REPORT

OF THE

MEDICAL DIRECTOR OF THE HOT
SPRINGS RESERVATION

TO THE

SECRETARY OF THE INTERIOR

1912
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REPORT OF THE MEDICAL DIRECTOR OF THE HOT SPRINGS RESERVATION, ARK.

DEPARTMENT OF THE INTERIOR,
HOT SPRINGS RESERVATION,
OFFICE OF MEDICAL DIRECTOR,
Hot Springs, Ark., August 23, 1912.

SIR: I have the honor respectfully to submit the following annual report for the fiscal year ended June 30, 1912. The present report includes the completion of the first year's work and the beginning of the second of this office.

GENERAL STATEMENT.

The general statements in the report submitted to the department August 22, 1911, concerning local municipal conditions and the drumming evil as they affect the interests of bathers are not substantially modified by important changes since that date.

At that time special emphasis was laid upon the inadequacy of the revenues of the city, upon the objectionable sources from which they have heretofore in large part been derived, and upon conditions more or less dependent thereon, detrimental to the interests of visitors, to the good repute of the community, and destructive of the confidence of physicians in the advisability of sending patients to Hot Springs. Attention was invited to the fact that under existing law the city contributes to the support of the county and of the State on the same basis as other cities, while, owing to the number of temporary residents constantly present, police and fire protection and all other public service utilities are needed for a city double the census population. This is practically equivalent to a reduction of the municipal revenues to about half those of other cities in the State. It was pointed out that at watering places abroad it has long been recognized that with a large nontaxable floating population it is impracticable to maintain satisfactory civic conditions on the same basis of revenue as pertains elsewhere, and that the value of these resorts to the people is largely dependent upon the improvements and services rendered possible by revenues specially provided for such purposes.

The five possible means for increasing the revenues of Hot Springs that have received most consideration are—

1. State legislation authorizing the retention by the city of a greater proportion of the taxes now authorized.
2. The assessment of an occupation tax.
3. The assessment of a bathing tax.
4. The Government ownership and operation of the baths combined with some form of Federal jurisdiction over the city, which would permit a portion of the revenue derived from the bathing of patients to be expended in the larger and general development of the resort.
5. Federal jurisdiction over all the territory set aside as the Hot Springs Reservation by the act of 1832 under a form of local government similar to that of the District of Columbia, to the end that the Federal Government should bear a part of the burden of providing for those from other States whose temporary residence in the community is largely due to its official sanction and control of the use of the water from the springs.

The most practical first step in the betterment of local municipal affairs is that of providing adequate revenues from clean sources. While there exists a general appreciation of the necessity for such action, public sentiment has not crystallized into the concerted effort necessary to achieve the desired results under any of the above plans.

Bills have been introduced in Congress to provide an adequate sewerage system, a new Government free bathhouse for the indigent, and for the investigation of the physiological and therapeutic effects of the water of the hot springs.

Considerable progress has been made in the paving of streets and laying of sidewalks during the year, but the maintenance of an efficient street-cleaning service is impracticable with the limited funds available.

A difficult, distressing and ever-present problem for the city authorities is that of providing for the large number of indigent invalids from other States, who come seeking the benefits to be derived from the baths. These sufferers come from every State, often as a last resort and in the hope that the water may effect a cure after their home physicians have failed to afford relief. Churches, fraternal organizations, relatives, and friends often contribute small amounts to enable the sufferer to obtain the benefits of a course of baths. Frequently a man arrives practically destitute and unable to work, thus becoming at once an object of charity. A considerable number come in the belief that the Government maintains, in conjunction with the free bathhouse, a hospital or home at which they will be cared for in every way. Not infrequently the progress of disease results in extreme helplessness and destitution. At times all has been spent in coming here for the relief of conditions in which the baths are of little benefit or are even contraindicated.

To more effectively render aid in this class of cases the Associated Charities was organized early in the year, and, under the efficient management of the secretary, Rabbi Rhine, relief and comfort were extended to many hundred in distress. Owing to lack of funds the work of this organization has been suspended, and again there are to be seen upon the streets many beseeching aid in their dual affliction of poverty and disease.

The erection of the Leo N. Levi Memorial Hospital by the B'nai B'rith Association is contemplated in the near future. This institution is to be devoted exclusively to charity work, and promises to afford relief to many of that class of patients for which heretofore no adequate provision has been made.

A factor of great importance in the development of Hot Springs as a health resort is the restriction of the right to prescribe the water of the springs to those practitioners who not only are qualified professionally, but whose appreciation of ethical and moral obligations is such as to insure their hearty cooperation with the Government in maintaining the best medical service.
The following quotation from an article by Dr. Baruch, which appeared recently in one of the leading medical journals, inviting attention to the necessity for the highest moral and professional attainments of physicians who practice at health resorts, to whose care and fidelity nonresident practitioners must necessarily intrust their patients, is worthy of careful consideration, as expressing the opinion of one who for many years has made a special study of the therapeutics of mineral springs and of climates:

The celebrated health resorts of Germany, which attract a multitude of people more or less afflicted with chronic diseases, do not owe their well-earned reputation so much to the climate and chemical composition of the waters or other local conditions as is generally supposed. These useful therapeutic elements would be absolutely inefficient if their application were not directed by the medical men residing in these resorts, who have made it a life study to investigate the climatic and balneological advantages of their respective springs, and have convinced their conferences in all parts of the world by conscientious striving for the welfare of the patients committed to their care and by the intelligent application of their respective local advantages, and by close attention to and guarding of the sanitary arrangements of the springs. It is really more important for the physician who sends his patient to health resorts or springs to know the mental composition of the doctor than to know the barometric characteristics of the climate or the chemical composition of the waters. As an example, let me cite the recent marvelous growth of Nauheim as a resort for cardiac cases, which is due to the studies of Dr. Theodore Schott and his conscientious selection of cases adapted for the Nauheim waters. By scorning mercenary methods, unfortunately prevalent at many resorts, he has built better than he knew. for the town of Nauheim has since his death become the mecca of patients from all parts of the world. It will retain its well-earned reputation so long as its physicians will utilize it judiciously, select the patients with care, and firmly decline to retain cases not adapted, though the material interests of the resort may seem to suffer.

Dr. Baruch's views as to the relative benefits to be derived from the physician, the water, and the climate at a health resort, and his condemnation of mercenary methods, may fairly be accepted as expressing the opinion of the majority of the medical profession.

The following paragraph from an editorial which has repeatedly appeared in a local periodical is also of interest as indicative of the confidence of the laity in the ability and integrity of the physician who has been accorded recognition by the Federal Government:

The physicians of Hot Springs are members of the State medical association, and besides they must pass under the scrutiny of the Federal medical board. Every physician on the registered list is approved by the Federal Government.

The visiting public are frequently confronted with statements similar to the above, which lead them to believe that the authority and control of the Federal Government over all registered physicians is absolute and complete.

FEDERAL REGISTRATION BOARD.

The Federal registration board has been intrusted with the duty of determining, subject to the approval of the department, the eligibility for registration of physicians who make application for authority to prescribe the water of the hot springs.

Rule No. 11 of the rules and regulations for the government of all bathhouses receiving hot water from the United States reservation provides in part as follows:

Physicians desiring to prescribe the waters of the hot springs, either internally or through the medium of baths, must first be registered *. * *. Registration will be accorded only to such physicians as are found by a board, designated
by the Secretary of the Interior, to have proper professional qualifications and character and who do not engage in drumming for custom. No physician who shall engage in the solicitation of patronage, through the medium of drummers or otherwise, or who shall engage in unprofessional, disreputable, or dishonest conduct, or is addicted to the drug or other habit which disqualifies him for the performance of his professional duties, shall be or remain registered.

It is thus clearly the duty of the board to determine both the character and the professional qualifications of applicants. In the city of Hot Springs many patients are strangers. They are in need of the services of a physician and at once institute inquiries to determine the one best qualified to treat their particular ailment. As it is impracticable for the Government officials to recommend one registered physician in preference to another, they do not know how or where to obtain reliable information, and so are easily influenced in their choice by solicitors. Under these conditions it is of the utmost importance that a searching inquiry be made to determine the moral risk involved in according the privilege of registration, and such inquiry the board is frequently without means effectively to pursue. It is therefore recommended that the character of applicants be determined through an inspector of the department.

In the determination of the professional qualifications of candidates by the board, as at present constituted, it is possible that occasion might arise when an unsuccessful applicant should conceive that he had been unfairly treated; and while it may positively be stated that registration has not been denied any worthy to receive it, it is nevertheless true that those who successfully pass the examination and are registered immediately become competitors with the members of the board in the practice of their profession, and that such competition is much closer and more direct than usually exists between the members of an examining board and its licentiates. It is therefore believed that it would be an advantageous change in administration to follow the long-established custom of the Federal services which does not sanction the appointment of officers as members of examining or retiring boards, or of courts-martial, whose pay, emoluments, or status in the service might be affected by the acceptance or rejection of candidates or by the findings or sentence of the court. The establishment of a board of Federal medical officers to conduct the examinations is recommended as being in harmony with the precedent cited.

The only other duty assigned the Federal registration board is that of affording a hearing to registered physicians charged with drumming for custom, in violation of the rules and regulations. Further study of this evil as it exists here, and as it has existed for many years and still continues in other resort towns, both in this country and abroad, warrants the belief that its effective control is impossible under existing policies and conditions. The harrassment of visitors in public places by solicitors has already quite effectively been eliminated, but so long as the income of the doctor, the hotel and boarding-house proprietor, the bathhouse operator, the druggist, and the manifold commercial interests supplying each of these, depends upon the number of transients cared for, the incentive for rebating and fee splitting will constantly be present and the practice continue because it is profitable.
Broadly speaking, doctor drumming may be attacked under three different policies:
1. By reducing the moral risk to a minimum through a rigid inquiry into the character of the applicant for registration, combined with the steadily maintained development of public sentiment against the practice.
2. Through punitive measures.
3. By removing the incentive.
While there are excellent reasons for the adoption of the first policy, observation teaches that reliance upon it alone is not likely to result in materially improved conditions within a reasonable time.
From the second policy little if any progress can be expected unless it be possible to convict offenders. During the past year 16 charges of drumming have been preferred against registered physicians and a hearing afforded them before the Federal registration board. In no single instance has evidence been introduced sufficiently conclusive to warrant the removal of the physician's name from the registered list.
The third policy, that of the removal of the incentive, can only be effected through such radical changes as are for various reasons impracticable.

**IMPROVEMENT IN THE BATHHOUSES.**
Under the policy of requiring bathhouse lessees to improve the sanitary conditions of their houses and to provide increased facilities for the bathing of patients before the renewal of leases considerable progress has been made.
The Superior bathhouse was closed March 31, 1911, and, owing to failure of the lessees to provide the improvements required, remains closed to date.
The old Maurice and Rammelsburg bathhouses were torn down and have been replaced by considerably larger modern sanitary fire-proof buildings. The Imperial also has been enlarged and so completely remodeled as practically to constitute a new building. These houses are provided with a complete blast system of ventilation, changing the air in every room five times per hour. They are finished in marble and tile throughout, equipped with vapors, hot-air and electric-light cabinets, hydrotherapeutic rooms and massage departments, and afford every facility for the carrying out of physicians' directions in administering the baths, and for the use of the water of the springs as a remedial agent. The old wooden furniture has been replaced by modern white enameled steel, carpets by tile floors, and draperies by plain sheets that can readily be laundered.
A complete ventilating system has been installed in a part of the Arlington bathhouse, and a modified system in the Lamar. Renovation to a greater or less degree, from minor repairs and painting up to extensive alterations, have been made in practically all houses, while extensive improvements are projected for the ensuing year in the Arlington, Eastman, Park, Majestic, Hale, and Moody bathhouses and the Ozark Sanatorium.

**THE SERVICE OF THE BATHHOUSES.**
There has been a steady increase in the efficiency of the service rendered in all bathhouses. Only standardized thermometers are now in use in administering the baths, and several houses supply liquid soap
in sanitary fixtures, thus effectually allaying the fear, so often expressed by bathers, of contracting disease from a cake of soap that had recently been used by another patient. Head attendants have been appointed to supervise the work in their respective departments, and a system of filing the bathing directions inaugurated which requires reference to them each time the bath is administered. The rules have been amended so as to require the use of sheets to absorb the perspiration after the baths in place of the bath robes, which could not readily be laundered and which soon became offensive.

Within the last few months a part of the laundering has been done in the city steam laundries and the more cleanly condition of the towels has been a source of much satisfaction. These plants are not equipped or operated so as to handle the work to the best advantage, and a central plant devoted exclusively to the bathhouse service is greatly needed.

Masseurs and mercury rubbers have been placed under the supervision of this office, and are required to register their qualifications. One masseur was suspended for 30 days for alcoholism and neglect of duty.

Attention is again invited to the impracticability of obtaining the best service in small houses, and the recommendation is renewed that leases be not extended without provision for enlargement to approximately 30 tubs. With the renewal of leases now pending this would provide all the tubbage necessary. Increase in the number of bathhouses is not recommended.

The value of frequent inspections and direct supervision over the administration of the baths is shown in the statements of registered physicians, to the effect that while formerly the bathing directions were more accurately carried out by the women attendants, the reverse now holds true. Regular inspections in the women’s departments during bathing hours can not be made until such time as it is practicable to employ a woman for that purpose.

### Table of the number of baths administered in the different bathhouses receiving water from the Hot Springs Reservation.

<table>
<thead>
<tr>
<th>Name of bathhouse</th>
<th>Whole tickets</th>
<th>Half tickets</th>
<th>Quarter tickets</th>
<th>Single paid baths</th>
<th>Number of baths sold</th>
<th>Number of baths redeemed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alhambra</td>
<td>1,825</td>
<td>1,108</td>
<td>2,173</td>
<td>30,653</td>
<td>7,782</td>
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<td>Arlington</td>
<td>1,091</td>
<td>1,487</td>
<td>4,876</td>
<td>42,657</td>
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<tr>
<td>Buckstaff</td>
<td>938</td>
<td>706</td>
<td>2,140</td>
<td>30,618</td>
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<tr>
<td>Crystal</td>
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<td>74</td>
<td>815</td>
<td>13,346</td>
<td>515</td>
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<tr>
<td>Eastman</td>
<td>421</td>
<td>601</td>
<td>1,044</td>
<td>15,354</td>
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<td>Great Northern</td>
<td>206</td>
<td>307</td>
<td>1,447</td>
<td>9,263</td>
<td>1,215</td>
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<tr>
<td>Hale</td>
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<td>2,729</td>
<td>31,593</td>
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<td>Horse Shoe</td>
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<td>1,776</td>
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<td>32,110</td>
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<td>Hot Springs</td>
<td>466</td>
<td>338</td>
<td>971</td>
<td>13,975</td>
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<tr>
<td>Imperial</td>
<td>462</td>
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<td>394</td>
<td>9,438</td>
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<tr>
<td>Lamar</td>
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<td>Majestic</td>
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<td>1,065</td>
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<td>1,504</td>
<td>107,839</td>
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<td>Ozark Sanitarium</td>
<td>136</td>
<td>456</td>
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<td>767</td>
<td>767</td>
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<td>Palace</td>
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<td>Park (upper floor)</td>
<td>290</td>
<td>294</td>
<td>841</td>
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<tr>
<td>Park (lower floor)</td>
<td>448</td>
<td>487</td>
<td>343</td>
<td>24,414</td>
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<td>Rockafellow</td>
<td>455</td>
<td>329</td>
<td>14,018</td>
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<td>St. Joseph's Infirmary</td>
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<td>969</td>
<td>1,902</td>
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<td>Total</td>
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<td>19,429</td>
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<th>Name of bathhouse</th>
<th>Whole tickets</th>
<th>Half tickets</th>
<th>Quarter tickets</th>
<th>Single paid baths</th>
<th>Number of baths sold</th>
<th>Number of baths redeemed</th>
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</table>
A. WOMEN'S DRESSING ROOM IN ONE OF THE NEW BATH HOUSES.

B. SIDE OF MEN'S BATH HALL IN ONE OF THE NEW BATH HOUSES, SHOWING BATH STALLS.
A. DRESSING STALL IN ONE OF THE NEW BATH HOUSES.

B. AISLE BETWEEN BATH STALLS IN ONE OF THE NEW BATH HOUSES.
A. COOLING ROOM IN ONE OF THE NEW BATH HOUSES.

B. INTERIOR OF MEN'S BATH HALL IN ONE OF THE NEW BATH HOUSES, SHOWING HOT-PACK COUCHES, HOT-AIR CABINETS, AND REGISTERS FOR PEDESTAL DISTRIBUTION OF HEAT AND AIR.
MEDICAL DIRECTOR HOT SPRINGS RESERVATION.

Table of the number of baths administered in the different bathhouses receiving water from the Hot Springs Reservation—Continued.

<table>
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<td>Alhambra</td>
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<td>$12,612.20</td>
<td>$7,465.80</td>
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GOVERNMENT FREE BATHHOUSE.

Attention is again respectfully invited to the necessity for a new bathhouse for the indigent. Each year this need becomes more urgent. A few minor repairs have been made, but the conditions outlined in the report of last year remain substantially unchanged. In the new building there should be provided suitable office and laboratory accommodations, examining rooms, a dispensary, hydrotherapeutic rooms and emergency wards for both sexes, a classroom to be used in instructing the corps of bath attendants, larger dressing and cooling rooms, hot-air and vapor cabinets, a considerably increased number of tubs, lockers, toilets, and urinals, as well as accommodations for the bathing of children and for the use of the water in the treatment of the ailments of women. Arrangements should also be made for the separation of infectious and noninfectious cases, and for the seclusion of those suffering from offensive and loathsome diseases.

The necessity of better provision for the treatment of indigents is frequently commented upon by visitors, some of whom have voluntarily expressed their willingness to ask their Representatives in Congress to further measures necessary to afford relief.

Baths administered at the Government free bathhouse for the fiscal year 1911-1912.

Applications for free baths.................................................. 7,281
Applications for free baths refused....................................... 760
Tickets issued on original application.................................. 6,521
Tickets reissued on original application................................ 5,958
Total baths given white males............................................. 101,814
Total baths given white females.......................................... 16,510
Total baths given colored males......................................... 28,062
Total baths given colored females .................................................. 11,288
Total baths given during year ...................................................... 157,664
Average number of persons bathed daily ...................................... 517
Soldiers and sailors bathed ....................................................... 407

**BATH ATTENDANTS.**

Three hundred and thirty-one bath attendants have attended the class of instruction. Of this number 206 passed a satisfactory examination and have been granted licenses for the calendar year. One hundred and twenty-five were rejected. A number who failed attended night school, learned to read and write, and after again taking the course of instruction succeeded in qualifying. Only a very few who are unable to read the bathing directions remain. The opportunity to qualify for service in the bathhouses has now been extended to all who were working at the time the rule requiring them to obtain a license became effective. All attendants are required to display their certificates of qualification, neatly and uniformly framed, at their post of duty, and to wear the badge prescribed by the department, which bears the words "Licensed bath attendant, Department of the Interior, Hot Springs Reservation." These are serially numbered, and serve not only as a mark of qualification, but also enable bathers to report to this office the number of any attendant who fails to render satisfactory service. All attendants are required to furnish a certificate signed by a registered physician to the effect that they have been examined and are immune from smallpox. Managers are required to report the employment, suspension, resignation, or discharge of attendants. Individual record files are maintained in which already much information is recorded of value in determining the renewal of licenses from year to year, as well as affording managers the opportunity of determining the character and efficiency of attendants before employing them.

