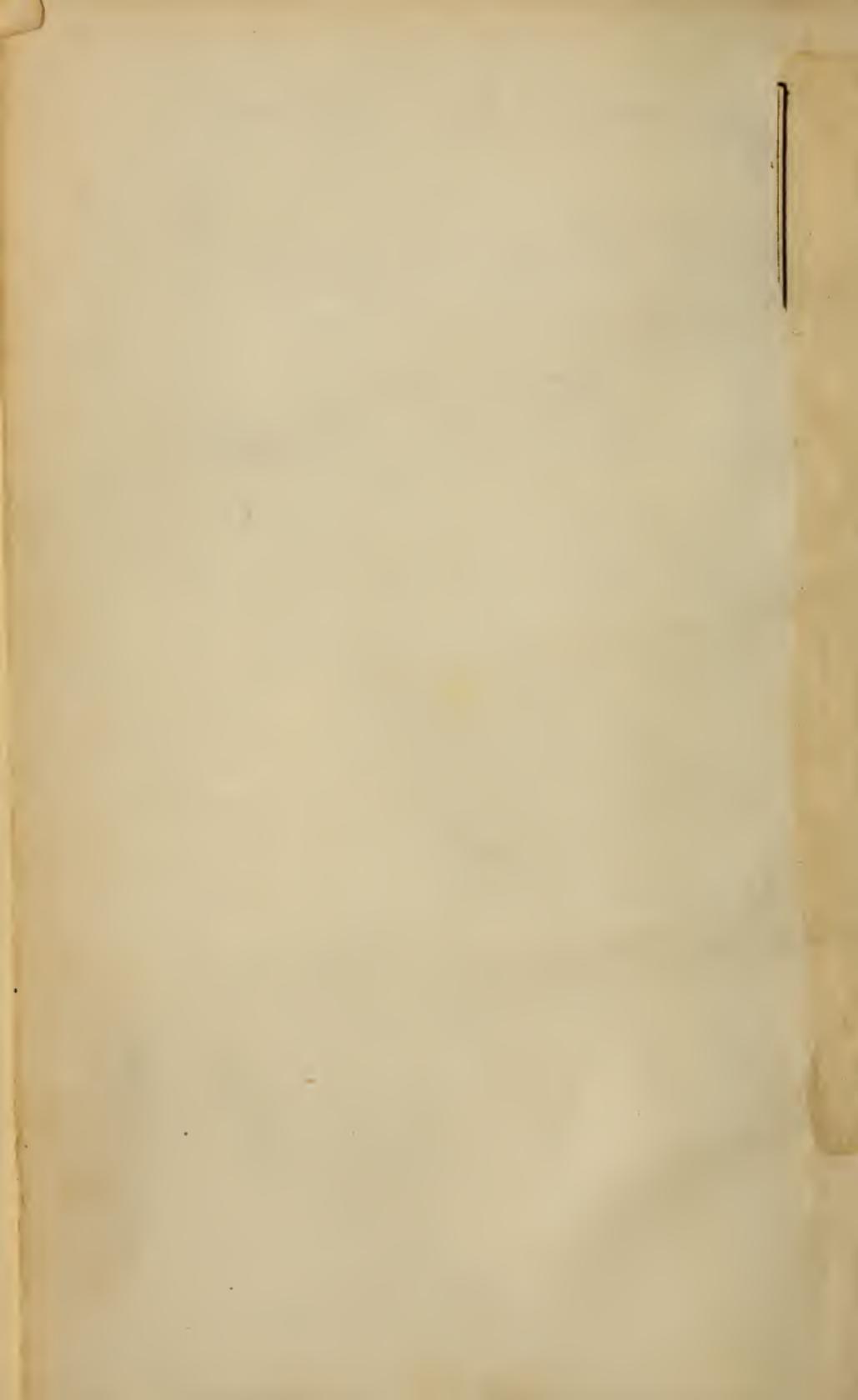


FROM
C. E. SHAFER'S
Mineral Water Depot,
NO. 1010 F ST.
WASHINGTON, D. C.



