Secretary of Interior authorized to designate 6 lots for school and to convey plot of land to Baptist Church.

Section 6. Streets, courts, and alleys ceded to city of Hot Springs.

Section 7. Remainder of town lots and blocks not disposed of or reserved, to be sold at public auction at not less than their appraised value.

June 30, 1882 (22 Stat. 121)

Establishment of Army and Navy Hospital at Hot Springs, Arkansas.

March 3, 1887 (24 Stat. 647)

Hot water to be supplied to bathhouses off the reservation provided not to interfere with Army and Navy Hospital or bathhouses on reservation.

March 26, 1888 (25 Stat. 619)

Authorized establishment of 3 bathhouses off reservation. Annual tub rent raised to $30.00 per tub in all houses. New houses cannot be owned by people having house on reservation.

March 3, 1891 (26 Stat. 842)

Lease bathhouses for 20 year periods with annual rent of $30.00 per tub. Authorized Secretary to make all regulation and affix fees. No person,

corporation, etc., may have an interest in more than one house.

Section 5. Authorized state taxation of personal property on reservation.

December 21, 1893 (28 Stat. 21)

Granting right of way for construction of railroad and other improvement over and on West Mountain.

August 7, 1894 (28 Stat. 263)

Hot Springs Water Company given 20 year lease on site for cold water reservoirs on West Mountain.

March 19, 1898 (30 Stat. 403)

Secretary may authorize construction of observatories, etc.

May 9, 1898 (30 Stat. 403)

Supreme Lodge, Knights of Pythias may erect sanitarium on reservation.

The State of Arkansas was admitted to the Union upon terms set forth in the Act of Admission, June 15, 1836. Since reservation of jurisdiction over the Hot Springs reservation was not among these terms, the Government, prior to 1903, had no more jurisdiction over this area than it had over any other public lands in the State. The following act was passed to alleviate that situation.

February 21, 1903 (State Law) page 52; Digest of the Statutes of Arkansas, 1921, sec. 4558, p. 1241.

Ceding exclusive jurisdiction to United States of Hot Springs Mountain area (defined). Civil laws and taxation concurrent.

April 12, 1904 (33 Stat. 173)

Secretary authorized to grant as many bath tubs in hotels, etc., as in his discretion he may deem proper and necessary and the amount of hot water will justify.

April 20, 1904 (33 Stat. 187)

Acceptance of exclusive jurisdiction on Hot Springs Mountain. Designated area as part of Arkansas judicial district. Misdemeanors defined and penalty fixed. Solicitation of patronage by physician forbidden. Commissioners given power to issue warrants of arrest, and persons authorized to make arrests defined.

"March 2, 1907 (34Stat. 1218)

Any U. S. Commissioner shall have power and jursidiction over violators of the aforementioned Act."

February 15, 1911 (36 Stat. 906)

Masonic Lodge 62 given authority to construct buildings on specified area and for water for drinking and to furnish 5 tubs.

March 2, 1911 (36 Stat. 1015)

Requiring persons who bathe at Free Bathhouse to take oath (they are without and unable to obtain funds) and designated penalty for false oath.

June 3, 1912 (37 Stat. 121)

Leo N. Levi Hospital authorized to occupy and construct building on specified lots. Hot water and 5 tubs granted.

July 8, 1919 (39 Stat. 351)

Water furnished for five (5) tubs free to Levi Hospital providing hospital send ambulance for and treat all emergency patients originating on the area of the Hot Springs Reservations.

February 2, 1921 (State Law) General Acts of Arkansas 1921, page 63

Ceding to the United States exclusive jurisdiction over Block 82.

March 4, 1921 (41 Stat. 1407)

The Hot Springs Reservation shall be known as the Hot Springs National Park.

September 18, 1922 (42 Stat. 847)

Acceptance of Act of February 2, 1921.

March 27, 1925 (State Law)

Ceding exclusive jurisdiction to United States of automobile tourist camp.

March 3, 1927 (44 Stat. 1359)

Acceptance of above.