The bathhouse rules have been amended so as to require the appointment of head attendants to supervise the administration of the baths, the treatment of patients, matters of hygiene and sanitation in the bathhouses, and the work of the bath attendants generally. The duties and obligations of attendants have more clearly been defined, and managers prohibited from requiring them to bear any expense incident to the operation of the house not specifically authorized.

Misconduct or lack of attention to duty has been corrected by verbal warning, by official reprimand, or by suspension. In each instance copies of the order issued have been furnished the managers of all bathhouses.

Five attendants were suspended for 10 days—two for neglect to use a thermometer in administering the baths, two for failure to read the bathing directions, and one for personal untidiness. Two others were suspended for 30 days—one for advising a patient to rub mercury, and the other for neglect of duty. Three were discharged after two consecutive failures to obtain a license.

The attendants at the Government free bathhouse have been relieved from duty on Sundays and legal holidays. One additional attendant has been employed and an eight-hour schedule instituted.
Authority has been granted for the employment of substitutes during the 15 days' annual and sick leave authorized for attendants, and the pay of the male attendants has been increased from $45 to $50 per month.

**PHYSIOLOGICAL EFFECTS OF THE WATER OF THE HOT SPRINGS.**

In recent years the therapeutic value of mineral springs has with increasing insistence been brought to public notice, both by the medical and lay press, in all parts of the world. The interest thus created may fairly be said to have assumed a more or less concerted effort to class these waters as national resources or public utilities, to provide for their proper use, and to preserve them from the abuses of commercial exploitation. This movement is more advanced abroad, notably in Germany, than in this country. The recent discovery of radium and its remedial properties in certain diseases for which treatment has hitherto been more or less unsatisfactory, together with the later observation that the waters of certain mineral springs, which for years have enjoyed the reputation of effecting marvelous cures, is radioactive, has attracted much attention, with the result that some of the foremost laboratory workers are now engaged in the study of radioactive waters and their application to the cure of disease.

In the annual report of last year it was recommended that investigations by competent research workers, to determine the physiological effects of the water of the hot springs, be instituted and the results published for the benefit of the people. The subject was carefully considered by the department and the desirability of conducting such a series of experiments amply confirmed by many men prominent in the field of medicine. A bill authorizing such investigations has recently been introduced in Congress. In view of the importance of the subject and the value of the work to people in all parts of the country, its prompt passage is greatly to be desired.

Very respectfully,

HARRY M. HALLOCK,

*Medical Director.*

The Secretary of the Interior.
APPENDIX.

PHYSIOLOGICAL AND THERAPEUTICAL EFFECTS OF THE WATERS OF THE HOT SPRINGS OF ARKANSAS.

DEPARTMENT OF THE INTERIOR,
Washington, June 7, 1912.

Hon. Joseph T. Robinson,
Chairman Committee on the Public Lands,
House of Representatives.

Dear Sir: Your letter of May 28 has been received, inclosing with request for report thereon H. R. 24737, "to authorize the investigation of the physiological and therapeutical effects of the waters of the hot springs of Arkansas and to report upon the application of these waters to the alleviation and cure of diseases." The bill in question is as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the sum of fifty thousand dollars, or so much thereof as may be necessary, be, and the same is hereby, appropriated to investigate the physiological and therapeutical effects of the waters of the hot springs of Arkansas and to report upon the application of these waters to the alleviation and cure of diseases, including the employment of all persons necessary in carrying on the work, the purchase of laboratory apparatus, equipment, and other supplies, the renting of building and other appurtenances, and all other expenses necessary to effectuate such investigation, to be expended under the supervision of the Secretary of the Interior and to continue available until expended.

Sec. 2. That the Secretaries of the Treasury, of the War, of the Navy, and of the Agricultural Departments, respectively, are hereby directed to cooperate with the Secretary of the Interior in such investigation, by detailing competent officers, and by extending all hospital, laboratory, and other facilities necessary and desirable in the carrying on of such investigation.

In response thereto I have to state that the minutes of the sixty-second annual session of the American Medical Association, Los Angeles session, June 26 to June 30, 1911, as published in the official journal of that organization, provides, among other things:

Proposal to examine radioactive waters.—Owing to the importance attributed to radioactive mineral waters in the treatment of gouty and other affections by competent European observers, and the special interest excited by the symposium on the subject at the Thirty-second Pharmacologic Congress recently held in Berlin, the section on pharmacology and therapeutics of the American Medical Association requests the house of delegates to suggest to the United States Government the advisability of investigating the radioactivity of the various mineral waters of the United States and publishing the result for the benefit of the medical profession.

Dr. Harry M. Hallock, medical director of the Hot Springs Reservation, under date of July 10, 1911, invited attention to the great and widespread faith in the curative properties of the water and to the

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1 A report of the Secretary of the Interior on H. R. 24737 (62d Cong., 2d sess.), "A bill to authorize the investigation of the physiological and therapeutical effects of the waters of the Hot Springs of Arkansas and to report upon the application of these waters to the alleviation and cure of diseases." (H. Doc. 905, 62d Cong., 2d sess.)
recognition of the benefits to be derived from its use, as exemplified by the act of Congress in establishing the reservation of the Hot Springs, stating, among other things:

The intelligent application of any remedial agent, as distinguished from quackery, depends fundamentally upon definite knowledge as to the effects upon the living organism which may be expected to follow its exhibition, and these have never been determined with reference to the water of the hot springs, at least in detail and with the scientific accuracy requisite for announcement to and acceptance by the medical world.

The relation of the Federal Government to the springs and the authority it exercises with reference to the prescribing of the water would appear to amount to a recommendation for its use in certain cases, and consequently it may be assumed that there devolves an obligation to determine, so far as may be possible, in what cases it is of real value, and how it influences the functions of the various organs of the body.

Subsequently, in February, 1912, the medical director was instructed to take up the subject of the investigation of the physiological effects of the waters from the hot springs and submit a report thereon; and there is herewith transmitted for your information a copy of his letter of April 19, 1912, embodying a detailed report on the subject, together with copies of letters received by him from the representatives of the leading medical colleges in the United States and members of the medical profession, expressing their views on the advisability of the inauguration of the investigation in question.

In the interest of the afflicted who resort to Hot Springs for the purpose of procuring the benefit of the thermal waters on the reservation it is highly desirable that experiments be inaugurated at the earliest practicable date to determine, as far as may be possible, the exact physiological action of the waters from these hot springs, and I have to recommend that the legislation contemplated in the bill receive early and favorable consideration.

Very respectfully,

CARMI A. THOMPSON,
Assistant Secretary.

DEPARTMENT OF THE INTERIOR,
HOT SPRINGS RESERVATION,
OFFICE OF MEDICAL DIRECTOR,
Hot Springs, Ark., July 10, 1911.

The Secretary of the Interior,
Washington, D. C.

SIR: I have the honor to recommend that a competent physiological chemist be employed to conduct a series of experiments with a view to determining, as far as may be possible, the exact physiological action of the water of the Hot Springs.

In this connection attention is invited to the great and widespread faith in the curative properties of the water and to the recognition of the benefits to be derived from its use, as exemplified by the act of Congress in establishing the reservation of the Hot Springs.

The intelligent application of any remedial agent, as distinguished from quackery, depends fundamentally upon definite knowledge as to the effects upon the living organism which may be expected to follow its exhibition, and these have never been determined with reference to the water of the Hot Springs, at least in detail and with the
scientific accuracy requisite for announcement to and acceptance by the medical world.

The relation of the Federal Government to the springs and the authority it exercises with reference to the prescribing of the water would appear to amount to a recommendation for its use in certain cases, and consequently it may be assumed that there devolves an obligation to determine, so far as may be possible, in what cases it is of real value, and how it influences the functions of the various organs of the body.

Very respectfully,

HARRY M. HALLOCK,
Medical Director.

[Extract from the report of the medical director of the Hot Springs Reservation for the year 1911.]

The physiological effects of the water have never been scientifically and accurately determined, and as its rational use can not be thoroughly understood in any other way it is recommended that a competent physiological chemist be employed to conduct a series of experiments in this direction.

DEPARTMENT OF THE INTERIOR,
HOT SPRINGS RESERVATION,
OFFICE OF MEDICAL DIRECTOR,
Hot Springs, Ark., April 19, 1912.

The SECRETARY OF THE INTERIOR,
Washington, D. C.

SIR: The letter from the department of February 14, 1912, with reference to the proposed investigation of the physiological effects of the water of the hot springs reads in part as follows:

I have to request that you will take up the subject with the other members of the Federal registration board and submit a general outline as to the amount of money which you think should be appropriated by Congress for this purpose, such appropriation to include compensation of physicians employed, laboratory facilities, appliances, and hospital facilities in connection with the matter.

In reply I have the honor to state that in compliance with the above instructions a circular letter, a copy of which is hereewith inclosed and marked "A," was sent December 19, 1912, to the secretaries of a number of the leading medical colleges, requesting that it be referred to an appropriate committee of the faculty and that said committee be requested to submit one or more names of persons qualified to undertake the work. Subsequently more detailed communications were sent to those recommended and March 18, 1912, another circular letter, a copy of which is inclosed hereewith and marked "B," was sent to all the members of the American Association of Biological Chemists and to most of the professors of the practice of medicine and of materia medica and therapeutics in the class A medical colleges. All of the replies received to date are inclosed for the information of the department.

Consideration of this correspondence and of known facts would appear to justify the following conclusions:

1. Many representative nonresident practitioners view the therapeutic resources of hot springs with distrust because the physiological action of the water never has definitely and scientifically been determined by competent investigators uninfluenced by personal interests.
2. It is evident that there is a suspicion in the minds of some that the water of the hot springs has no curative properties not possessed by any water heated to the same temperature. If this be so the public and the medical profession are as much entitled to this information as to know what, if any, its distinctive therapeutic properties are. No other view can ethically be sustained.

3. The legitimate therapeutic value of the water and of the resort should be determined in order that those who are suffering from ailments that can be alleviated by treatment at the springs may know of that fact as well as that those who can not so be benefited may not be misled. The act of Congress which reserved and protected the water of the hot springs for the use of the people amounted to a positive and official declaration that it possesses unique and valuable therapeutic properties. In administering the affairs of the Hot Springs Reservation the Government is to all intents and purposes practicing medicine on an enormous scale in the sense that it sanctions and recommends to the people of the entire country the use of a particular remedial agent. Many thousands, having faith in the Government's indorsement, make use of this remedy each year, often coming from distant States at an expense that they can ill afford. Many unquestionably are greatly benefited; others would have been better off had they sought treatment elsewhere or remained at home. The Government is under much the same moral obligation to determine the physiological effects of the remedy it sanctions and to safeguard and provide for its proper and successful administration as is the individual practitioner when he prescribes a drug.

4. The therapeutic value of radium is established, and the study of the physiological effects of natural radioactive spring waters is now occupying the attention of some of the foremost laboratory workers and clinicians of Germany.

5. There is a reasonable assurance that properly conducted investigations would afford definite scientific data of real and lasting value to the medical profession and through them to the people.

6. It is absolutely essential that the proposed investigations, to be of value and to warrant acceptance by the medical profession, should be exhaustive in scope and cover several allied fields of research. They should be conducted by a commission composed of the foremost men in their respective fields. Physicians having personal interests that might be influenced or that might influence them should not be appointed. It is very desirable to identify with the work the Carnegie and Rockefeller institutions for medical research, the Bureau of Chemistry of the Department of Agriculture, and the Public Health and Marine-Hospital Service.

7. The investigations of the commission should deal with the entire field of the application of the waters of the hot springs to the relief and cure of disease and not be confined merely to a study of its physiological effects. Under these conditions it is believed they might properly and advantageously express opinions and make recommendations covering all of the subject matter included in the annual report of the medical director and thus greatly assist in the development of public sentiment for a satisfactory solution of many difficult problems. The report on the physiological action of the water could be rendered...
separately if desired and the other subjects, which are of almost equal importance to the welfare of patients, covered in a supplementary paper.

8. It is useless to attempt such work through any less thorough and far reaching investigations and without an adequate appropriation.

9. At least two years will be required for the work.

10. Whatever may be determined as to the specific curative properties of the water there can be no doubt but that there is ample justification for the maintenance of a resort of an essentially national character at the springs. Should the commission determine definitely that the water is of therapeutic value, even in a restricted group of ailments, the importance of having that fact attested to the medical profession through the type of commission contemplated can scarcely be overestimated. Such a report would be accorded international circulation and text books on the practice of medicine would soon contain references to treatment at Hot Springs as they now indicate the class of cases suitable for "the cure" at Carlsbad or Nauheim.

It is impossible at the present time to prepare an accurate estimate for the necessary appropriation. By referring to the letters of Profs. L. B. Mendel and Victor Vaughan it will be seen there is a considerable variation in the figures given. The cost will vary greatly in accordance with the scope of the investigation and the personnel and number of the members of the commission, and can only be determined accurately after organization and the outlining of the work. Prof. Mendel suggests that it might be possible to induce desirable men to serve for an honorarium, traveling expenses, and a per diem allowance. The cost will be materially lessened if the facilities of the Army and Navy General Hospital be obtained, if a laboratory can be established there, and if competent investigators can be detailed from the other Federal medical services. Much will depend upon the number of healthy individuals experimented upon or used as controls, as such men would have to be paid not less than a dollar a day plus subsistence and hospital accommodations.

Of the members of the Federal registration board, Drs. Dake and Steer are of the opinion that $100,000 will be required; Dr. Martin believes that $75,000 will suffice.

It is recommended that an effort be made to secure an appropriation of $50,000. This is believed to be a reasonable request in view of the importance of the work and will suffice to outline, inaugurate, and pursue the investigations for a period of from one to two years. At the expiration of this time if satisfactory conclusions have not been reached there will undoubtedly be data available from which the advisability of requesting an additional appropriation can be determined.

The detailed estimate inclosed is as accurate as I have been able to prepare in view of the unusual character of the work. It provides for every necessary expenditure for the period of two years, the estimates for the first and second years being shown separately. There is attached to the estimate a bill for the desired appropriation.

Very respectfully,

Harry M. Hallock,
Medical Director.
DEPARTMENT OF THE INTERIOR,
HOT SPRINGS RESERVATION,
OFFICE OF MEDICAL DIRECTOR,
Hot Springs, Ark., December 19, 1911.

The SECRETARY, UNIVERSITY OF COLUMBIA,
New York City.

DEAR SIR: The Secretary of the Interior has directed me to make due inquiry and ascertain if possible the name of some physiological chemist competent to conduct a series of experiments with a view to determining, so far as may be practicable, the exact physiological effects of the water of the hot springs of Arkansas. These investigations should be made by one whose standing and qualifications are such that the findings will be accepted by the medical profession as reliable scientific research. I therefore beg to inquire if it would be practicable for you to refer this matter to an appropriate committee of the faculty with the request that they submit one or more names of persons qualified to undertake this work.

It has already been determined that there is no officer of the Medical Department of the Army, the Navy, or the Marine-Hospital Service available.

Thanking you for any assistance you may be able to render, I have the honor to remain,

Very respectfully,

HARRY M. HALLOCK,
Medical Director.

A letter similar to the one attached was also sent to the following:
The secretary, Harvard University, Cambridge, Mass.
The secretary, Johns Hopkins University, Baltimore, Md.
The secretary, Jefferson Medical College, Philadelphia, Pa.
The secretary, University of Chicago, Chicago, Ill.
Dr. Alexander R. Craig, secretary, the American Medical Association, Chicago, Ill.

Letters received from representatives of leading medical colleges and members of the medical profession in relation to proposed investigation of the physiological and therapeutic effects of the waters of the hot springs of Arkansas.

THE UNIVERSITY OF CHICAGO, January 31, 1912.

Dr. HARRY M. HALLOCK,
Medical Director, Hot Springs, Ark.

DEAR SIR: Your letter of the 19th ultimo, asking the names of one or more persons qualified to investigate the action of the waters of the hot springs and directed to the secretary of this university, has been referred to me.

I would suggest the names of the following physiologists who would be qualified to undertake the work you mention:

1. Dr. Ralph S. Lillie, department of zoology, University of Pennsylvania.
2. Prof. E. P. Lyon, professor of physiology, St. Louis University, St. Louis, Mo.
3. Prof. Waldemar Koch, assistant professor of pharmacology, of this university.
4. Prof. Abel or Howell of Johns Hopkins University, Baltimore, Md.

There are many other names which might be given, but these occur to me as men of ability who have worked along these lines.

Very truly, yours,

ALBERT P. MATHEWS.

JOHNS HOPKINS UNIVERSITY,
DEPARTMENT OF PHARMACOLOGY,
Baltimore, December 29, 1911.

Dr. HARRY M. HALLOCK,
Medical Director, Department of the Interior,
Hot Springs Reservation, Hot Springs, Ark.

DEAR SIR: Your letter of recent date in reference to a physiological chemist has been referred by the registrar to me. I would suggest that you apply to the council on pharmacy and chemistry of the American Medical Association, 535 Dearborn Avenue, Chicago, Ill., for assistance in this matter. You will be almost sure to learn from them of some one who can do this work for you.

Very truly, yours,

JOHN J. ABEL.

JOHNS HOPKINS UNIVERSITY,
DEPARTMENT OF PHYSIOLOGY,
Baltimore, Md., February 26, 1912.

Dr. HARRY M. HALLOCK,
Medical Director, Hot Springs, Ark.

DEAR SIR: I beg to acknowledge the receipt of your letter of February 20 in regard to the investigation of the physiological action of the waters of the hot springs. As your letter was directed to Prof. Abel W. Howell, I am a little uncertain whether it was meant for my colleague Prof. J. J. Abel or for myself. For myself I can only say that it would scarcely be possible for me to leave my work to engage in such an investigation. It would seem to me that if adequate facilities can be obtained such an investigation might yield very interesting and possibly practically valuable results. If I were directing the work I should want to make a preliminary investigation upon animals—dogs or rabbits—since naturally in some respects this would enable the experimenter to control his results more satisfactorily. Such results as were obtained could then be studied by way of corroboration upon man. The action of the water ought to be studied upon the general metabolism, the respiratory exchange, heat production (calorimetric), blood and circulation, reactions of the nervous system, excretion, etc.

If you could obtain his services, Prof. Mendel (L. B. Mendel), Yale University, New Haven, Conn., would probably be the best qualified man. If he can not accept such work himself he may be able to designate a younger man who will carry out experiments under his directions.

Very truly, yours,

W. H. HOWELL.
DEPARTMENT OF THE INTERIOR,
HOT SPRINGS RESERVATION.
OFFICE OF MEDICAL DIRECTOR,
Hot Springs, Ark., February 29, 1912.

Prof. L. B. MENDEL,
Yale University, New Haven, Conn.

SIR: There is under consideration by the Secretary of the Interior the advisability of conducting a series of experiments to determine the physiological effects of water of the hot springs of Arkansas. Over 100,000 people visit this resort each year and the therapeutic value of the baths in certain conditions is well established. It is believed that an appropriation by Congress can be obtained to carry on these experiments and it is thought that a physiological chemist working in conjunction with a commission consisting of the medical director of the Hot Springs Reservation, the Federal board of medical examiners and possibly one or two delegates from the County Medical Society would be able to thoroughly study and scientifically investigate both the therapeutic and the physiological effects and to place before the medical profession experimental data of value.