THE
VIRGINIA SPRINGS:

COMPRISING AN ACCOUNT OF ALL THE PRINCIPAL MINERAL SPRINGS OF
VIRGINIA, WITH REMARKS ON THE NATURE AND MEDICAL
APPLICABILITY OF EACH,

BY JOHN J. MOORMAN, M. D.,

For many years Resident Physician at the White Sulphur Springs.

SECOND EDITION.

GREATLY ENLARGED.

WITH MAP AND PLATES,

AND THE ROUTES AND DISTANCES TO THE VARIOUS SPRINGS.

ALSO AN

APPENDIX,

CONTAINING AN ACCOUNT OF THE NATURAL CURIOSITIES OF VIRGINIA.

J. W. RANDOLPH:
121 MAIN STREET, RICHMOND, VA.
1855.

In Exch.
Mr. C. B. Schafer

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District of Virginia.



C. H. WYNNE, PRINTER.

TO THE PUBLIC.

93

FOR many years I have directed my especial and almost exclusive attention to an investigation of the nature and medical applicability of mineral waters. During the greater part of this time, I have resided at the White Sulphur Springs, where, in the capacity of resident physician of that extensive watering place, I have enjoyed ample opportunities for witnessing the various and modified effects of the water, in almost every variety of disease and state of the system.

Although my attention, during this time, has been especially directed to the investigation of the character of the water of the White Sulphur, I have not neglected the other valuable waters of the great "spring region," nor failed to mark and appreciate their various peculiarities, and relative and positive merits.

The main design of the present volume is, to bring the waters of the White Sulphur Springs, as a therapeutical agent, in a condensed view, before the public; to state what is known of their applicability to disease; and to lay down some general rules for their administration; and at the same time, to present such an account of the neighboring *Springs*, as to enable the public to understand something of their general character, and to appreciate their merits. They are all valuable, and have their peculiar applicability; all rich in objects of special inquiry, and well deserving the attention of the profession, and the public generally. To have gone into a more particular account of the springs, however, would have swelled this volume far beyond its intended limits: Besides, while long observation has made me somewhat familiar with the nature and peculiarities of the White Sulphur water, I know far less of the *peculiarities* of the other springs, and do not wish to *seem* to teach that which I do not myself understand.

The position of the writer, while it has enabled him to witness the virtues of the White

PREFACE.

Sulphur water in disease, has, at the same time, enabled him to see that its good effects are not only often lost, but that consequences highly injurious sometimes result from its injudicious use.

Impressed with the importance of arresting the abuse of this potent agent, I published in 1839 "*A Directory for the use of the White Sulphur waters.*" It was with reluctance I then undertook this pioneer effort in a field so entirely unexplored; for it is remarkable, that although thousands of invalids had for more than half a century annually resorted to these waters, up to the period of issuing the "Directory," not a line had ever been published relative to their medical applicability and the mode of administering them.

Being satisfied, from the experience of the last seven years, that the little *effort* alluded to has not been without its effects in guiding to a more prudent use of the waters, I have thought that a work on the same general plan, but more comprehensive in its scope, and more specific in its instruction, might be useful and acceptable to the spring-going public.

So little has been written in reference to our valuable mineral waters, that it seems to be the duty of every one who may have had any experience with them to contribute his mite. No other motives than a desire to offer to the public the little that experience has taught me in reference to them, induces me to publish this volume. I regret that incessant engagements, claiming my entire time, have prevented me from bestowing that care in its composition and arrangement so necessary to one who is utterly unpracticed and unskilled as an author. The work, such as it is, has been composed in the fractions of time that I could snatch from professional engagements and agricultural cares. With this apology for the many imperfections in style and arrangement which will be discovered, I submit the volume to an indulgent and generous public.

JOHN J. MOORMAN.

FANCY HILL,

November, 1846.

TO THE
INVALIDS
WHO MAY RESORT TO THE VARIOUS
MINERAL SPRINGS OF VIRGINIA,
THIS SECOND EDITION
OF MY OBSERVATIONS ON THE VIRGINIA SPRINGS
IS MOST RESPECTFULLY DEDICATED,
WITH THE FOLLOWING
REMARKS.