February 14, 1931 (46 Stat. 1109)

Arlington Lawn designated (Arlington Hotel burned on 4/5/23). Area formerly occupied by the Arlington Hotel to be kept, retained and maintained by the United States for park purposes and no other lease to be granted.

March 25, 1933 (State Law)

Exclusive jursidiction ceded by State of Arkansas, provided, that this

grant or jurisdiction shall not prevent the execution of any process of the State, civil or criminal, or any person who may be in the Park or Park premises; provided further, that the right to tax all structures and other property in private ownership on the Hot Springs National Park is hereby reserved to the State of Arkansas.

Jurisdiction accepted June 2, 1927 (50 Stat. 243)

June 15, 1936 (49 Stat. 1516)

Boundary extension to include Lot 11, block 101, lot 5, block 185; lot 6, block 186; lot 5, 6, 7, block 187, and lots 1, 2, 3, 6, and 15, block 188 (purchase by funds appropriated not to exceed $15,000).

June 26, 1936 (49 Stat. 1979)

An act increasing the penalty for making false oath for the purpose of bathing at government free bathhouse. ($25-$300 and 60 days).

June 2, 1937 (Public No. 129)

Act accepted the cession by the State of Arkansas of jurisdiction over all lands now or hereafter included within Hot Springs National Park and for other purposes.

June 24, 1938 (52 Stat. 1038)

Boundaries extended and land granted to city of Hot Springs. Appropriation authorization for purchase of boundary extension in Section 1.

August 10, 1939 (53 Stat. 1341)

Amendment to Act of June 15, 1936.

Section 2. Supplemental appropriation of $8,000 for the purchase of lands described in original act.

Section 3. Secretary of Interior authorized to accept donation of lands or interests in lands within the city limits of Hot Springs, Arkansas. Upon acceptance of lands they shall become a part of Hot Springs National Park.

August 24, 1954 (68 Stat. 790)

Ceding to Hot Springs School District No. 6 and Garland County Health and Welfare Unit for school and county purposes 33.02 acres of land located at former United States Public Health Service Medical Center.

APPOINTIVE OFFICIALS IN CHARGE

SINCE ESTABLISHMENT, APRIL 20, 1832

*General Benjamin F. Kelley United States Army	Superintendent	9/8/77	-	12/31/82
Samuel Hamblen	do	1/1/83	-	7/14/85
Charles W. Field	do	7/15/85	-	6/18/89
Frank M. Thompson	do	6/19/89	-	5/31/93
William J. Little	do	6/1/93	-	3/31/1900
Martin A. Eisele	do	4/1/00	-	3/31/07
W. Scott Smith	do	4/1/07	-	5/19/09
Harry H. Myers	do	7/1/09	-	8/1/13
Charles R. Trowbridge	Inspector in Charge and Acting Superintendent	8/4/13	-	9/22/13
Charles R. Trowbridge	Superintendent	9/23/13	-	8/3/14
**William P. Parks	do	8/4/14	-	2/28/22
Clarence H. Waring	do	3/1/22	-	3/23/24
Joseph Bolton	do	3/24/24	-	7/16/29
Hugh de Valin, M.D.	do	7/17/29	-	12/12/30
George L. Collins, M.D.	do	12/13/30	-	1/ 15/32
Thomas J. Allen, Jr.	do	1/16/32	-	5/24/36
Donald S. Libbey	do	5/25/36	-	12/31/38
Preston P. Patraw	do	1/1/39	-	3/15/43
John W. Emmert	do	4/15/43	-	9/1/44
Donald S. Libbey	do	9/1/44	-	6/10/46
Thomas Boles	do	6/10/46	-	1/31/51
Donald S. Libbey	do	4/1/51	-	Present

*Until control was vested in a superintendent, the Hot Springs Reservation was administered from March 30, 1877 to December 11, 1879, by the presidentially appointed Hot Springs Commission, having three members.

**The name of the Hot Springs Reservation was changed to Hot Springs National Park by an Act of Congress in 1921, during Doctor Parks Administration.