It is believed that the cooperation of the Secretary of War, the Secretary of the Navy, and the Public Health and Marine-Hospital Service can be secured as well as the facilities of the Army and Navy General Hospital. The work would probably extend over at least a year and possibly longer.

Your name has been suggested as one eminently competent in the research field and I therefore beg to inquire as to whether in your opinion it would be possible to obtain results from this line of work that would be of real value to the medical profession and commensurate with the expenditure involved.

Would you be willing to accept such an appointment if it were formally tendered to you and at what compensation? Could you give an estimate of the probable total cost including your own compensation, that of all necessary apparatus and supplies, the employment of subjects for experiments in the study of blood and excretory changes, etc., covering the work of the commission for the period of one year?

There are enclosed for your information certain papers and reports that it is believed may be of interest in connection with the subject.

Very respectfully,

HARRY M. HALLOCK,
Medical Director.

A copy of the attached letter was also sent to the following:

Prof. E. P. Lyon, professor of physiology, St. Louis University, St. Louis, Mo.
Prof. Waldemar Koch, assistant professor of pharmacology, University of Chicago, Chicago, Ill.
Prof. Abel W. Howell, Johns Hopkins University, Baltimore, Md.
Dr. Ralph S. Little, department of zoology, University of Pennsylvania, Philadelphia, Pa.
Prof. Jacob Rosenbloom, College of Physicians and Surgeons, 437 West Fifty-ninth Street, New York City, N. Y.
Prof. Victor Vaughan, M. D., University of Michigan, Ann Arbor, Mich.
Prof. A. E. Taylor, Medical School, University of Pennsylvania, Philadelphia, Pa.
Dr. Harry M. Hallock,
Hot Springs Reservation, Hot Springs, Ark.

My Dear Sir: I desire to acknowledge the receipt of your letter of February 29, with reference to the possibility of a series of experiments to determine the physiological effects of the waters of the hot springs.

In view of the importance and scope of the questions raised in your communication, it will be necessary for me to delay a formal and definite reply until I can consider with some care the problems which are involved therein. Any investigation along the lines outlined by you will call for careful and exhaustive studies in several related fields; and in order to give you some facts and opinions which are likely to be of any value to you I must ask for a brief time in which to give questions at issue and the probability of useful outcome to research more careful consideration. I assume, from statements in the documents which you forwarded to me, that at the present time the unique therapeutic properties of the spring waters are in good part ascribed to radio-active manifestations. These are, as you well know, being widely investigated in some of the foremost laboratories of Europe.

Very respectfully,

Lafayette B. Mendel.

Prof. Lafayette B. Mendel,
Sheffield Laboratory of Physiological Chemistry,
Yale University, New Haven, Conn.

My Dear Sir: I beg to acknowledge your letter of March 6 in reply to mine of February 29, 1912, and thank you sincerely for the interest and attention you have given the matter. Should the investigations be undertaken it will doubtless take some time to arrange the details, but there is one point that it is greatly desired to have settled at once and that is the determination of the sum to be requested from Congress for carrying on the work. This must be determined by April 1 in order to have the bill presented during the present session.

I am in receipt of a letter from the department which reads in part as follows:

I have to request that you will take up the subject with the other members of the Federal registration board and submit a general outline as to the amount of money which you think should be appropriated by Congress for this purpose, and such appropriation to include compensation of physicians employed, laboratory facilities, appliances, and hospital facilities in connection with the matter.

In submitting the estimate of the amount to be appropriated for this purpose a lump sum will be asked for, out of which all necessary expenses, including compensation of experts, etc., is to be paid, and it is also proposed to suggest to Congress that the Secretary of War, the Secretary of the Navy, and the Public Health and the Marine-Hospital Service, be authorized to cooperate with this department in handling the subject, the entire matter to be under the supervision of the Secretary of the Interior.
It would be of material assistance if you would be willing to give at least an approximate estimate as to the necessary expenditures basing the figures on the work of such a commission for the first year, and also if you could express an opinion as to the number of years that would be required to complete the work.

It is believed that hospital facilities can be obtained at the Army and Navy General Hospital without cost other than the subsistence of patients. Information is especially desired as to the probable cost of the following items:

- Compensation of expert.
- Compensation of assistant.
- Chemical laboratory equipment and operation (exclusive of building).
- Number and cost of animals used for experimental purposes.
- Number of healthy subjects to be employed for experimental purposes.
- Number of patients to be observed.

Thanking you for any assistance you may be able to render, I am,

Very truly, yours,

HARRY M. HALLOCK,
Medical Director.

SHEFFIELD LABORATORY OF PHYSIOLOGICAL CHEMISTRY, YALE UNIVERSITY,
New Haven, Conn., March 18, 1912.

Dr. Harry M. Hallock,
Medical Director, Hot Springs Reservation,
Hot Springs, Ark.

My Dear Sir: I desire herewith to reply to your letters of February 29, and March 12, in regard to the advisability of undertaking a series of investigations upon the therapeutic and physiological effects of the baths at the Hot Springs Reservation. Several distinct questions raised in your communications must be answered independently.

In considering the probable value of any further elaborate research on the physiological effects of the waters it must be borne in mind that there already exists an enormous literature on balneotherapy. The Government circular which accompanied the documents sent to me states that “the therapeutic value of the baths is dependent upon the radioactivity of the waters.” This aspect of the subject has been under consideration in very recent years only. The observations on the physiological and therapeutic effects of radium emanation which have lately been reported by competent observers, e. g., from the clinics of His in Berlin and Von Noorden in Vienna, encourage the belief that there is a useful field of investigation in this direction which deserves careful and speedy attention. In justification for this statement I may quote from a recent communication from Prof. von Noorden and Dr. Falta in Vienna:

Emanation cures have a powerful influence on important processes of metabolism and on the excitability of the living nervous system and require, the same as treatment with carbonic acid and other bathing and drinking cures, a complete compliance with the requirements of the treatment. It appears advisable to establish emanation cures principally in bathing resorts, hospitals, and sanitoria, where the patients are removed from the usual work of their respective occupations. Naturally the most favorable conditions will be afforded by bathing resorts where natural radium baths are also available. (Translation of German quotation.)

I have no specific information at hand regarding the actual composition of the hot springs water; but if their radioactive properties are of sufficient significance to warrant scientific exploitation in the form here indicated, a careful and responsible investigation along the lines proposed is, in my judgment, both desirable and timely.

With respect to the conduct of such an investigation I am convinced that the cooperation of a number of men in different departments of research whose fitness in respect to both training and ability is widely recognized, would alone give any report the prominence and authority which is desired. No investigation will be worth while which fails to carry with it the stamp of scientific excellence and criticism. In view of the circumstances involved it seems to me most practicable to have the responsibility for the plan and general execution of such an investigation invested in a commission. The latter should include men of acknowledged capacity in medical fields and the underlying sciences, both clinicians and physiologists (which of course includes the physiological chemist) who could not only broadly direct the scope of the work, but what is equally important could competently criticize and evaluate the data. The general objection to a commission constituted of delegates from county medical societies, etc., as indicated in your letter of February 29, lies in the unfitness of such individuals, as a rule, to contribute in any peculiarly useful or expert way to the real duties of such a commission. Their work is likely to be perfunctory, subject to the bias of local traditions or the influence of important home interests. It might also be difficult to induce first-class investigators to work under the direction of an unsympathetic board. A further highly advantageous feature of the commission system constituted of several competent scientists is the presumable elimination of the danger of errors from the judgment of single individuals. We have suffered enough in this country from such one-man pronouncements. Much useless and uncalled for work has been done in the name of science and under authoritative sanction owing to the elimination of critical review by competent colleagues.

The cost of a comprehensive investigation along the lines suggested will, of course, depend on its scope and on the personnel of the commission. Having in mind the necessary laboratory facilities and equipment, a number of laboratory workers (chemists, assistants, and helpers), eight or ten subjects, and their maintenance, and experimental animals, I estimate an outlay of at least $1,500 per month in this direction. To this should be added an initial cost of establishing a laboratory outfit. In Hot Springs (where no such outfit is now available) this ought not to exceed $2,000. To complete the budget for the first year the salary of a supervising physiological chemist must be added. It will be impossible to deflect anyone of the experience and rank of assistant professor in our universities to such work at a salary less than $3,000 per year. This would seem
to me to represent the type of man to cooperate with the commission as proposed in my suggestion. A scientist of higher professional rating and ability ought to command a higher income for obvious reasons.

An expenditure of about $25,000 for the first year is thus provided for. The estimates are based on my experience in such matters in larger researches in our laboratory, on the published budgets of the Carnegie Institution nutrition investigations, and on the experiences of the Referee Board of Consulting Scientific Experts of the United States Department of Agriculture. It must be borne in mind that there are no opportunities at Hot Springs to use the equipment of established research plants, such as universities. The cost of research may thus be raised. Such an investigation ought to give valuable indications within two years. From the standpoint of therapeutic evidence a longer collection of statistical data might be desirable.

In considering the make-up of a commission of three (or five) members in addition to the supervising physiological chemist and the medical director, I am inclined to believe that desirable individuals can be induced to serve from a sense of public duty and scientific interest, without what might strictly be termed a salary. Such individuals should, of course, receive compensation for traveling expenses, or similar outlay, together with a modest honorarium in proportion to the time required of them. The outlay thus involved is not taken into consideration in the above estimate because the amount involved will depend entirely on the plan followed. It may be noted that highly competent investigators, such as Prof. Reid Hunt, of the Hygienic Laboratory of Washington, might be directly available through the cooperation of the Public Health and Marine-Hospital Service.

Will the results be commensurate with the expenditure involved? The answer depends on the mental attitude of those who expect the reply. If a group of foremost American citizens, whose experience and judgment is attested by their position, do not hesitate to authorize the expenditure of half a million dollars for astronomical research in one institution alone, and when successful American firms feel justified in expending $4,000 for a single page advertisement of an article of uncertain merit, shall we debate the question asked?

Finally, in reply to your tentative inquiry as to whether I would be willing to accept the appointment as physiological chemist, if it were formally tendered, I may say that my academic and research preferences and duties at present are such that I would not care to do so. If an occasion should arise in which I might be of service in some less direct way than through resident activity in Hot Springs—more specifically if I might be desired to cooperate in some advisory function—my readiness to serve might be considered.

Respectfully,

LAFAYETTE B. MENDEL.

P. S.—If a personal interview would be helpful to you in any way while you are making the preliminary plans I shall be glad to have you or other representatives meet me here or in some convenient place.

L. B. M.
DEPARTMENT OF THE INTERIOR,
HOT SPRINGS RESERVATION,
OFFICE OF MEDICAL DIRECTOR,
Hot Springs, Ark., March 25, 1912.

Prof. Lafayette B. Mendel,
Sheffield Laboratory of Physiological Chemistry,
Yale University, New Haven, Conn.

DEAR PROF. MENDEL: I beg to acknowledge your letter of March 18, 1912, and desire to express my deep appreciation of the very careful consideration you have given to my inquiries.

All of the correspondence with reference to the proposed investigations will be forwarded to the Secretary of the Interior in due time, and I am sure that the officials of the department in Washington will appreciate your courtesy as much as I do.

Very respectfully,

Harry M. Hallock,
Medical Director.

DEPARTMENT OF THE INTERIOR,
HOT SPRINGS RESERVATION,
OFFICE OF MEDICAL DIRECTOR,
Hot Springs, Ark., February 8, 1912.

The Secretary of the Interior,
Washington, D. C.

SIR: July 10, 1911, recommendation was made by this office that provision be made for a complete study of the physiological effects of the water of the hot springs. By letter from the department of December 6, 1911, I was instructed to "make due inquiry and ascertain if possible the name of some competent person to do this work and the compensation he would be willing to accept therefor." December 19, 1911, a circular letter was addressed to the secretary of the American Medical Association and to the secretaries of the leading medical colleges of the country outlining in a general way the proposed investigations and requesting the nomination, in each instance, by an appropriate committee of the faculty, of a biological chemist of recognized standing and ability. February 20, 1912, a circular letter was sent to each of the physiological chemists, recommended by the committees of the faculties referred to, giving a more detailed outline of the general proposition, requesting an expression of opinion as to the advisability of undertaking the study and an estimate of the cost. Only a few replies have been received so far. The general plan, however, is indorsed by Prof. Otto Folin, of Harvard University; Prof. Victor Vaughan, of the University of Michigan; Prof. A. E. Taylor, of the University of Pennsylvania; and Prof. Ralph S. Lillie, of the University of Pennsylvania. The secretary of the American Medical Association has expressed much interest and referred the letter to the council on therapeutic research. Prof. Otto Folin has furnished me with a list of the members of the American Society of Biological Chemists.

The proposed undertaking is one of considerable magnitude. Such a series of investigations would require at least a year and quite possibly two or three years. A chemical analysis of the water is a simple
The study of the physiological effects involving obscure changes in the metabolism of the living body is an extremely difficult problem. It is quite within the bounds of possibility that definite results could not be obtained. It therefore appears desirable to obtain an expression of opinion from a considerable number of competent men as to the advisability of undertaking the work and the probability of its yielding scientific data that will be of real value to the medical profession and through them to suffering humanity. It is also believed that as full indorsement of the plan should be secured as possible in connection with the effort to secure from Congress the necessary appropriation.

I have accordingly prepared a circular letter, a copy of which is inclosed, with the intention, if it meets with the approval of the department, of forwarding a copy to every member of the American Society of Biological Chemists and to the professors who are occupying the chairs of the practice of medicine and of therapeutics and materia medica in the class A medical colleges. These are the men who are most directly in touch with the problems involved and with clinical medicine. It is believed that this plan will bring a sufficient number of replies from competent sources to settle definitely any possible question as to the advisability of undertaking the work.

As it is impracticable with the clerical assistance available to promptly conduct the correspondence involved, I have the honor to request that the department have the circular letter multigraphed and that I be furnished, for inclosure, copies of the circular of general information and the medical director's annual report.

The number of each required is as follows:

- Circular letter multigraphed: 200
- Medical director's annual report: 200
- Circular of general information: 200

There has been forwarded to the department, under separate cover, 225 letterheads for the multigraphed letter.

Very respectfully,

Harry M. Hallock,
Medical Director.
A complete chemical examination has been made by Prof. J. K. Haywood, of the Bureau of Chemistry of the Department of Agriculture, and by Prof. Walter Harvey Weed, of the United States Geological Survey. In 1905 the department secured the services of Prof. B. B. Boltwood and Prof. Joseph Hyde Pratt for further analysis. Their report contains the following conclusions:

1. The waters of the springs on the Hot Springs Reservation are all radioactive to a marked degree.
2. The radioactivity of the waters is due to dissolved radium emanation (a gas) and not to the presence of salts of radium or other radioactive solids.
3. The tufa deposited by the springs does not contain appreciable traces of radium.

A letter has been received from the secretary of the council on pharmacy and chemistry of the American Medical Association stating that the council’s committee on therapeutic research has been planning to secure the cooperation of scientists for a thorough study of the therapeutic value of mineral waters, and it is also noted that at the sixty-second annual session of the American Medical Association, held at Los Angeles June 26 to 30, 1911, the following resolution was passed:

Owing to the importance attributed to radioactive mineral waters in the treatment of gouty and other affections by competent European observers and the special interest excited by the symposium on the subject at the Thirty-second Balneologic Congress recently held in Berlin, the section on pharmacology and therapeutics of the American Medical Association requests the House of Delegates to suggest to the United States Government the advisability of investigating the radioactivity of the various mineral waters of the United States and publishing the results for the benefit of the medical profession.

The arrangement contemplated by the Secretary of the Interior includes the securing of the services of a competent physiological chemist to work in conjunction with a commission of medical men. It is thought that investigations would extend over one and possibly over several years. It is believed that an appropriation from Congress can be obtained for the purpose and that the cooperation of the Medical Departments of the Army, of the Navy, and of the Marine-Hospital Service can be had, together with the facilities of the Army and Navy General Hospital at Hot Springs.

It is not desired to enter this field for commercial exploitation but to determine the legitimate therapeutic value of the water, and to secure the respect and support of the medical profession with a view to the development in our own country of a spa that will compare favorably with resorts of like character abroad.

Before requesting an appropriation from Congress for this work it is desired to obtain from competent sources an expression of opinion as to whether there is a reasonable probability that a series of biochemical investigations conducted by competent observers upon animals and upon human beings, both the sick and the well, would yield results that would be of value to the medical profession and through them to suffering humanity. In other words, is the subject a legitimate and proper one for scientific research from the standpoint of clinical medicine.

There are inclosed for your information certain reports and papers relative to the subject, and it is hoped you will favor the department...
with an expression of your opinion. Should you advise that the work be undertaken, any recommendations you may be willing to submit as to the best method of procedure will be carefully considered. Thanking you for any assistance that you may be able to render, I beg to remain,

Very truly, yours,

HARRY M. HALLOCK,
Medical Director.

The University of Illinois,
Urbana, Ill., March 21, 1912.

Dr. Harry Hallock,
Medical Director, Hot Springs Reservation,
Hot Springs, Ark.

My Dear Dr. Hallock: Your communication concerning the proposition to ask Congress for an appropriation to cover the expense of an exhaustive investigation into the physiological effect of the hot springs water has just reached me.

A thoroughly scientific study of a far-reaching character of this most important topic would without doubt yield data of immense importance to the physical welfare of the citizens of our own and other countries. I was extremely gratified when the American Medical Association, in session at Los Angeles, passed the resolution to which reference is made in your letter.

The pronounced benefits to be derived from the proper use of water, both externally and internally, have not been fully appreciated by the medical fraternity, to say nothing of the laity. For a period of two to three years we have been devoting considerable time to the question of physiological effect of ingested water. Under separate cover I am sending you reprints of some of our publications. According to our data the free use of water with meals or between meals is of great benefit to the human organism from every standpoint investigated. We have also been interested in the physiological effect of baths, but have been unable to investigate the subject because of the fact that the investigations on water drinking and on fasting have demanded the major portion of the energy of myself and staff. In connection with one of our studies we made a short superficial study of hot baths, using two normal men as subjects. The data are not yet in form for publication.

I trust that you may be successful in convincing Congress of the very great need for an extended series of investigations such as you propose. I say "extended" advisedly, for you will most certainly need to investigate a large number of cases, both normal and clinical, over a considerable period of time before you will feel warranted in announcing your final conclusions. Work of this character to meet the approval of the scientific world must of necessity be done by men of proven ability. The experimental staff would of necessity be large in order to properly conduct an investigation of that character. It is my belief that a staff of 10 to 15 men with scientific or medical training would be required to investigate such a problem from all sides, e. g., clinical, bacteriological, pathological, chemical, biochemical, and physiological.
I have outlined no definite plan of procedure but have simply attempted to impress one or two matters of prime importance in the preliminary organization of such an extensive study as is proposed. My personal scientific and research interests have always occupied channels such as must of necessity be followed by your hot springs investigation, and for that reason it will give me great pleasure to be of any possible assistance to you in your attempt to interest Congress in this most worthy and humane proposition.