I have endeavored, in getting up the second edition of my volume, to adhere to the plain, unassuming, practical method, which was, I think, a characteristic distinction of the first, and perhaps its chief merit.

It was my earnest aim in the first edition, and has not been less so in this, to put into the hands of the invalid a short and easy, but condensed and comprehensive account of the principal mineral waters of Virginia, and to indicate with all candor, and with as much plainness as possible, their nature and medical applicability.

Wherever I could do so to advantage, I have availed myself of the observations of others; and I claim at your hands this award of merit at least: *of having honestly endeavored to make my little volume convenient and valuable to you*; not by dazzling and futile theories, or by an attempt to create hopes that might end in sad disappointments; but by plain, practical facts in relation to the nature and use of our mineral waters generally, and especially of those with which I have now had practical observations for near twenty years.

I intentionally avoided, in my first edition, and in this, any criticism upon the improvement of spring property, or the character of the accommodations at the several springs. Such criticism in a printed volume, intended for reference long after it issues from the press, would be likely to mislead, and probably do great injustice, inasmuch as improvements now very faulty, may, before the next season, be made very comfortable, and bad hotel accommodations are often changed in a day, by a change of landlord or manager.

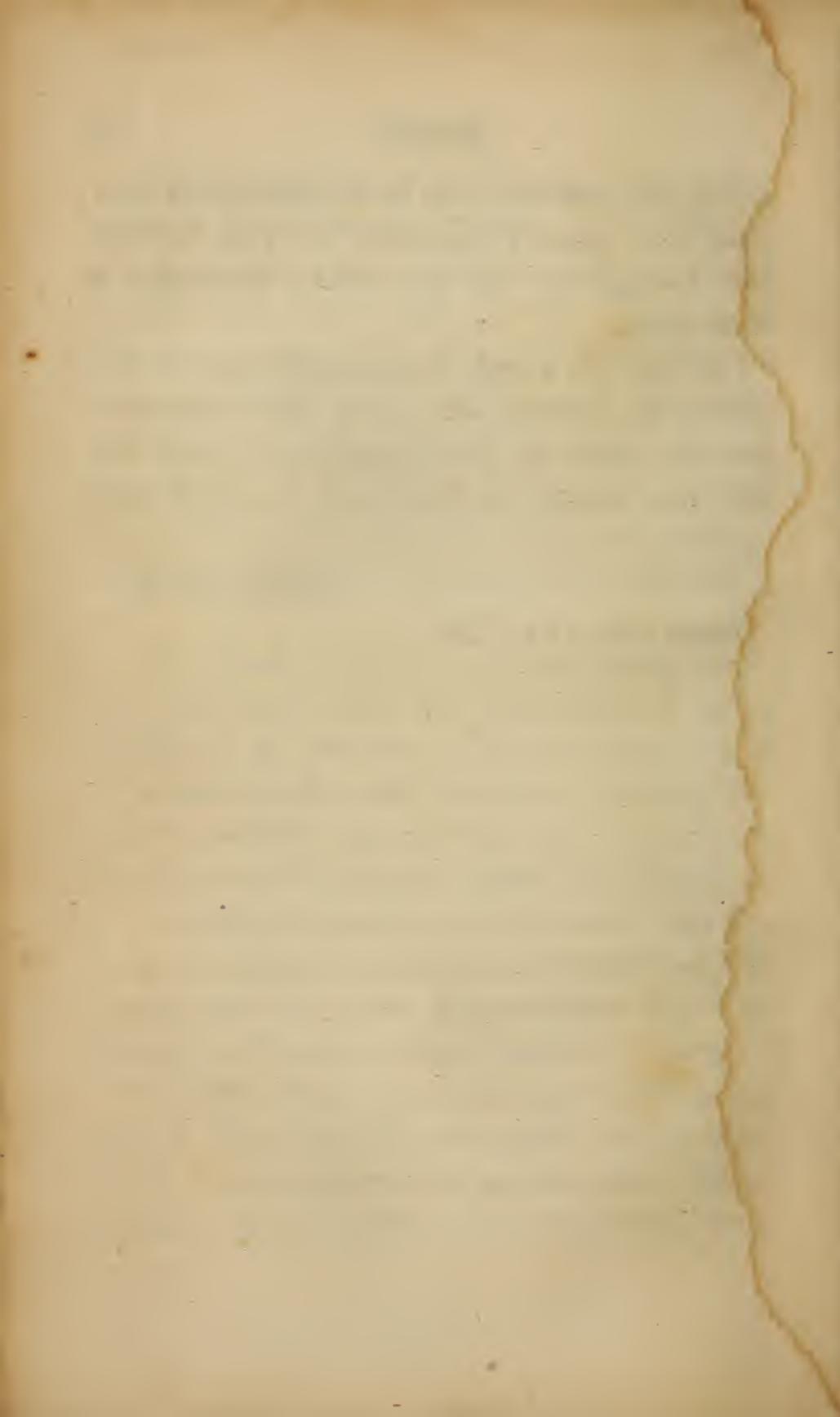
It is of *the nature and medical applicability of our mineral waters* that I have felt called upon to write; and this I have done without prejudice, fear or favor; having no interest directly or indirectly in any of the