Thomas J. Allen, Jr. was the first Park Service Superintendent.

MISCELLANEOUS IMPORTANT DATES

1836 - June 15. State of Arkansas admitted to the Union.

1838 - Public surveys of land.

1878 - Fire swept virtually all the business district. Three bathhouses burned.

1883 - Hot Springs Creek bridged over. Length 3,500 feet. Cost $136,744.78

1890 - Flood. Heavy damage.

1895 - Smallpox epidemic. Hundreds died.

1905 - February 25. Fire cleared 30 blocks and caused several deaths.

1913 - September 5. Five hundred eighteen buildings destroyed by fire. Loss 2 - 4 million.

1914 - Fire swept out 40 blocks.

1915 - November 26. Tornado. Twelve deaths and heavy property damage.

1916 - June 24. Tornado. Several deaths.

1923 - May 14. Flood ripped out pavement along Central Avenue and flooded business houses.

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GEOLOGY OF THE AREA

Hot Springs National Park is situated in the approximate geographical center of the state of Arkansas, 50 miles southwest of the capitol city of Little Rock, and about 75 miles east of the Oklahoma state line.

Located in southeastern Garland County, it is on the boundary between the Zigzag Mountains (a range of the Ouachita mountain system) and the Mazarn basin. The adjoining mountain ridges are part of the Zigzag mountains which lie in a belt extending approximately six miles west-northwest and nineteen miles east-southeast of Hot Springs. The mountains are more or less continuous zigzag ridges whose individual trends are preponderantly in a northeast-southwest direction. The mountain tops stand on the average 500 feet above the general level of the Mazarn basin, and their highest elevation is 1,200-1,220 feet at the western end of West Mountain, just outside the park boundary. The Mazarn basin and the southern flanks of the Zigzag mountains drain to the east through the Ouachita (Wash-i-taw) River and its tributaries. The northern flanks of the Zigzag mountains drain to the northeast and east through the Saline River and its tributaries.

By interpreting the nature and relationships of rocks and their fossil and mineral contents, in the light of what is happening on the earth's surface today, geologists have gradually pieced together a remarkable geological history of the earth that extends back immense

ages of time. An explanation of the hot springs logically begins with a summary of the geological history of this region, including the processes that eventually produced our present topographical features.

With respect to origin, all of the rocks of the Ouachita mountains, with the exception of several igneous intrusions of moderate extent, are of marine sedimentary formations, deposited in horizontal layers on the floor of an ancient sea over a period of millions of years, during the Paleozoic era of geologic time. During most of the Paleozoic era, this present mountainous region was submerged by the waters of the Ouachita Embayment which was a westward-extending arm of the Appalachian geosyncline, an ancient sea located roughly between Louisiana and New Hampshire. To the south of this gradually sinking Ouachita Embayment area of western Louisiana, Texas, and southern Arkansas and Oklahoma, lay the land of lofty mountains known as Llanoria. The eroding rocks of the northern Llanoria were carried northward by rivers and streams into the Ouachita Embayment and deposited there as gravel, sand, mud, and chemical precipitates. Throughout the hundreds of millions of years believed to have passed during the Paleozoic era, these sediments continued to accumulate until they reached the remarkable thickness of over 30,000 feet. This deposition all occurred in comparatively shallow water, accompanied by a gradual corresponding sinking of the ocean floor.

In late Pennsylvanian time there came a period of mountain-making compressive forces from the ocean to the south and southeast

applied against the thick sediments and raised their surface above sea-level. In this elevation, the rocks were compressed so severely that they now occupy but one-half their original surface area. A width of 100 miles or more was reduced to the present average 50 mile width of the Ouachita mountains. This compression produced a series of folds, or anticlines and synclines. Where they were unable to withstand the strain produced by the enormous pressure, the rocks fractured, and often adjacent masses moved up and down, respectively, along the break, or fault plane.