Very sincerely,

P. B. Hawk,
Professor of Physiological Chemistry.

AMERICAN MEDICAL ASSOCIATION,
COUNCIL ON PHARMACY AND CHEMISTRY,
Chicago, December 23, 1911.

Maj. H. M. Hallock,
Medical Director, Hot Springs Reservation,
Hot Springs, Ark.

Dear Sir: Dr. A. R. Craig, secretary of the American Medical Association, has referred your letter of December 19 to me. I am submitting your inquiry to the council, and it will receive very careful consideration.

It may interest you to know that the council's committee on therapeutic research has been planning to secure the cooperation of scientists for a thorough study of the therapeutic value of mineral waters.

Yours, truly,

W. A. Puckner, Secretary.

AMERICAN MEDICAL ASSOCIATION,
COUNCIL ON PHARMACY AND CHEMISTRY,
Chicago, January 19, 1912.

Maj. H. M. Hallock,
Medical Director, Hot Springs Reservation,
Hot Springs, Ark.

Dear Sir: Your letter of December 19 having been referred to the council's committee on therapeutic research, the chairman, Dr. Torald Sollmann, asked me to reply that it would appear impossible to make any suggestions to you until more definite information is available regarding the intended scope of the investigation. He believes that it is doubtful that the physiological effects of the waters could be determined by one individual—certainly not by a physiological chemist. It is Dr. Sollmann's opinion that it would probably require a commission working through a series of experiments extending over some years.

If the council or its research committee can give you any further aid, it will be glad to do so.

Yours, truly,

W. A. Puckner, Secretary.
Mr. W. A. Puckner,  
Secretary American Medical Association,  
Chicago, Ill.

Dear Sir: Replying to your letter of January 19, 1912, in answer to my inquiry of December 19, 1911, on the subject of the determination of the physiological effects of the waters of the hot springs of Arkansas, you state—

Dr. Torald Sollman asked me to reply that it would appear impossible to make any suggestions to you until more definite information is available regarding the intended scope of the investigation. He believes that it is doubtful that the physiological effects of the waters could be determined by one individual—certainly not by a physiological chemist. It is Dr. Sollmann's opinion that it would probably require a commission working through a series of experiments extending over some years.

If the council or its research committee can give you any further aid, it will be glad to do so.

The therapeutic value of the springs in certain conditions appears to be well established by popular concensus of opinion of the many who have been benefited and by physicians who have had an opportunity to observe the effects of the use of the water. Heretofore commercialism has had an undue influence in local conditions and in the administration of the baths. Direct medical supervision was established September, 1910, by the creation of the office of medical director, and an effort is now being made to develop, along legitimate and ethical lines, whatever therapeutic resources are inherent in the waters and in the resort.

It is believed that an appropriation can be obtained from Congress for the purpose of conducting a series of experiments to determine the physiological effect of the water, and that such work could be undertaken by a commission consisting of a physiological chemist, the medical director of the reservation, the Federal registration board, all of whom are practicing physicians familiar with the use of the waters, and possibly one or more members of the county medical society. It is thought that the facilities of the Army and Navy general hospital could be obtained and possibly the cooperation of members of the medical departments of the Army and Navy, and of the Marine-Hospital and Public Health Service. It is assumed that the work would extend over a considerable period.

The most important point to determine at present is whether it is worth while to undertake this work; whether there is a reasonable probability that a study of the blood, the excretions, etc., in health and in disease, would give data as to the physiological effects and indications for the administration of the water that would be of value to the medical profession of the country and through them to suffering humanity.

There are inclosed certain reports and papers that have some bearing on the subject, and if the council or its research committee would be willing to express an opinion as to the advisability of attempting this research along the lines suggested, or on any modifications of them, their action, opinion, or recommendation would be valued highly and most carefully considered.

Very respectfully,

Harry M. Hallock,  
Medical Director.
American Medical Association,
Council on Pharmacy and Chemistry,
Chicago, February 23, 1912.

Dr. H. M. Hallock,
Hot Springs Reservation,
Hot Springs, Ark.

Dear Dr. Hallock: I have received your letter of February 20
and shall transmit it to the council.

Personally, I am very much interested in the proposed investiga­
tion and I hope that the council may be of some aid in solving the
problems. I will write you further as soon as the matter has received
consideration.

Yours, truly,

W. A. Puckner,
Secretary.

Harvard University,
Cambridge, Mass., December 22, 1911.

My Dear Sir: Your letter of December 19, in regard to a physi­
ological chemist to conduct some experiments with the water of the
hot springs of Arkansas, has been received.

I am referring it to the secretary of the Harvard Medical School,
Dr. Channing Frothingham, jr., who will, I hope, be able to recom­
mand to you a competent man for the work.

Sincerely, yours,

E. H. Wells.

Harry M. Hallock, M. D.

Harvard University Medical School,
Boston, Mass., December 27, 1911.

Dr. Harry M. Hallock.

Dear Mr. Hallock: Your letter of December 19 is at hand, and
I have referred it to Prof. Otto Folin, our professor of biological
chemistry. I feel sure that he will be able to suggest some one to
you if there is anyone available around this part of the country.

Very truly, yours,

C. Frothingham, Jr.,
Secretary.

Department of Biological Chemistry,
Harvard Medical School,
Boston, January 2, 1912.

Dr. Harry M. Hallock,
Hot Springs, Ark.

Dear Sir: Your letter to Harvard University regarding a bio­
chemical investigation of the physiological effect of the hot springs
water has been referred to me for an answer. In my opinion it is
not possible to determine the "exact physiological effects" of that
water with any such degree of certainty as to meet with general and
unqualified acceptance. An investigation of the kind referred to
would be very expensive and in the hands of a properly qualified and conscientious expert might yield practically negative or at least very doubtful results.

If you, after reading these comments, still believe that your department is justified in having this work done and will let me know, I will send you a list of the best men in the country qualified in the field involved.

Very truly, yours,

Otto Folin.

Department of the Interior,
Hot Springs Reservation,
Office of Medical Director,
Hot Springs, Ark., February 21, 1912.

Prof. Otto Folin,
Harvard Medical School,
Boston, Mass.

Sir: I beg to acknowledge and thank you for your letter of January 2, 1912, with reference to the determination of the physiological effects of the water of the hot springs of Arkansas. In it you state:

In my opinion it is not possible to determine the “exact physiological effects” of that water with any such degree of certainty as to meet with general and unqualified acceptance. An investigation of the kind referred to would be very expensive and in the hands of a properly qualified and conscientious expert might yield practically negative or at least very doubtful results.

If you, after reading these comments, still believe that your department is justified in having this work done, and will let me know, I will send you a list of the best men in the country qualified in the field involved.

The therapeutic value of the baths in certain conditions appears to be well established. The faith of the laity in the curative properties of the water has steadily increased despite the unfavorable local conditions of the past, and many physicians believe that this resort is destined to become one of the great spas of the world. Before the creation of the office of medical director the medical features of the service were largely overshadowed by the commercial spirit. An earnest effort is now being made to place the treatment of patients and the administration of the baths on a high ethical plane and in developing the medical service it was thought that a study of the physiological effects of the waters should be undertaken.

A part of the general plan was to secure the services of an expert physiological chemist to conduct a series of experiments working in conjunction with a commission to consist of the medical director of the reservation, the Federal board of medical examiners, and possibly one or more delegates from the county medical society. This work would probably extend over a period of a year or more. It is believed that an appropriation can be obtained from Congress and that the cooperation of the Secretary of War, the Secretary of the Navy, and the Public Health and Marine-Hospital Service can be secured as well as such facilities as can be extended by the Army and Navy general hospital.

I am in receipt of a letter from the secretary of the council on pharmacy and chemistry of the American Medical Association stating that the council’s committee on therapeutic research has been planning to secure the cooperation of scientists for a thorough study of
the therapeutic value of mineral waters, and I also note that at the sixty-second annual session of the American Medical Association, held at Los Angeles June 26 to 30, 1911, the following resolution was passed:

Owing to the importance attributed to radioactive mineral waters in the treatment of gouty and other affections by competent European observers, and the special interest excited by the symposium on the subject at the Thirty-second Balneologic Congress recently held in Berlin, the section on pharmacology and therapeutics of the American Medical Association requests the house of delegates to suggest to the United States Government the advisability of investigating the radioactivity of the various mineral waters of the United States and publishing the result for the benefit of the medical profession.

The water of the hot springs has been examined by Profs. B. B. Boltwood and Joseph Hyde Pratt, chemists, of New Haven, Conn., as to its radioactivity, and their report contains the following conclusions:

1. The waters of the springs on the Hot Springs Reservation are all radioactive to a marked degree.
2. The radioactivity of the waters is due to dissolved radium emanation (a gas) and not to the presence of salts or of other radioactive solids.
3. The tufa deposited by the springs does not contain appreciable traces of radium.

The first point to determine is whether there is a reasonable probability that such a series of investigations would yield results of value to the medical profession and through them to suffering humanity. It is not desired to enter upon a fool's errand or to undertake the work with any view toward commercial exploitation, but rather to determine the legitimate therapeutic value of the water and of the resort and to obtain the respect and support of the medical profession in the development in our own country of a spa that will compare favorably with the resorts of like character abroad.

There is inclosed for your information certain reports and circulars bearing on the subject in a general way, and if after reading this more detailed explanation you are willing to advise as to whether or not the department would be justified in taking up this work you would confer a service that would be greatly appreciated.

Very respectfully,

HARRY M. HALLOCK,
Medical Director.

DEPARTMENT OF BIOLOGICAL CHEMISTRY,
HARVARD MEDICAL SCHOOL,
Boston, February 27, 1912.

Dr. H. M. Hallock,
Hot Springs, Ark.

DEAR SIR: Your letter of February 21, together with the reports and circulars on the hot springs water, has thrown new light on the subject so far as I am concerned. If the facts reported by Dr. Martin are substantially correct the effects of the water constitute a legitimate and important subject for research from the standpoint of metabolism as well as from the standpoint of clinical medicine.

Before any serious metabolism work could be undertaken something in the way of a chemical laboratory would have to be arranged for. That laboratory would not need to be large and would be of permanent value, for in a place of that sort where so many sick
people come there should be facilities for making chemical examinations in connection with the treatment of patients. As such it might be made practically self-supporting. I have never been in Hot Springs and therefore have no idea as to the facilities now available. I believe that you are justified in going ahead with the work of securing an appropriation from Congress for such work. You might perhaps go ahead with greater confidence after consulting with other experts in biochemistry. I, therefore, send you a list of the members of the American Society of Biological Chemists.

So far as the actual biochemical investigation is concerned it looks to me as though it would be necessary to virtually get two men, one of high standing and recognized ability to plan and direct the work in conjunction with the commission referred to in your letter, and an assistant to stay at Hot Springs all the time till the work is finished. All the mature and recognized men hold positions which they, of course, can not give up for a temporary work like that involved at Hot Springs. There is a certain element of danger in that arrangement, too, unless the director also is required to spend a considerable time on the spot, and the assistant must be no beginner, for much will depend on his keenness and discrimination.

If I can assist you further, don’t hesitate to write me again.

Very truly, yours,

Dr. H. M. Hallock,

Hot Springs, Ark.

Prof. Otto Folin,

Harvard Medical College, Boston, Mass.

Sir: I beg to acknowledge your letter of February 27, 1912, and desire to express my appreciation of your interest and to thank you for the assistance you have so willingly given.

In the last paragraph you state, "If I can assist you further, don’t hesitate to write me again."

It is the desire of the department to have a bill introduced at the present session of Congress asking for an appropriation for carrying on the work of a commission in determining the physiological and therapeutic effects of the waters of the hot springs. The time is rather short and in all probability it will be necessary to determine the details of the work and to appoint the personnel at a later date. In order to determine the sum to be requested, however, it is necessary to have an estimate of the cost of the investigations.

I am in receipt of a letter from the department which reads in part as follows:

I have to request that you will take up the subject with the other members of the Federal registration board and submit a general outline as to the amount of money which you think should be appropriated by Congress for this purpose, such appropriation to include compensation of physicians employed, laboratory facilities, appliances, and hospital facilities in connection with the matter.
In submitting the estimate of the amount to be appropriated for this purpose a
lump sum will be asked for, out of which all necessary expenses, including compensa-
tion of experts, etc., is to be paid, and it is also proposed to suggest to Congress that
the Secretary of War, the Secretary of the Navy, and the Public Health and Marine-
Hospital Service be authorized to cooperate with this department in handling the
subject, the entire matter to be under the supervision of the Secretary of the Interior.

It would be of material assistance if you would be willing to give
at least an approximate estimate as to the necessary expenditures
basing the figures on the work of such a commission for the first
year, and also if you could express an opinion as to the number of
years that would be required to complete the work.

It is believed that hospital facilities can be obtained at the Army
and Navy general hospital without cost other than the subsistence of
patients. Information is especially desired as to the probable cost of
the following items:

- Compensation of expert.
- Compensation of assistant.
- Chemical laboratory equipment and operation (exclusive of
  building).
- Number and cost of animals used for experimental purposes.
- Number of healthy subjects to be employed for experimental
  purposes.
- Number of patients to be observed.

Thanking you for any assistance you may be able to render, I am,

Very truly, yours,

HENRY M. HALLOCK,
Medical Director.

JEFFERSON MEDICAL COLLEGE,
Philadelphia, December 26, 1911.

HARRY M. HALLOCK,
Medical Director, Hot Springs Reservation,
Hot Springs, Ark.

DEAR DOCTOR: Your letter of December 19, 1911, will be referred
to the appropriate committee of our faculty immediately after the
termination of the holidays.

Believe me, very truly, yours,

ROSS V. PATTERSON, M.D.,
Subdean.

JEFFERSON MEDICAL COLLEGE,
Philadelphia, January 8, 1912.

HARRY M. HALLOCK, M.D.,
Medical Director, Hot Springs, Ark.

DEAR SIR: Your letter of December 19, 1911, has been referred to
me to name a physiological chemist.

I can heartily recommend, for the inquiry referred to, Prof. Victor
Vaughan, M.D., University of Michigan, Ann Arbor, Mich.

Respectfully,

J. W. HOLLAND,
Professor of Medical Chemistry.
DeeR Doctor: Your letter and the papers accompanying it have interested me very much. If it be true in any large number of cases that immersion of the body, or a part of the body, in water causes the body temperature to go several degrees higher than the temperature of the water, this is a most interesting question. It should certainly be investigated. I know of no other water in the world of which this is true. I have made a study of some of the great medicinal springs, such as those of Carlsbad, and I am quite sure that there is not another water in the world that does anything like this. It seems to me that the matter is of enough importance to justify a thorough and scientific investigation. I wish to make the following suggestion: It seems to me that it would be well for a medical board to be convened at Hot Springs for a period of 10 days to make a preliminary investigation, and report to the Department of the Interior as to what, in the opinion of the board, should be done. This board might consist of a few medical officers detailed from the Army, Navy, and Public Health Service. If such a thing as this is done, I should like very much to be on the board. I am a member of the Reserve Corps of the Army, and could be ordered on such service if the Surgeon General wishes. Please think this over and let me know what you decide about it. It seems to me that this would be the best way to get at it. If it is decided to undertake a thorough study, such a board as I have mentioned could map out the way in which the work should be done.

Thanking you very much, and with best wishes, I am,

Yours, truly,

V.C. Vaughan.

My Dear Prof. Vaughan: I beg to acknowledge your letter of March 4, 1912, in reply to my inquiries of February 20, and to thank you for your interest and the careful consideration you have given the matter. Your suggestion as to the appointment of a preliminary board to be assembled at Hot Springs for the purpose of making a report to the department will be borne in mind. It will take some little time to arrange the details of the proposed investigations but there is one point that it is greatly desired to have settled at once, and that is the amount of money that should be requested as an appropriation by Congress for carrying on the work.

I am in receipt of a letter from the department which reads in part as follows:

I have to request that you will take up the subject with the other members of the Federal registration board and submit a general outline as to the amount of money
which you think should be appropriated by Congress for this purpose, such appropriation to include compensation of physicians employed, laboratory facilities, appliances, and hospital facilities in connection with the matter.

In submitting the estimate of the amount to be appropriated for this purpose a lump sum will be asked for, out of which all necessary expenses, including compensation of experts, etc., is to be paid, and it is also proposed to suggest to Congress that the Secretary of War, the Secretary of the Navy, and the Public Health and Marine-Hospital Service be authorized to cooperate with this department in handling the subject, the entire matter to be under the supervision of the Secretary of the Interior.

It would be of material assistance if you would be willing to give at least an approximate estimate as to the necessary expenditures, basing the figures on the work of such a commission for the first year, and also if you could express an opinion as to the number of years that would be required to complete the work.

It is believed that hospital facilities can be obtained at the Army and Navy general hospital without cost other than the subsistence of patients. Information is especially desired as to the probable cost of the following items:

- Compensation of expert.
- Compensation of assistant.
- Chemical laboratory equipment and operation (exclusive of building).
- Number and cost of animals used for experimental purposes.
- Number of patients to be observed.

Thanking you for any assistance you may be able to render, I am,

Very truly, yours,

HARRY M. HALLOCK,
Medical Director.

UNIVERSITY OF MICHIGAN,
DEPARTMENT OF MEDICINE AND SURGERY,
Ann Arbor, March 11, 1912.

Dr. HARRY M. HALLOCK,
Medical Director, Hot Springs Reservation,
Hot Springs, Ark.

DEAR DOCTOR: In reply to yours of March 8 I will say that it would be necessary to equip and supply a laboratory. There would have to be tables, sinks, shelves, benches for balances, at least two first-class balances, at least two good microscopes, a full set of chemicals, beakers, graduates, buretts, recording apparatus, drums, in fact everything necessary for a first-class pharmacological laboratory. The research part of our pharmacological laboratory, not counting the part devoted to students, inventories about $5,000. This of course does not include the room nor the permanent equipment of the room. I should say for laboratory purposes there should be an appropriation of about $10,000. The director of the laboratory should have a salary of $5,000. There should be two good assistants, each of whom should receive a salary of $3,500. There should be two subassistants, each of whom should receive $2,000. There should be two laboratory servants, each of whom should receive $1,000. The cost of animals used for experimental purposes would not be less than $500. There should be not less than 200 patients under observation, while 25 normal persons should be used for controls. I can not give you any estimate as to what this would cost. The figures that I have given,
except for laboratory equipment, of course mean annual expenditures. I think provision should be made for two years of work. Probably this will give you enough to assist you in figuring out what appropriation you should ask for. If I can be of further service to you in this matter please consider me at your command.

Yours, truly,

V. C. Vaughan.


My Dear Sir: I beg to acknowledge receipt of your letter of the 19th instant in regard to experiments with a view to determining the physiological effects of the water of the hot springs of Arkansas. I shall take pleasure in referring this matter to the dean of our school of medicine, with the request that he be kind enough to make any suggestion that may be feasible in the matter.

Believe me, very sincerely, yours,

Edward Robins, Secretary.

Harry M. Hallock, M. D., Medical Director, Department of the Interior, Hot Springs, Ark.


Mr. H. M. Hallock, Hot Springs, Ark.