springs, and influenced alone in my estimation of them either from personal observation, or, when this has been wanting, from the most reliable information I could collect.

I am not vain enough to suppose that none of my opinions are erroneous—to err is both human and common; but in the honest integrity with which they have been formed, the invalid and the public may rely.

THE AUTHOR.

FANCY HILL, VA., 1854.



VARIOUS ROUTES
TO THE
VIRGINIA SPRINGS.

THE various routes to the spring region of Virginia have all been greatly improved within the last few years. Either by private or public conveyance, persons can now reach our mountains with far greater ease, safety and expedition than they could have done some years ago.

Taking Baltimore *as a starting point*, the Virginia Springs may be reached by a variety of routes. One of the most pleasant, and as expeditious as any other, is by *railroad* to Harper's Ferry, thence to Winchester by a similar conveyance, and thence by stage-coach, on a good M'Adamized road, to Staunton. From Staunton the traveler may proceed directly across the *North and Warm Spring Mountains* to the Warm and Hot Springs, by way of the Bath Alum; or, he may proceed up the Valley, by the way of Lexington, the Natural Bridge and Dibrell's Springs, to the White Sulphur.

By this Valley route, the traveler has the advantage of seeing Harper's Ferry, and the romantic meeting of the waters of the Potomac and Shenandoah: to see

which, Mr. Jefferson said, was "worth a voyage across the Atlantic;" he travels almost the whole length of the Shenandoah valley, in agricultural points of view, decidedly the most fertile and interesting portion of Virginia. He passes within seven miles of the famous *Weyer's Cave*, and may conveniently visit it by losing one day in his travel; and last, though not least, he may pass over the celebrated *Natural Bridge*, with an allowance of time, if he be in a public conveyance, to take a glimpse at its magnificent structure.