The rocks of the Hot Springs area have remained above sea-level during most or all of the time since their emergence near the end of the Paleozoic era, and have been subjected to subaerial erosion from that time. This erosion did not proceed steadily. At least twice, this area was reduced to low-lying land of such low relief that erosion practically ceased. Areas at this stage are known as peneplains. There always followed an uplift, which resumed the erosion process. The first of these peneplains, now evidenced by the higher mountain crests, occurred at the end of the Jurassic period; and the second, evidenced by the present intermountain basins, developed in early Tertiary time. Horizontal layers of sediments beneath an inland sea were lifted many thousands of feet above sea-level, compressed and folded into one-half its original space. The lofty ridges were cut down until they are now valleys.

THE HOT SPRINGS

Practically every visitor who comes to Hot Springs National Park is curious about the origin and mechanics of the hot springs. Until several centuries ago, supernatural agencies were credited with the cause for such phenomena as large streams of hot water gushing out of the earth. Evil monsters were a favorite explanation of incomprehensible occurrences in nature. Later, the water of springs, and expecially of hot springs, was believed by many to be forced up by the winds produced by immense subterranean fires. Misconceptions of volcanoes gave credence to this idea of fires beneath the earths surface. Today, with the development of geology, we know that hot springs may have one or a combination of various sources of heat.

It is believed by probably the majority of geologists that the highly fractured Bigfork chert formation is the aquifer upon which rain water falls and flows through, between the collecting area and the spring outlets. The Womble shale below, and the Polk Creek shale above retain the water within the chert formation. Analysis of the hot spring water would indicate that the water is at least chiefly meteoric (rain) in origin. The minerals in solution, with possibly one exception, are those which would be expected in rain water that has flowed through rocks of the kind that occur in the spring area. Furthermore, the geologic structures required by the meteoric theory seem to be present.

From the collecting area, the water flows down southeastward in the Bigfork formation beneath the lowest part of the trough of the

fold (syncline) which lies below West Mountain. The water is then forced upward by hydrostatic pressure along the western part of the upturned fold (anticline) which makes up Hot Springs Mountain. The springs emerge from the base of the Stanley shale and the top of the Hot Springs sandstone. This requires the water to pass through the Polk Creek shale, Missouri Mountain shale, Arkansas novaculite, and most of the Hot Springs sandstone. The logical assumption is that this transfer is accomplished along a fissure, or fault, at the site of the springs. Indications are favorable for the existence of this fault. The abnormally high temperature of the spring water is its most unusual characteristic. To account for the source of heat, we must rely on hypotheses because of the lack of any definite diagnostic criteria.

The generally accepted belief today seems to be that the spring water, somewhere in its underground course, passes near a hot igneous intrusion that has not been exposed at the earths surface. Possibly the water is heated chiefly by rising hot vapors emanating from this cooling mass of igneous rock. This possibility is supported by the trace of boron which has been found in the water. Steam would be a principal constituent of these vapors and in condensing would add to the meteoric water of the springs. Some geologist attribute all or most of the water to this juvenile source. It may be that the water merely approached near enough to the buried igneous mass to heat the water by conduction and convection.

There are several areas of exposed igneous rock and numerous

dikes in the vicinity of Hot Springs National Park. These are supposedly related to the larger intrusives. This igneous rock material is believed to have been intruded into the sedimentary formations near the end of the Lower Cretaceous epoch. Presumably any heat of such ancient igneous activity would have been dissipated before now. Consequently, it is not maintained that the exposed igneous masses represent a part of the identical magmatic body which supposedly heats the spring waters.

Probably the chief objection to this theory explaining the origin of the springs is the apparent inadequacy of the collecting basin to supply the large volume of water which the springs produce. The fact that part of the collecting area has an elevation lower than that of some of the springs has also been used as evidence against this theory. However, it has not been shown that an adequate supply of water at sufficient elevation does not exist.