My Dear Mr. Hallock: Your letter to the secretary of the University of Pennsylvania has been referred to me for reply. I would suggest to you the name of Prof. A. E. Taylor, our professor of physiological chemistry, medical school of the University of Pennsylvania. You may know of him as one of the so-called Remsen Board connected with the United States Department of Agriculture. He is at present in California, but will return in about 10 days, and a letter addressed to him at the medical school of the University of Pennsylvania will reach him within a short time. If he can not personally undertake the work, very possibly he can arrange to have it done under his direction by some of his assistants.

Very sincerely,

A. J. Smith, Dean.

University of Pennsylvania, Philadelphia, February 23, 1912.

Dr. H. M. Hallock, Hot Springs, Ark.

My Dear Dr. Hallock: In reply to your communication in reference to taking up work on a commission to investigate the waters of the hot springs, it will not be possible for me to give you any reply until I know more about it. How much time would be consumed? How much time would need to be spent there? Of course, scientific results could be reached by proper investigations. If you will let
me know what would be expected I will be in a position to say whether I could be available.

Thanking you, I am, very truly, yours,

A. E. TAYLOR.

DEPARTMENT OF THE INTERIOR,
HOT SPRINGS RESERVATION,
OFFICE OF MEDICAL DIRECTOR,
Hot Springs, Ark., February 28, 1912.

Prof. A. E. TAYLOR,
University of Pennsylvania,

Sir: Replying to your letter of February 23, requesting further information as to the proposed investigation of the physiological effects of the water of the hot springs of Arkansas, I beg to say that it is believed that it would be necessary for whoever undertakes this work to be present in Hot Springs and to devote practically his entire time to it. It is thought that the series of experiments would extend over the period of one year, and that by the expiration of that time it would be possible to determine whether it would be worth while to continue them longer. These observations would naturally be directed toward noting changes in metabolism, excretion, secretion, blood changes, and variation of vascular tension, both in the sick and in the well. The investigator would have largely to plan his own work, the object being to define if possible the legitimate therapeutic value of the water in the various forms of its administration. There is at present more or less difference of opinion on all these points.

It is desired to have the observations conducted in a way and by one whose work will be accepted by the medical profession as reliable and ethical to the general, and that we may have in our own country a spa that will compare favorably with places of like character abroad.

The first point to be determined is whether by investigations of this character it would be possible to arrive at sufficiently definite results to warrant the undertaking. The second point to be determined is an approximate estimate, as much in detail as practicable, of the cost.

Very respectfully,

HARRY M. HALLOCK,
Medical Director.

COLUMBIA UNIVERSITY,
COLLEGE OF PHYSICIANS AND SURGEONS,
New York, January 18, 1912

Dr. HARRY M. HALLOCK,
Medical Director, Hot Springs Reservation,
Hot Springs, Ark.

Dear Sir: Our faculty referred your letter of December 19 to Dr. William J. Gies, professor of biological chemistry, and Dr. Gies writes in reply as follows:

I desire to nominate Jacob Rosenbloom, M. D., Ph. D., associate in biological chemistry, as a physiological chemist competent to conduct the proposed series of experiments on the physiological effects of the water of the hot springs of Arkansas.
I assume that the work will offer such remuneration as would enable Dr. Rosenbloom to give all his time an attention to the investigation. His thorough medical training and his extended chemical experience here, and his numerous investigations of the past few years, convince me that he would be more than ordinarily competent to conduct the work to which the medical director of the Hot Springs Reservation refers in his letter of December 19, which you have submitted to me.

I trust that this answers your inquiry of December 19.

Yours, very truly,

SAML. W. LAMBERT, Dean.

COLUMBIA UNIVERSITY,
COLLEGE OF PHYSICIANS AND SURGEONS,
New York, December 23, 1911.

Dr. Harry M. Hallock,
Medical Director, Hot Springs Reservation,
Hot Springs, Ark.

Dear Sir: In reply to your letter of December 19, I would state that your inquiry will be placed before the faculty of medicine at their meeting on Monday, January 15. Their decision will be communicated to you as soon as possible after that meeting.

Yours, very truly,

SAML. W. LAMBERT, M. D., Dean.

PHILADELPHIA, PA., March 1, 1912.

My Dear Dr. Hallock: I have your kind letter. It would not be possible for me to undertake any such work as you have detailed. You have the correct plan, and I wish you success in it.

Very truly, yours,

A. E. TAYLOR.

COLUMBIA UNIVERSITY,
COLLEGE OF PHYSICIANS AND SURGEONS,
New York, March 27, 1912.

Dear Dr. Hallock: I have read with care and attention your communication of recent date and the documents that came with it. I am convinced that it would be in the public interest to conduct a thorough investigation on the waters in the hot springs of Arkansas. It is obvious that positive therapeutic value, if such is possessed by the waters, might be clearly established by adequate investigation. It is just as clear that lack of curative properties would be shown by proper investigations if remedial qualities were lacking. Either result would provide knowledge of public utility. Should it ultimately be decided to proceed with such work, it would give me pleasure to nominate Prof. William H. Welker, of this department, to take charge of it.

Prof. Welker cooperated with me several years ago in a research on the effects of radium after its introduction into the body, and his training as a physicist, chemist, and biologist makes him particularly competent to conduct work of the kind in the proposed research under consideration. Prof. Welker's family have for some time pre-
ferred to live in a smaller city than New York, and I am confident you would find him ready to accept appointment in this relation, providing it would make it possible for him financially to accept.

Yours, very truly,

Wm. J. Gies.

University of Pennsylvania,
Philadelphia, February 28, 1912.

The Medical Director, Hot Springs Reservation,
Hot Springs, Ark.

Dear Sir: I have your letter of February 20, informing me of the plan, lately taken under consideration by the Secretary of the Interior, of conducting a series of investigations in reference to the physiological action of the water at Hot Springs, and inquiring as to my opinion of the probable value of such an investigation and my own willingness to take part in it.

In view of the number of persons who go to Hot Springs in hope of being benefited by the baths, I am decidedly of the opinion that such an investigation should be undertaken, and conducted completely—and of course impartially—with the object simply of ascertaining what definite and demonstrable physiological effects the water is capable of producing. There is no doubt that the reports of cures, and the claims made by persons whose health has been improved while or after taking the baths, are often highly inaccurate and misleading. Post hoc is not propter hoc, and the only way of finding whether any connection exists between the properties of the water and the benefit gained by patients who undergo treatment at the springs is a scientific investigation conducted by entirely unbiased and properly qualified persons. There is no doubt that the results of any such carefully conducted investigation would be of value both to science and to the medical profession.

I am, however, not prepared to accept an appointment of the kind you describe. I am not a medical man, and I have never engaged in any investigations having a purely medical bearing, so that I feel myself unqualified to take part in an investigation of this nature. There are, however, a considerable number of physiological chemists in the country who are primarily interested in the medical applications of their science, and there would, I believe, be little difficulty in securing the services of one or more well qualified investigators.

Thanking you for your courtesy, and appreciating the honor implied in your offer, I remain,

Yours, very truly,

Ralph S. Lillie.

Columbia University Biochemical Association,
New York, March 14, 1912.

My Dear Dr. Hallock: Your letter of the 20th just received on my return to the city from a western trip.

I think results could be obtained from the work you mention that would well commensurate with the expenditure involved. ** *

It is impossible for me to state what the work would cost without a full knowledge of the exact scope of the work.

Respectfully,

Jacob Rosenbloom.

Dr. Harry M. Hallock, Medical Director, Hot Springs Reservation, Hot Springs, Ark.

Dear Sir: I am in receipt of your letter of March 16, and in reply would say that a scientific investigation of the therapeutic value of the water of hot springs seems to me a very desirable undertaking, both as a means of increasing scientific knowledge of the general subject and as a practical measure to better utilize this natural resource.

As regards methods, I do not feel competent to make any suggestions other than the very obvious one that it is essential that the committee or commission charged with this work should be composed of men whose scientific standing and personal character will put the results of their work above criticism. If it is possible to secure such men, they would be more competent than anyone else to determine upon the methods to be followed, and if they were not competent to do this they would not be suitable members of a commission.

Very respectfully, yours,

W. P. Armsby, Director.

Catonsville, Md., March 21, 1912.

Dr. H. M. Hallock, Hot Springs, Ark.

Dear Doctor: For more than 20 years the physiological action of certain mineral waters has been a puzzle to me. I could not explain why a carefully prepared artificial imitation of certain natural waters would not act alike, even when the natural water was not taken at the source but bottled and shipped away. The chemical analyses showed the same constituents in the same proportions, and yet I was forced to admit through evidence before my eyes that the physiological action of the waters was not identical.

The thought sometimes occurred to me that our analytical methods were not sufficient to show the presence of some agent or agents imparting such properties to the respective waters. It was, therefore, I might say, a relief to my troubled mind when, through the wonderful discovery of radium and radioactivity, a possible explanation might be found.

From these remarks you may readily draw the conclusion that I am thoroughly in favor of any steps which may lead through a scientific study to definite results.

Very truly, yours,

Dr. W. Simon,
College of Physicians and Surgeons, Baltimore, Md.

Sheffield Laboratory of Physiological Chemistry, Yale University, New Haven, Conn., March 22, 1912.

Dr. H. M. Hallock, Hot Springs, Ark.

Dear Sir: In reply to your communication of the 16th concerning the advisability of making an experimental study of the influence of
the hot springs waters upon the body, I would say that such a procedure would be very desirable. Just at this time precisely this type of work is being carried forward in certain laboratories abroad, but they have not the opportunity or facilities that may be possible in the work proposed in your letter. The investigation would be of scientific value whatever the outcome, and in every sense is a proper and legitimate subject for research.

Very truly,

FRANK P. UNDERHILL.

THE OTHO S. A. SPRAGUE MEMORIAL INSTITUTE,
Chicago, March 22, 1912.

Dr. HARRY M. HALLOCK,
Hot Springs Reservation, Hot Springs, Ark.

MY DEAR DR. HALLOCK: From what I can learn in the communications you have just sent me concerning the waters of the hot springs, it would seem most desirable that thorough investigation on the physiological action of the springs, both upon man and animals, be made under Government auspices, so that we may have unprejudiced and reliable information upon which to base future therapeutic use of the springs. It is my opinion, in reply to your direct question, that the subject is most decidedly a legitimate and proper subject for scientific research not only from the standpoint of clinical medicine, but also from that of physiology.

Yours, very truly,

H. GIDEON WELLS, Director.

CORNELL UNIVERSITY,
DEPARTMENT OF CHEMISTRY,
Ithaca, N. Y., March 19, 1912.

Dr. HARRY M. HALLOCK,
Medical Director, Hot Springs, Ark.

DEAR SIR: Your circular letter of March 16 came yesterday, and I have read it with great interest and care. Prof. J. K. Haywood, of the Bureau of Chemistry, who made the chemical analysis of the water of the hot springs, is a graduate of the chemical department of this university and a personal friend of the writer. I also know the other chemists you mention in your letter, and feel sure that their reports and conclusions are reliable and valuable. Something more is required, however, than a mere chemical analysis, and I think the arrangement contemplated by the Secretary of the Interior to secure the services of a competent physiological chemist to work in conjunction with a commission of medical men an excellent one. It seems to me that the results of such an investigation would be of great value, and I am of the opinion that the work contemplated is a legitimate and proper one for scientific research from the standpoint of clinical medicine.

I would suggest that an attempt be made to get the Carnegie Institution and the Rockefeller Foundation for Medical Research interested in the matter. Dr. Benedict, of the Carnegie Institution, has been investigating problems connected with metabolism and knows more about this subject than any other man in this country.
Dr. Benedict is now in Boston, Mass., and I feel sure he would be much interested in such an investigation as you contemplate.

The Rockefeller Foundation has a very able corps of experts whose aid would be absolutely invaluable in such investigation. I have mentioned these institutions because any results published by them would command attention and be at once accepted by the medical profession. I suppose you are familiar with the work Dr. Benedict has been doing with the calorimeter, and I need not emphasize the importance of this kind of work in connection with the present investigation of the therapeutic value of these waters.

Yours, very truly,

W. R. ORNDOFF,
Professor of Organic and Physiological Chemistry.

AMERICAN CLIMATOLOGICAL ASSOCIATION,
March 21, 1912.

Dr. HARRY M. HALLOCK,
Medical Director.

MY DEAR SIR: I beg to acknowledge your very kind letter of the 18th instant, and also your very interesting report for 1911 to the Secretary of the Interior, with other inclosures.

I will reply later on to the subject referred to in your letter and as it is quite complicated I should give it consideration and see if some plan can not be outlined to afford a practical plan of investigation.

Very truly,

GUY HINSDALE.

CARNEGIE INSTITUTION OF WASHINGTON,
NUTRITION LABORATORY,
Fenway, Boston, Mass., March 21, 1912.

Dr. HARRY M. HALLOCK,
Medical Director, Hot Springs, Ark.

DEAR SIR: I have your circular letter of March 16 with regard to investigations of the therapeutic value of the water of the hot springs of Arkansas, and I have glanced through the literature that you have sent along with this letter. There is no difficulty in determining definitely by physiological tests the action of water, provided it has any. There is a great question in the minds of experimenters as to the influence of radium emanation on metabolism, and I must confess I feel very skeptical with regard to many of the experiment reports in the literature you sent me, inasmuch as the main claim to benefit from the hot springs water is their radioactivity upon metabolism. This could only be done by persons trained in metabolic studies, particularly studying the gaseous exchange, so as to make some estimation of the actual amount of metabolic activity. Unless such a series of experiments be made, I should look very much askance at any studies undertaken. If the United States Government wishes to send to the laboratory an accredited scientist to learn the technique of making these studies, I shall be very glad to accord him what facilities we can; other than that, we are not in a position to do anything.

I am, very truly, yours,

FRANCIS G. BENEDICT.
Dr. Harry M. Hallock,
Hot Springs Reservation, Hot Springs, Ark.

Dear Sir: In reply to your letter of March 18, I would state that I believe it would be an investigation of great value to have a study made of the action of the hot springs water, not only its effects on the body in health but also in diseased conditions and its effects upon metabolism.

I believe that in order to be of any value such an investigation would have to be undertaken by a number of well-trained men, and that it would have to extend over a considerable period of time, and that an important part of the work would be to investigate the effect of the water in reference to any deleterious changes that it might cause. It seems that in certain diseases the water does harm rather than good.

I have no special suggestions at this time to make regarding the scope of such an investigation, but certainly urge that it be undertaken with the view of placing these curative waters on a scientific basis, where they certainly deserve to be.

Very sincerely, yours,

John Ruhrath.

Tulane University of Louisiana,
New Orleans, March 25, 1912.

Dr. Harry M. Hallock,
Medical Director, Hot Springs Reservation,
Hot Springs, Ark.

Dear Doctor: I am glad to reply to your communication of March 18, but must necessarily do so in a very general way.

I have always deplored the popular estimate of hot springs in their relation to syphilis, and have considered that more harm has been done to the victims of this disease through hot springs than through any other agent in modern times. The belief of the general public in the efficacy of the water of hot springs has created the impression that one or two "courses" there was all that was needed for a cure, and you know the results.

I believe that the thorough investigation of hot springs in its relation to syphilis is not only desirable but imperative for the good of the American people and for the education of the rank and file of the profession.

It should be especially demonstrated that hot springs have advantages over ordinary hot baths or other thermal resorts, if such be the case, and I shall welcome the results of the efforts of the Government in this direction.

It will require some time to obtain the proper results, and these should be derived from systematic experiments with groups of cases not only of syphilis but of skin diseases and of those other ailments (like rheumatism, gout, etc.) which are now in the habit of being treated at the springs.

If I can be of any other service at any other time I shall be glad to serve you.

Very truly, yours,

Isadore Dyer, Dean.
Boston, March 23, 1912.

Dr. Harry M. Hallock,
Hot Springs, Ark.

My Dear Sir: I acknowledge with thanks the receipt of your favor of March 18. In reply to your question, I would give it as my opinion that the thorough investigation into the effects of the waters from the hot springs would certainly be a legitimate and proper subject for scientific research from the standpoint of clinical medicine. It seems to me very desirable to determine what effects these radioactive waters have on healthy animals and healthy human beings. It might be desirable also to determine whether or not these effects differ from those obtained by the use of ordinary waters at the same temperature as that from the springs itself. The medical world and humanity would be the richer for the possession of this knowledge.

Very truly, yours,

J. P. Sutherland.

New York City, March 29, 1912.

Dr. Harry M. Hallock,
Hot Springs Reservation, Hot Springs, Ark.

Dear Sir: Your letter of 16th instant at hand. In answer to your question I am of the opinion that a carefully conducted investigation into the various effects of radioactive waters upon metabolism would be of scientific value. But such a research would not be at all a simple one, and, in my opinion, the ordinary type of observation conducted on patients under treatment is devoid of scientific value. Only such studies as utilize the most perfect methods are worthy of consideration. These should be, in the first place, physiological, and then with these results as a basis some deduction might be made regarding pathological conditions. I should be interested in seeing such work done, but it is by no means certain that any practical result could be arrived at.

Yours, truly,

N. B. Foster.

Brooklyn Institute of Arts and Sciences,
Brooklyn Botanic Garden, March 27, 1912.

Dr. Harry M. Hallock,
Hot Springs Reservation, Hot Springs, Ark.

My Dear Sir: Your letter of March 16, addressed to me at the University of Missouri, has been forwarded to me at my address as given above.

I am very much interested in the proposition to make a thorough investigation of the physiological and therapeutic properties of the waters of the hot springs. It seems to me that it is a very desirable thing to do, not only because of its scientific interest, but also because it may be the means either of protecting the public against worthless expenditure of money for treatment of no value, or be of positive benefit in demonstrating the real efficacy of the hot springs baths for certain ailments or merely as a tonic.

I should think the subject was one entirely legitimate and proper for scientific research, to be undertaken under Government auspices.
In fact, it seems to me that it is unfortunate that such an investigation has been so long delayed, in view of the fact that so many people have been led to look for relief and have spent considerable sums of money in that direction at the hot springs.

I believe the investigating staff should include a physiological chemist, a physical chemist, and a practicing physician, and the data gotten together ought to include information with reference to the history of past treatments, with their success or failure for different diseases, not only at these springs, but also by comparison with similar springs abroad.

Undoubtedly, if a competent force of investigators was appointed, the details of the investigation could very properly and advantageously be left to them.

I should be very much interested to know what further steps are taken in this matter, and if I can in any way render any service in this connection I shall be more than glad to do so.

Thanking you for the courtesy of addressing me on the subject, I am,

Yours, very sincerely,

C. Stuart Gager.

Rockefeller Institute for Medical Research,
New York, April 2, 1912.

Dr. Harry M. Hallock,
Hot Springs, Ark.

Dear Sir: Your favor of the 16th was received, and, with the accompanying paper, read with interest. The striking physiological properties of the hot springs assuredly deserve a thorough investigation. For that I can suggest nothing better than the assignment of a properly equipped physiological chemist from the Department of Agriculture or the Public Health and Marine-Hospital Service, to remain on the work until it has been completed to a satisfactory degree.

Yours, very truly,

Donald A. Van Slyke.

Chicago, March 27, 1912.

Dr. Harry M. Hallock,
Medical Director, Hot Springs Reservation, Ark.

Dear Doctor: I would say in reply to your inquiry that I am heartily in sympathy with the proposed investigation, under the auspices of the United States Government, of the physiologic effects of the waters of the hot springs of Arkansas. Am convinced that our national resources, climatic as well as balneologic, do not receive the attention and the study that they deserve.

Investigation conducted by persons commercially interested in a health resort are hardly likely to be of great scientific value, as personal bias can not be eliminated even by good intentions. Such investigations should be conducted by the Government, and the results, good or bad, published for the benefit of the people.

Thanking you for the opportunity to express my opinion in this matter, I am,

Yours, very truly,

Bernard Fantus, M. D.
MEDICAL DIRECTOR HOT SPRINGS RESERVATION.

WINNIPEG GENERAL HOSPITAL,
Winnipeg, March 25, 1912.

Dr. HARRY M. HALLOCK,
Medical Director, Hot Springs Reservation,
Hot Springs, Ark.

DEAR DOCTOR: In reply to yours of March 16, I am much gratified that the effort is at last being made to put America’s best-known spa on a scientific basis, as the taint of the Diamond Joe régime has probably been the greatest drawback the hot springs have ever had, and they have not been permitted to do the good of which they are capable. It would be of great value to the profession of the country if they could have a definite and reliable statement of the actual therapeutic value of the springs. While we know, of course, that the bulk of the good results of the foreign springs rests on a more or less scientific basis, the present-day developments of radiotherapy indicate that if these springs are really endowed with radioactivity they may become of great value.

As to the method of investigation. Your letter suggests a physiological chemical investigation. I assume that this term is used in its broad application to include pharmacology and experimental therapeutics, as it is with mineral waters particularly that physiological chemistry, or any chemistry alone, is extremely liable to lead us astray, the only thing of any great reliability being actual animal experimentation, followed by definite experimental therapy, for which I suppose the hospital would furnish sufficient material, after the animal experiments had suggested promising lines of procedure.

If I can at any time be of service, I will be pleased to do so, not the least for the reason that while I am now under the British flag I still hold my commission in the M. R. C.

Yours, respectfully,

W. P. MORRILL, M. D., Superintendent.

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MADISON, WIS., March 19, 1912.

Dr. HARRY M. HALLOCK,
Medical Director, Hot Springs Reservation,
Hot Springs, Ark.

DEAR SIR: Yours of the 16th instant at hand. I would state to begin with that I am hardly qualified to answer authoritatively the questions asked. Reports of the work done abroad in determining the effects upon metabolism of radioactive baths and drinking waters does not seem to offer great encouragement in this field. A number of such investigations have been carried on, the reports of which have been published in the Zeitschrift for Experimentelle Pathologie Und Therapie during the last few years. Very little, if anything, tangible has been found to indicate any deep-seated or definite effect upon metabolism. My own impression, therefore, is that much time might be wasted in such investigation. On the other hand I should hesitate to express a positive opinion which might in the slightest degree discourage research along any line. This line seems so much less promising than many others in the field of preventative and curative medicine that I should personally prefer to see the Government appropriate money for more valuable lines of investigation.

* * *

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I believe it is generally conceded that the cures effected by the well-known spas of Europe are to be attributed to the out-of-door life enjoined on the patients, to the regular regimen of diet and sleep and exercise; to the simple, nutritious food provided, rather than to any inherent property of the waters themselves. It is possible, however, that these radioactive waters may prove beneficial in certain types of skin diseases.

Very truly, yours,

H. C. Bradley.

NOTE.—Harold C. Bradley, assistant professor of physiological chemistry, department of physiology, University of Wisconsin.

UNITED STATES DEPARTMENT OF AGRICULTURE,
OFFICE OF EXPERIMENT STATIONS,
Washington, D. C., March 27, 1912.

Dr. Harry M. Hallock,
Medical Director, Hot Springs Reservation,
Hot Springs, Ark.

DEAR SIR: Your letter of March 16 was received, together with the additional data regarding the Arkansas hot springs. I am much interested in the subject and in the plans for future development. Without doubt biochemical studies of the effects of the waters would prove valuable.

In my judgment, it is also important to study the effect of food conditions in combination with the waters. A number of years ago an attempt was made in connection with the nutrition investigations of this office to compile experiments with men and animals in which the balance of income and outgo was determined usually in terms of nitrogen. As the work progressed it became evident that a very large number of studies had been made in which the effects of mineral waters and baths of different sorts and similar factors had been studied.

A considerable number of the articles abstracted were published in Russian, and others in French and German. Many additional reports have appeared since our bulletin was published, and it may safely be said that the total amount of literature existing on this subject is fairly large. In my opinion, this material might be very profitably collected and digested as a preliminary to and in conjunction with other studies, the Arkansas springs.

It might be possible to arrange for cooperation between your bureau and the Office of Experiment Stations, for such a project, should you think favorably of it.

Trusting that it will prove of interest to you, the Division of Publications has been asked to mail you under separate cover a copy of Bulletin 45, of the Office of Experiment Stations, Dietary Studies in New York City in 1895 and 1896, which contains a summary of the data referred to above, and also a number of our general publications on food and nutrition topics.

Very truly, yours,

C. F. Langworthy,
Chief of Nutrition Investigations.
New York, March 23, 1912.

Dr. H. M. Hallock,
Medical Director.

Dear Doctor: Your letter of the 15th instant has given me great satisfaction in that it is in line with efforts I have been making for a long time to study the scientific and practical aspects of our abundant and numerous mineral waters. The latter, having been so long exploited by commercial enterprise, have fallen into desuetude because physicians have not observed the therapeutic results they had reason to expect from the too often false representations of advertisers and promoters. Moreover, medical men at some of these springs, being in the employ of or at least dependent for patronage upon the proprietors of the springs, have not been as frank as was their real desire, in dissuading persons whose cases were not adapted to the waters of their particular resort from remaining. This is one reason for my hearty approval of the scientific investigation of the waters of Hot Springs and their clinical application under unbiased and skilled supervision. This may seem a singular reason, but I am convinced that if the definite and reliable results that surely will accrue from the investigation you propose will stimulate other spring owners to follow your example, the result will be the same splendid one which has been achieved by the demonstrations of the Department of Agriculture to our farmers. Every good health resort will emulate your example, and there will ensue a renaissance in physical therapeutics which I have been in vain endeavoring to initiate. So far my result has been mainly to convince intelligent physicians that there is a physiological action of water which has not been sufficiently studied and that water may be applied therapeutically with success only upon the same physiological basis as digitalis or strychnia or other medicinal agents. Prior to the discovery of the effect of radioactivity in mineral waters, I have based all hydrotherapeutic action on the thermis, mechanical, and (feeble) chemical excitation of the cutaneous nerve and vascular supply when used externally. In my article on "Mineral springs," in the first edition of Hare's System of Practical Therapeutics, I stated that "it is more important for the physician who sends a patient to the springs to know the mental composition of the doctor than the chemical composition of the water." Little confidence have I had in the latter. If radioactivity may be added to the feeble and often inert chemical constituents which are the boast of most of the springs, their therapeutic value will surely be vastly enhanced. I heartily indorse the plan contemplated by the Secretary of the Interior of securing the services of a competent physiological chemist to work in conjunction with a commission of medical men.

I am convinced that there "is a reasonable probability that a series of biochemical investigations on animals and human beings, both the sick and the well, would yield results that would be of value to the medical profession, and through them to suffering humanity." The whole subject is of great promise from a clinical standpoint. Not having received the inclosures you refer to, I am not prepared to give you suggestions. I need not say that you will need physicians who have more than an academic acquaintance with hydrotherapy. Indeed, I discussed the subject of your letter two summers ago with...
Surg. Gen. Torney, at his office in Washington, and recommended this investigation, advising that he send one of the Hot Springs staff to my clinic for observations on hydrotherapy.

Very truly, yours,

S. BARUCH.

The following is an extract taken from booklet entitled, "The Success of Physical Remedies in Pulmonary Phthisis as an Index of Their Value in Other Chronic Diseases," by Simon Baruch, M. D., of New York:

[Reprint from the Medical Record, Aug. 13, 1904.]

The celebrated health resorts of Germany, which attract a multitude of people, more or less afflicted with chronic diseases, do not owe their well-earned reputation so much to the climate and chemical composition of the waters or other local conditions as is generally supposed. These useful therapeutic elements would be absolutely inefficient if their application were not directed by the medical men residing in these resorts, who have made it a life study to investigate the climatic and balneological advantages of their respective springs, and have convinced their confrères in all parts of the world, by conscientious striving for the welfare of the patients committed to their care and by the intelligent application of their respective local advantages, and by close attention to and guarding of the sanitary arrangements of the springs. It is really more important for the physician who sends his patient to health resorts or springs to know the mental composition of the doctor than to know the barometric characteristics of the climate or the chemical composition of the waters. As an example, let me cite the recent marvelous growth of Nauheim as a resort for cardiac cases, which is due to the studies of Dr. Theodore Schott and his conscientious selection of cases adapted for the Nauheim waters. By scrupling mercenary methods, unfortunately prevalent at many resorts, he has builded better than he knew, for the town of Nauheim has since his death become the Mecca of patients from all parts of the world. It will retain its well-earned reputation so long as its physicians will utilize it judiciously, select the patients with care and firmly decline to retain cases not adapted, though the material interests of the resort may seem to suffer.

[HOT SPRINGS RESERVATION.]

By Dr. S. Baruch, professor of hydrotherapy, University of Columbia.

The enormous annual exodus to Europe of people suffering from ailments of various kinds, and especially from rheumatism and gout, involves so large an expenditure of money, time, and comfort that it becomes a matter of public interest to ascertain if these can not be avoided or at least diminished to a great extent. The fact that our own country possesses mineral springs the water of which is second to none in efficacy for healing to those of Europe has often been pointed out by some of our physicians who are specially interested in this branch of medicine. No serious effort has, however, been made to demonstrate scientifically the curative value of these waters. The result has been that the numerous health resorts of this country from Maine to California have lacked proper utilization except for commercial purposes, a method of exploitation which has damaged their repute and inclined medical men to avoid them in their practical application of mineral springs by reason of fantastic analyses, and the most extravagant claims of curative properties made by the owners.

An awakening has come, however, manifested in the action of the New York Legislature, which has acquired the Saratoga Springs as a State reservation, impelled thereto by the systematic robbing of the precious gases contained in the Saratoga spring waters by manufacturers or distributors of carbonic-acid gas. It became quite obvious that if this course continued these waters would become practically inert for medicinal purposes. This act of the legislature was the first step in the recognition by the State of the immense value and importance of mineral springs to the welfare of the people. The development of this State reservation has been exceedingly slow and halting, probably from lack of appropriations. The commission
appointed by the governor has not yet been successful in developing Saratoga as a health resort; it is to be hoped that ere long Saratoga may become as famous among physicians for the health-giving properties of its waters as it was in its golden prime for its cuisines, its fine hotels, and good sports to the seekers after pleasure.

Perhaps the action now being taken by the United States Government in developing the Hot Springs Reservation as a scientific health resort may stir up the Saratoga commission to emulate its example. For many years the hot springs of Arkansas have been famous for the treatment of rheumatism, gout, and other blood diseases. One hundred thousand visitors annually attest the efficacy of these waters. In order, however, to obtain the full benefit for the largest number, and to save many the trouble and expense of journeying to these springs without prospect of advantage, the Government has wisely determined to institute certain scientific experiments to ascertain definitely their true curative properties. A medical director has been assigned to supervise the baths and the administration of the reservation. Under the direction of Surg. H. M. Hallock, of the Army Medical Department, analyses have been made by the agricultural and geological departments, and a recent investigation has led to the discovery of what is called by physicians "radioactivity" of positive type. This does not mean that radium exists in the water of the hot springs, but "radium emanation," a gas dissolved in the water, which is regarded by medical men of great value in certain diseases, has been found which affords a more mild though effective action. This discovery is of marked importance; it places the hot springs of Arkansas on equality with, if it does not render them superior, to most of the renowned springs of Europe which claim radioactivity for their waters.

That further observations on this subject, together with the practical application of the waters in disease, will be absolutely reliable and entirely free from commercial bias is guaranteed by the type of men under whose direction they will be executed. It is to be hoped that the Congress may grant any appropriation that may be called for to further the thorough investigations, scientific and practical, which are proposed. The outcome of the latter can not be overestimated. It will not only be of immediate value to the large number of sufferers who flock to these springs, but, what is more important, the systematic and scientific application of this mineral water will demonstrate to owners of other springs and to physicians that the European methods of administration are worthy of imitation, especially when they will be improved by the infusion of the true American spirit of utility to the largest numbers. The development of this long-neglected field may inure to the lasting benefit of our people.

The State University of Iowa,
Department of Chemistry,
Iowa City, March 18, 1912.

Harry M. Hallock, M. D.,
Medical Director, Hot Springs, Ark.

My Dear Sir: I have your letter of March 16 asking my opinion as to the desirability of an experimental study of the effects of the hot springs water upon animals and human beings.

I regard it of the greatest importance to have such problems taken up if they can be properly studied. Tradition is the chief evidence that we have as a rule, and when some attempt has been made to investigate such questions it is too frequently not completed. As a requisite for conclusive results I think the subjects should be under control as to their diet, hours, etc. Lacking this I do not think very definite results can be obtained. I believe the matter should be taken up from both the clinical and physiological sides. From the latter I should like to see a thorough investigation made of the effects of the water upon metabolism, such as possible modification of amounts of excreted materials, urea, uric acid, ammonia, creatinin, total nitrogen, compounds of sulphur, phosphorus, etc.

I hope that you may be successful in being able to take up the work.

Yours, very truly,

E. W. Rockwood.
Prof. Elbert W. Rockwood,
Department of Chemistry, State University of Iowa,
Iowa City, Iowa.

Dear Prof. Rockwood: I beg to acknowledge your letter of March 18, 1912, and to express herewith my appreciation of the consideration you have given to my inquiries.

All of the correspondence with reference to the proposed investigation will be forwarded to the Secretary of the Interior in due time, and I am sure that the officials of the department in Washington will appreciate your courtesy as much as I do.

Very respectfully,

Harry M. Hallock,
Medical Director.

Chicago, March 20, 1912.

Harry M. Hallock,
Medical Director, Hot Springs Reservation,
Hot Springs, Ark.

Sir: I have your letter of March 16, 1912, containing a statement of the governmental control of Hot Springs Reservation and also your report to the Secretary of the Interior for 1911 and a copy of the publications on the hot springs of Arkansas.

I think that further investigations, biochemical and clinical, should be made of the waters of Hot Springs, Ark. In my opinion the subject is a legitimate one and a proper one for scientific research for the purpose of making more practical the uses of the waters for patients.

I wish that it were possible for the Government to more fully control the uses of the waters by patients. If it were possible for the Government to cut out all outsiders and to conduct the bathing pavilions under complete governmental control, I believe it would remove many of the objections which now exist there.

I appreciate very much what the Government has already done through the officials to remove and correct as far as possible the former abuses which came through private interests of all kinds.

Very truly, yours,

Frank Billings.

Note.—Frank Billings, dean Northwestern University Medical School; professor of practice of medicine, Rush Medical College; professor of medicine, University of Chicago.

Chicago, March 19, 1912.

Mt. Harry M. Hallock,
Medical Director, Hot Springs, Ark.

My dear Sir: I strongly urge that tests be made to determine the chemical, thermal, and radioactive variations of the waters of Hot Springs, Ark., for this is knowledge which the medical profession needs. More than that, I urge that a physiologist of experience be given facilities for determining the effects produced by the spring water.
when taken internally and when used for bathing. Unless the profession has this knowledge, the water can not be used in a scientific way. Something is known of its usefulness, but it is prescribed empirically not because it is known why it should be used.

I hope the United States Government will make these investigations. Not only will they be valuable for the development of the usefulness of this spring, but doubtless much will be learned which will be useful in applying other spring waters.

Very respectfully, yours, N. S. Davis.

NOTE.—Nathan S. Davis, A. M., M. D., professor of principles and practice of medicine, Northwestern University, Chicago, Ill.; ex-president Chicago Medico-Legal Society; member American Medical and American Climatological Associations, etc.

Rockefeller Institute for Medical Research,
New York, March 27, 1912.

Dr. Harry M. Hallock,
Medical Director, Hot Springs Reservation,
Hot Springs, Ark.

Dear Sir: Your letter of March 16, with the printed matter, was forwarded to me. I should be glad to be of assistance to you, but I know so little about the effects of springs on health that I am not in a position to make a definite statement or recommendation.

Thanking you for your note, I remain,
Yours, very truly,

James Lee.

Albany, N. Y., March 25, 1912.

Harry M. Hallock, M. D.,
Washington, D. C.

My Dear Doctor: Your letter and reports concerning hot springs of Arkansas were duly received, and, while I do not claim to have any very expert knowledge of such matters, it seems to me that there can be little doubt that such an investigation as you propose would be of the greatest value in determining in what class of cases they could be resorted to with advantage. As in many other cases it is not possible to tell beforehand in precisely what way they may turn out to be of the greatest use.

Very truly, yours,

Saml. B. Ward.

Cornell University Medical College,
New York, March 20, 1912.

Dr. Harry M. Hallock,
Medical Director, Hot Springs, Ark.

Dear Sir: Replying to your note of March 16 regarding the possible value of careful investigations with regard to the value of the baths of Hot Springs, Ark., I would say that I heartily approve of the idea. Of course the value of such work would depend upon the training of the head chemist who had the matter in charge. There is so much that is published nowadays which is not properly controlled that it would be a great misfortune unless the work were conducted by a
man whose knowledge of the problems to be attacked was of the most thorough and fundamental order. The recent work in Germany with regard to the value of radium emanations upon the destruction of uric acid in the body is of great suggestiveness, and it would be well if similar work could be done in this country, if placed in the hands of competent observers.

Very truly, yours,

GRAHAM LUSK.

NOTE.—Graham Lusk, Ph. D., Sc. D., F. R. S. (Edin.), professor of physiology, Cornell University Medical College.

AMERICAN MEDICAL ASSOCIATION,
COUNCIL ON PHARMACY AND CHEMISTRY,
Cleveland, Ohio, March 25, 1912.

Dr. H. M. HALLOCK.

DEAR SIR: I have perused your letter to the council and to me, and also the printed matter, with interest. It appears to me that an investigation by a physiological chemist, working in conjunction with a medical commission, holds forth promise of considerable usefulness. This investigation might bear on the following problems: Effect on temperature; effect on metabolin; effect on excretion of water, salts, metabolites, and drugs (Hg. iodid, plumbism, etc.); effect on circulation; effect on blood.

These observations will be made on healthy and diseased subjects. Comparative experiments should be made with the hot and cooled waters, also with ordinary hot water, and with the springs and plain water taken internally.

If some such program is submitted to the prominent laboratories where biochemical researches are in progress, it might facilitate the obtaining of the properly qualified investigator.

Very truly, yours,

TORALD SOLLMAN.

BUREAU OF ANIMAL INDUSTRY,
Washington, D. C, April 1, 1912.

Director Harry M. HALLOCK,
Hot Springs, Ark.