It has been suggested that subterranean chemical activity produces the heat, but this is not borne out by analysis of the water. It would be expected to find unusually large amounts of mineral matter, in solution or minerals different from those ordinarily extracted from the containing rocks by solution in water. Radioactivity has also been repeatedly suggested as a source of heat. There has been no definite evidence to substantiate this hypothesis. Compression of rocks during periods of intense stress, such as obtained during periods of mountain-making produces heat, by any such connection between the hot springs and the orogency of this region is too remote.

The Hot Springs, about 47 in number, are all located along the

base of Hot Springs Mountain, and produce a flow of approximately 1,000,000 gallons daily. The largest spring, the Big Iron Spring, located at the south end of the Arlington lawn, has a daily flow of 201,600 gallons according to measurements made by Haywood. Smaller springs range down to as low as 511 gallons per day. Each of the springs from which waters for bathing and drinking are collected is carefully sealed to prevent contamination. Collecting pipes from all of these springs converge into mains, bringing all of the hot water into the large oval-shaped underground collecting reservoir behind the Administration Office Building, at the south end of Bathhouse Row. Adjacent to this huge subteranean vat is a pump room housing two powerful electrically powered centrifugal pumps, each capable of handling 3,600 gallons per hour. These pumps lift the water directly to a two-compartment reservoir with a combined capacity of 400,000 gallons, ingeniously concealed beneath a carefully landscaped slope above the first lap of the paved road on the west slope of Hot Springs Mountain. This reservoir is at an elevation of 720 feet, 119 feet above Bathhouse Row, providing a strong gravity flow to all of the down-town bathhouses.

In order to provide pressure sufficient to supply bathhouses located more remotely, and at higher elevations, an auxiliary pump in connection with the main gravity reservoir lifts some of the water from this main reservoir, up to a 100,000 gallon high pressure reservoir beneath the slopes farther up the hill at an altitude of 820 feet.

The operation of the water system is a model of efficiency.

Electrically operated and automatically controlled, the pumps "kick-on" when the water levels in the reservoir are lowered. Measurement of temperature of the water is constant by use of a continuous operating recording thermometer. The insulation of the piping is so effective that water averaging 143° temperature in the main collecting reservoir, is delivered to the tubs in the bathhouses on the park area at a temperature of only about 4° cooler.

Since the temperature of the water delivered to the various bathhouses is still too hot for bathing, and since on exposure to air the mineral content precipitates, and the radioactive gas (radon) passes from the water, a system was devised whereby the hot springs water was passes through a series of tubes, which were surrounded by cool water and by a transfer of heat from the hot to the continually circulating cool water, the hot spring water was cooled without exposure to air, and this cooled water piped to the various bathhouses to temper the baths for proper bathing. The natural hot spring water is never in actual contact with this cooling water and therefore retained its purity, losing only several degrees of heat.

Whatever the source of the water and its heat, the springs continue to have a constant daily flow of almost a million gallons of water with a constant temperature of over 143° F., and the combined water from the several springs impounded in a central collecting reservoir possesses radioactivity of .81 millimicrocuries per liter. This radioactivity occurs as radon, a gaseous emanation. The springs with their alleged therapeutic values, were the primary reasons for

the initial exploration and settlement in this area, and have regulated the growth and popularity of the city of Hot Springs, as well as the reputation of Hot Springs National Park as a Spa for thousands of visitors seeking health and recreation.

The chemical content of the natural hot water has been found to be:

(Parts per million)

Silica (SiO_2)	45
Iron (Fe)	.05
Manganese (Mn)	.26
Calcium (Ca)	46
Magnesium (Mg)	5.8
Sodium (Na)	5.1
Potassium (K)	1.6
Bicarbonate (HCO_3)	165
Sulphate (SO_4)	9.1
Chloride (Cl)	2.1
Fluoride (F)	0
Nitrate (NO_3)	0

Gases in cubic centimeters per liter at 0° C. and 760 millimeters pressure: Nitrogen (N), 8.8; oxygen (O), 3.8; free carbon dioxide (CO_2), 6.9; hydrogen sulphide (H_2S), none; Radioactivity, 0.82 millimicrocurie per liter.