DEAR SIR: I have your circular dated March 16. In reply to your question "Is a biochemical investigation * * * of the waters * * * a legitimate and proper one for scientific research from the standpoint of clinical medicine?" I beg to answer, in spite of my limited knowledge of the physiological effects of radium and its products, yes; provided, however, that those who are in charge of the investigations realize that the most skillful physiological chemist working for a few years probably will not get results that will appeal strongly to anyone except scientists interested in just that line. I mean that I doubt whether practical results can justly be expected from one man working a few years. I believe that before results of a direct clinical value are obtained many men will have worked for many years.
If a biological chemist were engaged in research at the hot springs, a very grave injustice might be done to him if he were regarded as incompetent because "practical results" were not forthcoming; I believe that the work should certainly be done—the more biochemists, the better—but let there be no expectation of anything definite for about 10 years. This is not too long. I used radium bromid (and barium bromid) in some metabolism experiments on dogs, and one of the results was to point out the endless labor and difficulty involved in working out the physiological and pharmacological action of a substance like radium or its allied products.

Permit me to emphasize the desirability of the work and the length of time it will probably take to arrive at results that are of "practical value."

Respectfully,

William W. Berg.

Dr. Harry M. Hallock.

My Dear Doctor: I most heartily indorse the efforts you are making to have tested the therapeutic value of the waters on the reservation. There seems every reason for believing that these waters will prove as beneficial, if not more so, than those in European countries.

If I can aid you in securing the necessary appropriation by speaking to a few Members of Congress I will cheerfully undertake the task.

Very truly,

Samuel S. Adams,
Georgetown University.

Note.—Samuel S. Adams, A. M., M. D., professor of theory and practice of medicine and diseases of children, Georgetown University.

United States Department of Agriculture,
Bureau of Plant Industry,
Washington, D. C., March 20, 1912.

Dr. Harry M. Hallock,
Hot Springs, Ark.

Dear Sir: I beg to acknowledge the receipt of your letter of March 16, together with the inclosures. I will give the matter my very best consideration and will communicate with you again as soon as I have opportunity to read the literature you sent me and to consider the whole question. I hope that you can give me a few days in which to turn the matter over in my mind. It is certainly of such importance as to warrant earnest thought. Moreover, while I am familiar with the literature of radioactivity in a general way, I wish to refresh my memory by reading again some of the recent work on the subject. In that way I hope I will be able to give you an opinion that will be worth more than if I should reply to your question at once. If, however, it is necessary for me to reply at once please do not hesitate to say so and I will do what I can under the circumstances. You will then hear from me again in the course of some days.

Very truly, yours,

Carl L. Alsberg,
Chemical Biologist.
Dr. H. M. Hallock,
Hot Springs, Ark.

My Dear Dr. Hallock: In answer to your circular letter of March 15 regarding the scientific investigation of natural mineral waters, I would say that such investigations under Government supervision would undoubtedly be of enormous value to the people of this country, and that the value would gain in importance by having the work conducted jointly by the Government and a committee of the American Medical Association, because this would insure the transmission of such results directly to the entire medical profession and through them to the public.

Yours, very sincerely,

A. J. Ochsner,
Professor Clinical Surgery of the Medical Department of the University of Illinois.

Harry M. Hallock, M. D.
Medical Director, Hot Springs Reservation, Hot Springs, Ark.

Dear Doctor: Please accept my thanks and appreciation of your letter of March 14 and my apologies for the delay in answering the same.

I have been greatly interested to hear of the plan of instituting investigations of the physiological effects of the waters of Hot Springs. It is not so very long that attention has been directed to the radioactive qualities of European mineral springs, and the study of the subject is far from completed. Therefore there seems to be no doubt that biochemical investigation, conducted by competent observers, of the action of the waters of hot springs upon animals and upon human beings, both the sick and the well, at the springs, would result in the production of valuable scientific information beneficial to the medical profession in general and indirectly to suffering humanity. Such investigations conducted by officers of the United States Government would command attention in this country as well as abroad, and would certainly be welcomed from the clinical standpoint.

American mineral springs have heretofore been woefully neglected by the medical profession as well as by the American people. Meeting the request of the committee on therapeutic research of the American Medical Association for an investigation of the radioactivity of the various mineral waters, the plan indicated in your letter would undoubtedly be welcomed and supported by the physicians of the entire country and largely contribute to a more general appreciation of our domestic watering places.

Under these circumstances it is to be hoped that Congress will make a sufficiently large appropriation for the purposes of such an investigation.

Very truly, yours,

Herman G. Klotz, M. D.
Dr. H. M. Hallock,

Hot Springs Reservation, Hot Springs, Ark.

Dear Sir: I have your letter of March 16 concerning the physiological effects of the water of Hot Springs, Ark.

I am interested in what you write and believe that if the matter can be arranged satisfactorily a thorough investigation of the physiological effects of the waters would be of value. I have shown your letter to Prof. R. B. Moore, recently of Butler College, Indianapolis, and now of this bureau, who has published some work on the radioactivity of waters of this country, and he informs me that he is quite well acquainted with the work you quote of Prof. B. B. Boltwood, and that the statement No. 3, "The tufa deposited by the springs does not contain appreciable traces of radium," is not correct. At the time that Prof. Boltwood did this work the methods of detecting small quantities of radium were not as far advanced as they are at the present time. Prof. Boltwood's work on the radioactivity of the waters is reliable, but more recent investigations of the tufa by Prof. Schlundt, of the University of Missouri, has disclosed the fact that some of the tufa is exceedingly active; in fact, in one case the sediment in a spring is one of the most radioactive in the whole world. Therefore, before drawing any conclusions regarding the therapeutic value of the waters, it might be advisable to have the investigation as regards the radioactivity still further extended.

Mr. Moore is now in the Government service in connection with the Bureau of Soils. I am sure he will be glad to give you any advice or suggestions that you may desire in connection with this matter or in connection with the resolution adopted by the medical association at Los Angeles that the Government take up the investigation of the radioactivity of the various mineral waters of the United States.

Yours, very truly,

Oswald Schreiner,
In Charge.

New York University,
University and Bellevue Hospital Medical College,
New York City, April 17, 1912.

Harry M. Hallock, M. D.,
Medical Director, Hot Springs Reservation,
Hot Springs, Ark.

Dear Sir: Your circular letter addressed to me at the Albany Medical College was forwarded to me at my present address above. I deem it extremely wise and would recommend by all means that an investigation as to the therapeutic value of the waters at the hot springs be made with scientific accuracy and under competent supervision.

The exploitation of so many spas where remedial waters are dispensed at high cost both for services and living has had its effect upon the profession as well as the laity, and it is therefore, above all things, highly necessary that you become able to present scientific proof of the functional efficacy of the spring water.
It would be impossible to give you an outline of a possible line of procedure, for that would entail months of study into the conditions of climate, composition of water, methods of ingestion, physiological effects, etc.

I can simply call your attention to the importance which has quite recently been emphasized from various standpoints of the equilibrium of salts which must exist and be held constant in the full-grown individual and the abnormalities of function which result from any disturbance of this equilibrium. Also the importance of certain salts, such as potassium compounds, for the proper growth of the young. All this is apart from the question of the therapeutics of radioactive substances. Any data which you may obtain in any of these fields will be of great value to the medical profession and would result in increased cooperation on their part.

Very truly,

Holmes C. Jackson.

P. S.—If you are actually anxious for details in any specific matter I shall be glad to supply them.

College of Medicine of Syracuse University,
Syracuse, N. Y., April 18, 1912.

Dr. Harry M. Hallock,
Medical Director, Hot Springs Reservation,
Hot Springs, Ark.

Dear Sir: Your letter of March 16, addressed to Dean Heffron, has been handed to me, with the request that I make a reply. I am in hearty sympathy with any attempt which leads to estimating the exact physiological effects of the water at Hot Springs. I believe that you are to be congratulated because of the fact that the Government is taking hold of this spa, and I consider it one of the duties of the Government to not only make the springs accessible to the people, but to so study them that the baths and water will be used only in a perfectly proper way.

Very truly, yours,

W. D. Alsever,
Professor of Therapeutics.

The University of Wisconsin,
Department of Pharmacology and Toxicology,
Madison, Wis., April 24, 1912.

Dr. Harry M. Hallock,
Medical Director, Hot Springs, Ark.

Dear Sir: Due to serious illness in my family and my absence from the city, I have been unable to answer your letter earlier. I think a thorough study of the physiological effects of the water of hot springs and a determination of its therapeutic value would be very desirable. I can not make any recommendations "As to the best method of procedure," because I do not understand what you mean by this phrase. Scientifically, the work should determine the effect of the water on metabolism in health and disease, and physiological investigations of various kinds should determine the effect in detail of the water on the circulation and respiration in health and disease.

Yours, very truly

A. S. Loevenhart.
RULES AND REGULATIONS, WITH ALL AMENDMENTS THERETO, 
UP TO AND INCLUDING JUNE 30, 1912, FOR THE GOVERNMENT OF 
ALL BATHHOUSES RECEIVING HOT WATER FROM THE UNITED 
STATES RESERVATION AT HOT SPRINGS, ARK.

The superintendent of the Hot Springs Reservation is directed to 
enforce a prompt and faithful compliance with the following rules:

RULE 1.—Bathhouses or hotels will be allowed such number of 
tubs as the Secretary of the Interior may, in his discretion, deem 
proper and necessary for the public service and as the amount of hot 
water will justify.

RULE 2.—The constant flow of hot water for vapor or other baths, 
even during business hours, or the unnecessary waste of water in 
any manner, is strictly prohibited, and will, if continued after writ­
ten notice from the superintendent to stop such waste of water, be 
considered by the department sufficient grounds for the cancellation 
of the lease of such offending lessee.

RULE 3.—Rentals must be paid quarterly, in advance, at the office 
of the superintendent, and if not paid within five days from the 
beginning of each quarter the supply of water may be cut off.

RULE 4.—The charge for baths at the different bathhouses shall be 
at the rates fixed by the Secretary of the Interior, and no bath 
tickets shall be sold for more than said rate, and then only to such 
persons as intend to actually use them for bathing. The rate or rates 
so fixed for baths shall include, without extra charge, the supplying 
of each bather with one clean sterilized sheet to envelop the body 
of the bather while in the bath hall and cooling room. In event of 
charges in a less amount being exacted for baths, such new rate 
shall at once be reported to the superintendent, and, when approved 
by the department, shall thereafter become the maximum rate. No 
bath ticket shall be sold except at the office of the bathhouse where 
the bath is to be given, and tickets must show the date when issued, 
the serial number, the number of baths for which issued, the full 
name of the purchaser, and the amount paid therefor. Bath tickets 
shall be redeemable for the same proportionate price for which they 
were sold, when presented by the original purchaser: Provided, That 
when less than seven baths have been taken on any ticket presented 
for redemption the bathhouse may charge the rate for single baths 
for the number of baths taken on said ticket. No bath ticket or 
part of a ticket shall be reissued after having been redeemed. No 
bathhouse receiving water from the Hot Springs Reservation will 
be permitted to issue complimentary bath tickets, except that bath­
house lessees may, on written permission of the superintendent, issue 
complimentary bath tickets in such cases as in his judgment justify 
such action. The renting and selling of bath robes, towels, soap, 
toilet articles, or articles of merchandise in bathhouses is prohibited.

RULE 5.—The owners or managers of bathhouses receiving waters 
from the Hot Springs Reservation are prohibited from bathing in said 
bathhouses persons stopping at any hotel, boarding house, or room­
ing house which has a drummer or solicitor on trains or the owner 
of which drums or solicits on trains, or who has employed in or 
about such house any inside man or person engaged in drumming or 
seeking business for doctors or bathhouses; also the owners or 
managers and the employees of such bathhouses are absolutely pro­
hibited from either directly or indirectly reflecting on or questioning
the integrity of the hot-water supply of any other bathhouse, or of
claiming superiority of its own supply of hot water over that fur­
nished from the springs on the reservation to other bathhouses.
Upon evidence of violation of this rule the superintendent shall
report the facts, with his recommendation, to the Secretary of the
Interior, looking to the shutting off of the water from any bathhouse
or canceling the lease, as the department may determine.

Rule 6.—Owners and managers of bathhouses receiving waters
from the Hot Springs Reservation will provide in their respective
bathhouses the requisite number of head bath attendants, who, under
the supervision and direction of the medical director of the Hot
Springs, shall supervise the administration of baths, the treatment
of patients, matters of hygiene and sanitation in the bathhouses, and
the work of bath attendants generally. Bathhouse attendants shall
be allowed to charge for their services not exceeding 15 cents for a
single bath, $1 per week, or $3 per course of 21 baths, to be collected
for the attendant by the bathhouse manager and properly accounted
for by him to the attendant. The duties of the attendants shall con­
sist in the administration of the baths in strict accordance with the
bathing directions of registered physicians and in lieu of these as
ordered by the medical director. They shall be required to clean and
care for such parts of the bathhouse as may be assigned them by the
manager, subject to the approval of the medical director, to keep
themselves in a neat and cleanly condition both in person and in
dress, and to make good any damages accruing from breakage or
neglect of duty. They shall not be required to handle helpless indi­
viduals, rub mercury, furnish mops, brooms, or cleaning materials,
furnish or launder towels, mitts, sheets, or robes; pay for the services
of the porter or perform work which properly belongs to him, or
incur any expense whatsoever incident to the operation of the house
not specifically authorized. It shall be optional with the bather
whether he employ an attendant or not. No person shall be em­
ployed or permitted to serve or occupy space in any bathhouse as a
mercury rubber or as a masseur without the approval of the medical
director first had and obtained; and every person so employed or
serving shall be subject and amenable to the rules and regulations the
same as attendants and other bathhouse employees.

Rule 7.—The payment of any sum of money or anything of value,
either directly or indirectly, by any bathhouse owner, manager, clerk,
or attendant as compensation for drumming customers to any bath­
house, or allowing public drummers, drumming doctors, hotel or
boarding-house proprietors who are drummers, or persons who work
with them as inside men, to bring persons or show them through, or
to loiter in or about any bathhouse, is positively forbidden. Upon
evidence of violation of this rule, the superintendent shall report the
facts, with his recommendation, to the Secretary of the Interior, look­
ing to the shutting off of the water from any bathhouse or canceling
the lease, as the department may determine.

Rule 8.—The lessee of each bathhouse shall cause to be kept a full
and correct daily register of each bath given, the number and kind of
bath tickets sold, and the number of complimentary tickets, if any,
issued each day, etc., such form of register to be approved by the
superintendent and a copy therefrom of each day’s business to be
forwarded to the superintendent daily. No person shall be allowed
to bathe without a numbered ticket being issued and a record of the same being kept, and report thereof duly certified by the manager filed with the superintendent on the first day of each month as paid, complimentary, or free baths, together with any information he may have showing a violation of the bathhouse rules and regulations which may be susceptible of proof.

Rule 9.—All bathhouses receiving deposits of jewelry, money, or other valuables from bathers must provide means satisfactory to the superintendent of the reservation for the safe-keeping thereof; it is to be understood, however, that the Government assumes no responsibility in the premises. All losses must be promptly reported to the superintendent by the bathhouse manager.

Rule 10.—An applicant for baths who is under medical treatment shall not be permitted to bathe in any bathhouse supplied with hot water from the Hot Springs Reservation, unless said applicant presents satisfactory evidence that he or she is the patient of a physician who is duly registered at the office of the superintendent as qualified to prescribe the waters of the hot springs, and who is known not to engage in drumming for custom: Provided, That every applicant for baths, not under the care of a registered physician, shall be required to make a certificate to be filed with the bathhouse manager that he or she is not under the care of any physician, and should such applicant subsequently employ, consult, or take treatment from any physician while taking baths, then in such case he or she will immediately notify the bathhouse manager of such fact. The violation of this rule by the owner, manager, or any employee of a bathhouse receiving hot water from the reservation will result in the cutting off of the water from the bathhouse or the canceling of the lease, as the department may determine.

Rule 11.—Physicians desiring to prescribe the waters of the hot springs, either internally or through the medium of baths, must first be registered at the office of the superintendent of the reservation, and shall use only such uniform form of bathing directions as meet with the approval of the superintendent. Registration will be accorded only to such physicians as are found, by a board designated by the Secretary of the Interior, to have proper professional qualifications and character and who do not engage in drumming for custom. No physician who shall engage in the solicitation of patronage through the medium of drummers or otherwise, or who shall engage in unprofessional, disreputable, or dishonest conduct, or is addicted to the drug or other habit which disqualifies him for the performance of his professional duties, shall be or remain registered. In case any person who, in violation of these regulations, bathes or attempts to bathe, enters or attempts to enter upon the Hot Springs Reservation to bathe, shall have the permit of a physician therefor, such physician shall be liable to the penalties provided in the act of April 20, 1904, unless he is regularly registered, but the bather or the person attempting to bathe shall not be liable to the penalties of said act unless it shall be made to appear that he knew or had reason to believe that the physician giving him the permit to bathe was not regularly registered. The management of any bathhouse will not be allowed to permit persons not under treatment by registered physicians to bathe unless they present tickets from the superintendent of the Hot Springs Reservation authorizing the holders thereof to use
the hot waters. The names, number and street where stopping in Hot Springs, and the home addresses of the holders of such tickets must be registered in the office of the superintendent and by the management of the bathhouse, and on or before 12 o'clock a.m. of the day next succeeding the one on which the tickets were used the management of the bathhouses must return all such tickets to the superintendent.

Rule 12.—If a charge is made to the superintendent in writing, under oath, supported by the affidavits of two or more witnesses, that a registered physician has violated any of the laws or regulations pertaining to the government of the bathhouses receiving hot water from said reservation, the registered physician against whom the charge is made shall be immediately notified by the superintendent of the fact that affidavits have been made and be accorded an opportunity to cross-examine the witnesses on the subject thereof, in the presence of the superintendent, and the affidavits so filed, with the answers to such interrogatories as may be propounded by the physician, when completed, shall be duly certified by the superintendent and turned over to the Federal registration board, and thereafter, if in the judgment of the board the facts warrant such action, they will immediately cite the physician to appear before such board on a day to be named, within not exceeding 10 days from date of notice, to show cause why his name should not be stricken from the register of physicians authorized to prescribe the hot waters of said springs, and pending the investigation and final action upon such charges the right of such physician to prescribe the hot waters may be suspended by the Federal registration board, with the approval of the Secretary. The physician against whom such complaint is made shall have the right to file further written interrogatories pertinent to the issue to such complainants or witnesses, to be answered by them under oath, and may submit within 20 days thereafter counter affidavits in answer to the charges made in the affidavits of said witnesses.

The complainant witnesses may file rebuttal affidavits within 10 days after the service upon them of said counter affidavits, and the hearing of said charges shall be had on the record aforesaid. An appeal from the decision of said board and upon said record may be taken within seven days from such decision to the Secretary of the Interior.

If upon consideration of the complaint the charge is not sustained, the suspension will be immediately removed. If, however, such charge is sustained, or if default be made, the name of the physician shall be stricken from the registered list.

Rule 13.—Persons violating any of the foregoing regulations within the purview of the act of April 20, 1904, entitled "An act conferring jurisdiction upon United States commissioners over offenses committed in a portion of the permanent Hot Springs Mountain Reservation, Arkansas," and the act of March 2, 1907, amendatory thereof, will be deemed guilty of a misdemeanor and be subjected on conviction to the payment of a fine, as provided in said act of April 20, 1904, of not exceeding $100, and be adjudged to pay all costs of the proceeding.

Rule 14.—All bathhouses shall be kept in a neat, clean, and sanitary condition, and all sewage and waste water properly conducted
away, and all underdrainage kept in perfect order. The water-
closets shall have sufficient and free connection with the public sewers
and be kept in the best order and with the best plumbing furnishings
and appliances. Lessees of bathhouses on the permanent reservation
shall, under the direction of the superintendent, cultivate and main-
tain a part of the bathhouse park in front of their respective
bathhouses, the space for each to cultivate to be allotted by the
superintendent.

Rule 15.—Each bathhouse manager, clerk, and attendant shall be
required to have a full and complete understanding of the bathhouse
rules and regulations before entering upon his duties.

The superintendent is authorized to require the discharge of any
bathhouse manager, clerk, attendant, mercury rubber, or masseur for
bathhouse drumming or refusing or neglecting to carry out the bath-
house rules and regulations according to the true intent and mean-
ing thereof. Any person discharged for cause from a bathhouse or
removed at the request of the superintendent shall not be again em-
ployed by the same or any other bathhouse or permitted to render
service in any bathhouse without the written consent of the super-
intendent. Managers must promptly report to the superintendent
the name of any person so removed.

A neatly framed copy of the rules and regulations now in force,
together with the prices of baths and attendant’s fees, both separately
and combined, printed in large black type on white cardboard, shall
be conspicuously posted in the office of each bathhouse.

FORM USED BY PHYSICIANS FOR BATHING DIRECTIONS.

[Dr. , Hot Springs, Ark.]

BATHING DIRECTIONS.

Name
Home address
Local address
Time a. m. p. m.
Temperature of bath °F.
Keep patient in tub minutes
Or until temperature under tongue goes to °F.
Douche applied to minutes
No. minutes temperature °F.
Douche vaginal °F minutes
Vapor minutes
Apply cold sponge to head minutes
Hot room minutes
Pack minutes
Shower and needle after pack minutes
Start temperature °F. Reduced to °F.
Cooling room minutes
Drink cups while in tub cups while in pack
Retire to cot or bed room and lie down minutes
Additional remarks
By whom referred
Patient’s signature

(In presence of doctor.)

Date M. D.

Patient’s signature at bathhouse
Bathhouse manager’s signature

62074—12—5
FORM USED BY BATHHOUSE FOR DIRECTIONS FOR SPECIAL HYDROTHERAPEUTICS.

DIRECTIONS FOR SPECIAL HYDROTHERAPEUTICS.

All treatments in this department will be given only upon physician's prescription. The price varies with the treatment prescribed. Records will be kept of effects, reactions, weight, blood pressure, pulse, respiration, and temperature, and the report sent to the physician when requested. For prescription of medications used in bath the physician will kindly use his own prescription blank.

Mr. Immersion tub bath °F min. Medicated tub bath °F min. (a) Nauheim °F min. (c) Pine needle, etc. °F min. Electric tub bath °F min. (a) Galvanic. (b) Faradic. (c) Sinusoidal.


Patient's signature (In presence of doctor.)

Home address Local address M. D.

Patient's signature at bathhouse Signature of manager bathhouse.

BATH PERMIT ISSUED TO PERSON NOT EMPLOYING PHYSICIAN.

[Office of the superintendent Hot Springs Reservation.]

BATH PERMIT. No. —

In consideration of the issuing of this permit, I hereby certify that I am not under the care of a physician, and if I employ or consult any physician it will be one whose name is on the Government's registered list. I fully understand that it is a violation of the law if I bathe or attempt to bathe while treating with any nonregistered physician, and that I lay myself liable to a fine of $100 for each offense, and this permit becomes void.

Name Home town State Stopping at

[Perforation.]

[Office of the superintendent Hot Springs Reservation.]

BATH PERMIT. No. —

NOT TRANSFERABLE.

To bathhouses:

When presented in person and countersigned by this will permit you to sell said person a bath ticket, he or she having employed
no physician. This permit must be returned to the superintendent's office with
your daily report not later than the day next succeeding the day on which it is
used.

--------------------------------------------------------
Superintendent.

Signature of applicant:

By-----------------------------------------------------

Witness:

-------------------------------------------------------
Bathhouse.

Void if presented later than second day after date.

RULES APPROVED BY THE DEPARTMENT FOR THE GOVERNMENT
OF THE FEDERAL REGISTRATION BOARD OF THE UNITED
STATES RESERVATION, HOT SPRINGS, ARK., WITH AMEND-
MENTS UP TO JULY 25, 1912.

1. There shall be a president and secretary, elected by the board,
who shall each serve for one year and until his successor is elected
and qualified. Such election shall be held at the annual meeting,
which shall be the first regular meeting of the board after the per-
sonnel thereof for the ensuing year has been determined by the Sec-
retary of the Interior. Should a vacancy occur in either position by
death, resignation, or otherwise, such vacancy shall be filled by the
board at its first regular meeting next succeeding the date the vacancy
occurs, or at a special meeting called for that purpose.

2. Three members of the board shall constitute a quorum, with full
authority to transact any and all business that may come before the
board.

3. Minutes of all business transacted by the board shall be reduced
to writing and be copied in a record provided for the purpose, and
at the next regular or special meeting the minutes of the previous
meeting shall be read and approved, with such corrections, if any, as
the board may consider proper to make.

4. The regular monthly meetings shall be held on the second and
fourth Wednesdays of each month, at 8 o'clock p. m., and all routine
business not filed with the secretary of the board at least 24 hours
before the time fixed for the meeting will not be considered, but will
be held for consideration until the next regular meeting; provided,
however, the president of the board may waive this provision when,
in his judgment, the exigencies of the case demand it. Such other
meetings may be held as the board may deem necessary, prior notice
thereof to be duly given.

Examination of applicants for registration shall be held quarterly,
on a date to be fixed by the board. Any registered doctor hereafter
dropped from the list of registered physicians will not be restored
until after he successfully passes the regular examination prescribed
by the board for original registration.

5. The following rules shall govern applicants for registration:

(a) To be entitled to registration applicants must be graduates of
some reputable medical school legally authorized to confer the degree
of doctor of medicine, or of some reputable school of osteopathy
recognized by the American Osteopath Association, and must have
complied with the laws of the State of Arkansas relating to the
admission of physicians to the practice of medicine and surgery, or
either, within said State.
(b) Applicants will be required to furnish in writing such evidence as the board may desire touching their personal history and personal and moral character and standing during the five years next preceding the date of their applications. Applicants will also be required to submit to such examination as the board may see proper to subject them touching their qualifications and knowledge of medicine and surgery and to prescribe the hot waters, provided that the names of medical officers of the Army stationed at the Army and Navy General Hospital in Hot Spring, Ark., shall be placed on the list of registered physicians without examination.

(c) An applicant who twice fails in his examinations before the Federal registration board shall not be permitted to again take the examination prescribed by the board until after the lapse of one year from the date of his last failure. No registered physician shall be permitted to associate himself in practice looking to the prescribing of the waters of the hot springs with a nonregistered physician, under penalty of having his name removed from the registered list. The name of any registered physician who shall give bath directions for the patients of a nonregistered physician shall be removed from the registered list.

6. The order for the transaction of business before the board shall be as follows:
   (a) Reading and approval of minutes of previous meeting.
   (b) Consideration of new business.
   (c) Consideration of unfinished business.
   (d) Presentation of evidence and trial of physicians charged with violation of the rules of the Secretary of the Interior “For the government of all bathhouses.”
   (e) Examination of applicants for registration.
   (f) Miscellaneous business.

The foregoing rules are subject to amendment at any regular meeting of the board on the giving of 30 days’ notice in writing of the proposed amendment, subject, however, to the approval of the Secretary of the Interior.

PHYSICIAN’S APPLICATION FOR REGISTRATION.

To the board of physicians appointed by the Secretary of the Interior to pass upon the qualifications and character of physicians to prescribe the waters from the Hot Springs Reservation:

1. I was born at___________________________________________.
2. My preliminary education was obtained__________________________
   (State common school or collegiate.)
   ____________________________________________________________________________
3. I graduated in medicine from__________________________on the_____day
   of________________, 1________
   (Give name of college.)
4. My State certificate was issued__________________________
   (When and where.)
5. From what county issued__________________________
   (When.)
6. Society membership:
   County__________________________________________
   State__________________________________________
   American Medical Association?______________________Special____________________
   (Yes or no.)
7. I have practiced at my present location________years, and have practiced at
   the following places for the years named________________________________________
8. I now hold or have held the following positions. (Give places of trust or honor held now or in the past; prices received and dispensary or college appointments.)

9. I have during the 10 years next preceding the date of this application resided at the following-named places, and was engaged in the following business:

10. I am. (State "general practitioner" or specialty, if any.)

11. Do you employ drummers to solicit business? (Yes or no.)

12. Do you pay commissions on any of your professional business, either directly or indirectly? (Yes or no.)

13. Have you paid commissions on any of your professional business or given anything of value, either directly or indirectly, for such purposes during the past two years? (Yes or no.)

14. If so, when did you quit, and why? (Date.)

15. If registered, will you faithfully observe the rules and regulations approved by the Secretary of the Interior regarding the use of the waters of the Hot Springs? (Yes or no.)

16. My office is Street; residence Street; telephone number. 

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Subscribed in my presence and sworn to before me this day of , 191.

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Notary Public.

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My commission expires
Reported and examined

RULES FOR BATH ATTENDANTS IN THE PAY BATHHOUSES RECEIVING HOT WATER FROM THE SPRINGS ON THE HOT SPRINGS RESERVATION.

1. Bath attendants shall be required to attend such courses of instruction as may be ordered by the medical director, and upon completion thereof to take a written examination, after which successful candidates will be granted certificates as qualified attendants for such time as may be determined by the Secretary of the Interior.

2. Two consecutive failures to qualify as an attendant shall debar the applicant from further instruction, and the medical director shall order his or her discharge.

3. To entitle an applicant to a certificate as a qualified attendant a total mark of not less than 200 points shall be required, to be awarded as follows: A perfect written examination after the course of instruction shall entitle the candidate to 100 points. The medical director will award not to exceed 100 points as expressing the applicant's efficiency as noted at his inspections, and the manager of the bathhouse in which the applicant is employed at the time of examination shall award not to exceed 100 points for general aptitude.

4. Whenever the number of qualified attendants is in excess of the requirements of the service those not employed shall be entitled to have their names enrolled on a waiting list in the office of the medical director.

5. Managers are prohibited from employing as an attendant any person not holding a certificate of qualification as such whenever
there are five or more qualified attendants registered on the waiting
list in the office of the medical director.
6. Instruction will be given from time to time to such persons as
declare their intentions to qualify as attendants and who in the
opinion of the medical director display an aptitude for the service;
and upon satisfactory completion of the course they will be granted
certificates as attendants.
7. Managers may suspend or discharge attendants employed by
them, but shall not have authority to revoke their licenses or to pro­
hibit their employment in other houses.
8. An attendant suspended by the medical director shall not be
employed in any capacity in any bathhouse during the period of
suspension.
9. An attendant discharged by the medical director shall have his
or her certificate of qualification revoked and shall not again be
employed in any capacity in any bathhouse for a period of six months.
10. Managers are required to report immediately by letter to the
medical director the employment, suspension, resignation, or dis­
charge of attendants.

HARRY M. HALLOCK,
Medical Director Hot Springs Reservation.

DEPARTMENT OF THE INTERIOR,
Washington, D. C.

Approved: June 11, 1912.
CLEMENT S. UCKER,
Chief Clerk and Chief Executive Officer.

CERTIFICATE REQUIRED OF ALL BATH ATTENDANTS.

DEPARTMENT OF THE INTERIOR,
HOT SPRINGS RESERVATION,
OFFICE OF MEDICAL DIRECTOR.

I hereby certify that I have this day examined ____________________
and am of the opinion that __he is immune from smallpox by reason
of successful vaccination performed (date)__________________ having recovered
from an attack of the disease.
_________________________, M. D.

LICENSE ISSUED TO BATH ATTENDANTS.

DEPARTMENT OF THE INTERIOR,
HOT SPRINGS RESERVATION,
Hot Springs, Ark., __________________________, 191

This is to certify that __________________________ has satisfactorily completed
a course of instruction in the school for bathhouse attendants, conducted under
the supervision of the medical director of the Hot Springs Reservation, and his
employment as a bathhouse attendant in any of the bathhouses receiving water
from the Hot Springs Reservation will be permitted for the period of one year
from the date hereof, conditioned upon good behavior and strict observance of
the rules and regulations for the government of the bathhouses receiving water
from the Hot Springs Reservation. This license, however, may be revoked at
any time for cause during the period for which given when, in the judgment of
the medical director, the circumstances of the case warrant such action.

________________________, Medical Director.

No. _______
APPLICATION FOR BATHS AT THE GOVERNMENT FREE BATHHOUSE.

DEPARTMENT OF THE INTERIOR.
HOT SPRINGS RESERVATION.

Persons desiring to use the free baths are required to answer the following questions, in writing, and sign and swear to the same, giving full name and home address:

Name, ____________________________

Present address in Hot Springs: Street and No. ____________________________

Native of what country? ____________________________ Age, _______ years.

Have you a family? ____________________________ How many in family? _______

Occupation, ____________________________ Are you able to work? _______

Are you employed now? _______ By whom? ____________________________

In what capacity? _______ Do you wish to bathe for your health? ______

With what disease are you afflicted? _______ How long afflicted? _______

Are you under treatment of a physician at Hot Springs? _______ If so, give

his name and address, ____________________________

Have you ever served in the U. S. Military or Naval Service? _______

Do you own any real estate? _______ If so, where situate? _______

What is the value of your personal property? $ _______ Where located? _______

How much money have you? _______

How long do you want to bathe? ____________________________

The acts of Congress approved December 10, 1878 (20 Stat., 258), and March

2, 1911, restrict the use of free baths to the indigent; in other words, to persons

who are poor, needy, in want, or without means of comfortable subsistence.

Act of March 2, 1911:

"Be it enacted by the Senate and House of Representatives of the United

States of America in Congress assembled, That only persons who are without

and unable to obtain the means to pay for baths and are suffering from ailments

for which bathing in the water of the Hot Springs Reservation will afford relief

or effect a cure shall be permitted to bathe at the free bathhouse on the public

reservation at Hot Springs, Ark., and before any person shall be permitted to

bathe at the free bathhouse on the reservation he shall be required to make oath,
before such officer duly authorized to administer oaths for general purposes as the superintendent of the Hot Springs Reservation shall designate, that he is without and unable to obtain the means to pay for baths, and any person desiring to bathe at the free bathhouse on the Hot Springs Reservation making a false oath as to his financial condition shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be subject to a fine of not to exceed $25, or 30 days' imprisonment, or both."

Do you regard yourself as an indigent person? ____________________________

Persons accepting and using these baths are required to report to the manager once each week whether they are being benefited by the baths or not, and also when they discontinue bathing.

Hot Springs, Ark., ______, 191__

Subscribed and sworn to before me this the ______ day of ______, 191__

[Notarial Seal.]

Notary Public.

REGULATIONS OF JULY 7, 1900, FOR THE GOVERNMENT OF THE FREE BATHHOUSE.

These baths are provided and maintained by the United States pursuant to the requirements of the act of Congress approved December 16, 1878 (20 Stat., 258), for the use of the indigent only; neither the manager nor attendants are authorized to supply them to others.

The manager of the free bathhouse is required to enforce a strict observance of the following rules and regulations:

RULE 1. No baths will be supplied except on written applications made on blanks furnished at the office of the bathhouse, making full answers to the questions therein propounded; then if the applicant is found to be indigent (in accordance with the common acceptance of
the word), the manager will issue a ticket good for 21 baths, which may be reissued on the same application if necessary.

**Rule 2.** Persons using the free baths are required to maintain quiet and orderly deportment while in or about the bathhouse, to abstain from the use of tobacco, either by chewing or smoking, while in the pool rooms, dressing rooms, or office, not to scatter rags or paper on the floor, or to loiter in or about the building after bathing.

**Rule 3.** The wanton exposure of person or entering any of the front rooms in a nude state, the use of loud, vulgar, or profane language, the use of rags, paper, soap, or any foreign substance in the pool rooms is positively prohibited.

**Rule 4.** Persons using these baths are not allowed to stand or sit on or in any way interfere with the water pipes or valves or to stand on the chairs or benches. All persons entering the house are required to clean their feet at the door and avoid as much as possible bringing dirt or mud on the floors. Boys over 5 years of age will not be allowed in the female department during bathing hours.

**Rule 5.** Any willful or repeated violation of these rules, or any disorderly or contemptuous conduct, will subject the persons so offending to suspension or expulsion, at the discretion of the superintendent of the reservation.

**Rule 6.** Neither the manager nor the Government attendants shall be allowed to receive or become responsible for any valuables or to charge any fees for any service rendered to bathers which comes within the direct line of their duty.

**Rule 7.** The manager is required to enforce all the foregoing rules and to maintain good order in and about the bathhouse, to see that all indigent persons applying are supplied with baths, and to make a written report to the superintendent each month on blank forms supplied for that purpose. He may reject any application for free baths if he has reason to believe the applicant has made false answers in his written application, and the aggrieved may appeal to the superintendent of the reservation.

**Rates at Pay Bathhouses.**

The following scale of rates for baths at the different bathhouses receiving water from the Hot Springs Reservation was authorized by the department in its letter dated January 17, 1912, to take effect from and including January 20, 1912. Attendants fee, $3 additional per course:

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<tbody>
<tr>
<td>Arlington</td>
<td>.65</td>
<td>$10.00</td>
<td>Rector</td>
<td>.45</td>
<td>$8.00</td>
</tr>
<tr>
<td>Eastman</td>
<td>.55</td>
<td>10.00</td>
<td>Hot Springs</td>
<td>.45</td>
<td>8.00</td>
</tr>
<tr>
<td>Maurice</td>
<td>.55</td>
<td>10.00</td>
<td>Lamar</td>
<td>.45</td>
<td>8.00</td>
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<tr>
<td>Buckstaff</td>
<td>.55</td>
<td>10.00</td>
<td>Ozark Sanatorium</td>
<td>.40</td>
<td>7.00</td>
</tr>
<tr>
<td>Imperial</td>
<td>.55</td>
<td>10.00</td>
<td>Hale</td>
<td>.40</td>
<td>7.00</td>
</tr>
<tr>
<td>Park:</td>
<td></td>
<td></td>
<td>Palaces</td>
<td>.40</td>
<td>7.00</td>
</tr>
<tr>
<td>Upper floor</td>
<td>.55</td>
<td>10.00</td>
<td>Magnesia</td>
<td>.40</td>
<td>7.00</td>
</tr>
<tr>
<td>Lower floor</td>
<td>.50</td>
<td>9.00</td>
<td>Rockafellow</td>
<td>.40</td>
<td>7.00</td>
</tr>
<tr>
<td>Majestic</td>
<td>.50</td>
<td>9.00</td>
<td>Alhambra</td>
<td>.40</td>
<td>7.00</td>
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<tr>
<td>Moody</td>
<td>.45</td>
<td>8.00</td>
<td>Ozark</td>
<td>.35</td>
<td>6.00</td>
</tr>
<tr>
<td>Great Northern</td>
<td>.45</td>
<td>8.00</td>
<td>Horseshoe</td>
<td>.35</td>
<td>6.00</td>
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<tr>
<td>St. Joseph’s Infirmary</td>
<td>.45</td>
<td>8.00</td>
<td>Crystal</td>
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