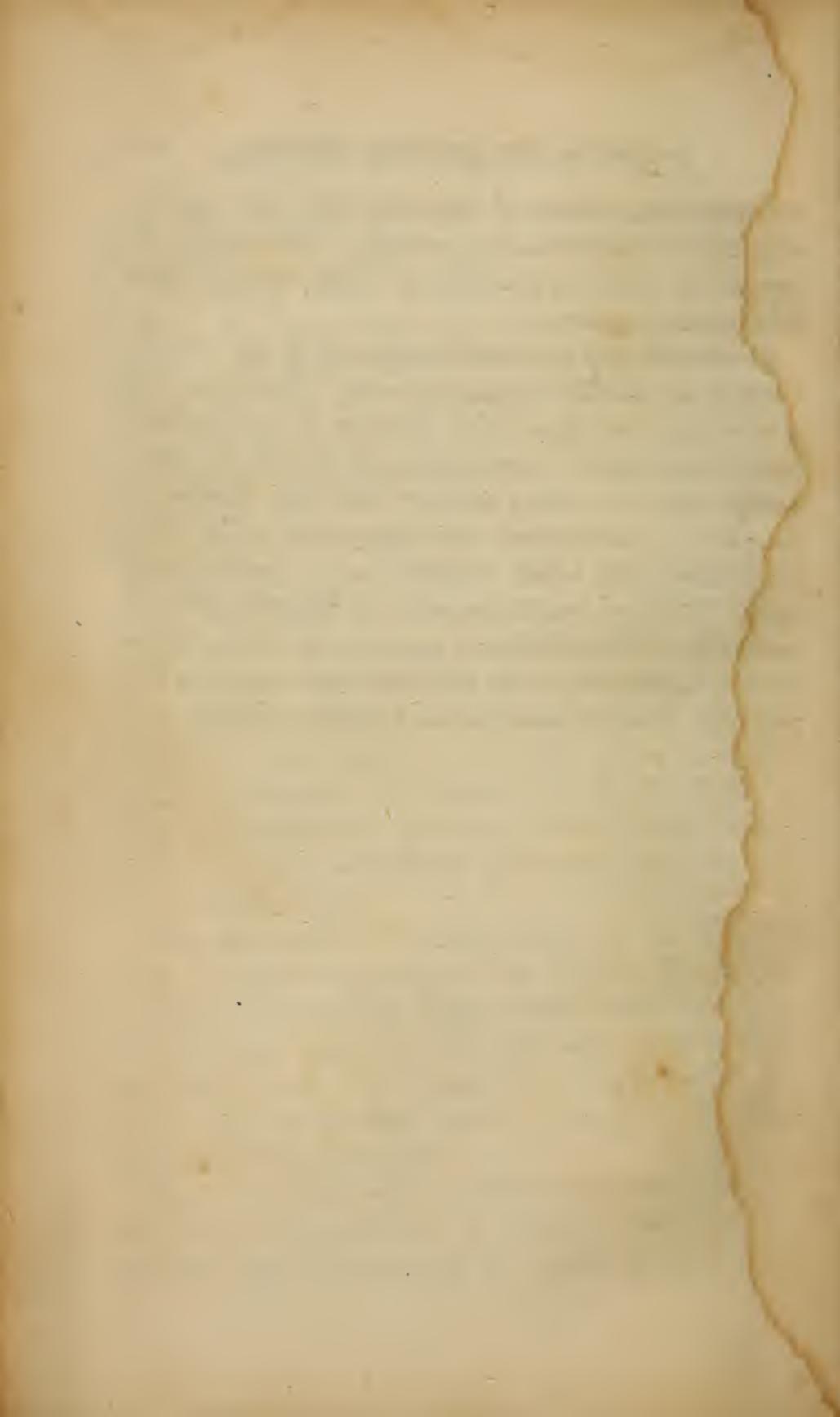
Another route from Baltimore is, to proceed by the way of Washington and Fredericksburg to Richmond; or, from Baltimore you may reach Richmond by steamboat, down the Chesapeake Bay, by the way of Old Point Comfort, Norfolk, and up James River. From Richmond to the Springs, you have choice of three routes: either to take the Danville and South-side Railroads, or Canal-boat, to Lynchburg; or the Central Railroad by way of Charlottesville to Staunton, and thence into the spring region.

When the traveler is at Lynchburg, he has again a choice of routes: he may go by *rail* to Bonsack's, or Salem, and thence by stages to the Sweet Springs; or to Newbern, and from there by stage to Red Sulphur; or, he may take a canal-boat thirty-six miles to the *Natural Bridge*, and thence by stage to Dibrell's Springs and White Sulphur.

The several routes making Richmond a point, give to the traveler an opportunity of seeing the metropolis of the State, and the University of Virginia, situated near

the flourishing village of Charlottesville. In common with the "Valley route," it extends to the traveler an opportunity of seeing the Natural Bridge without much delaying his journey.

The western and south-western traveler to the Virginia Springs, has but little choice of routes. The usual way of reaching them from those quarters is, to disembark from a steamboat at Guyandotte, and proceed by stage-coaches into the spring region. The Blue Sulphur is reached in one hundred and thirty-eight miles from Guyandotte, the White Sulphur in one hundred and sixty. Travelers sometimes take the Kanawha boats at Louisville or Cincinnati, and proceed up the Kanawha river to Charleston, where they take the stage; the former route, however, commands a general preference.



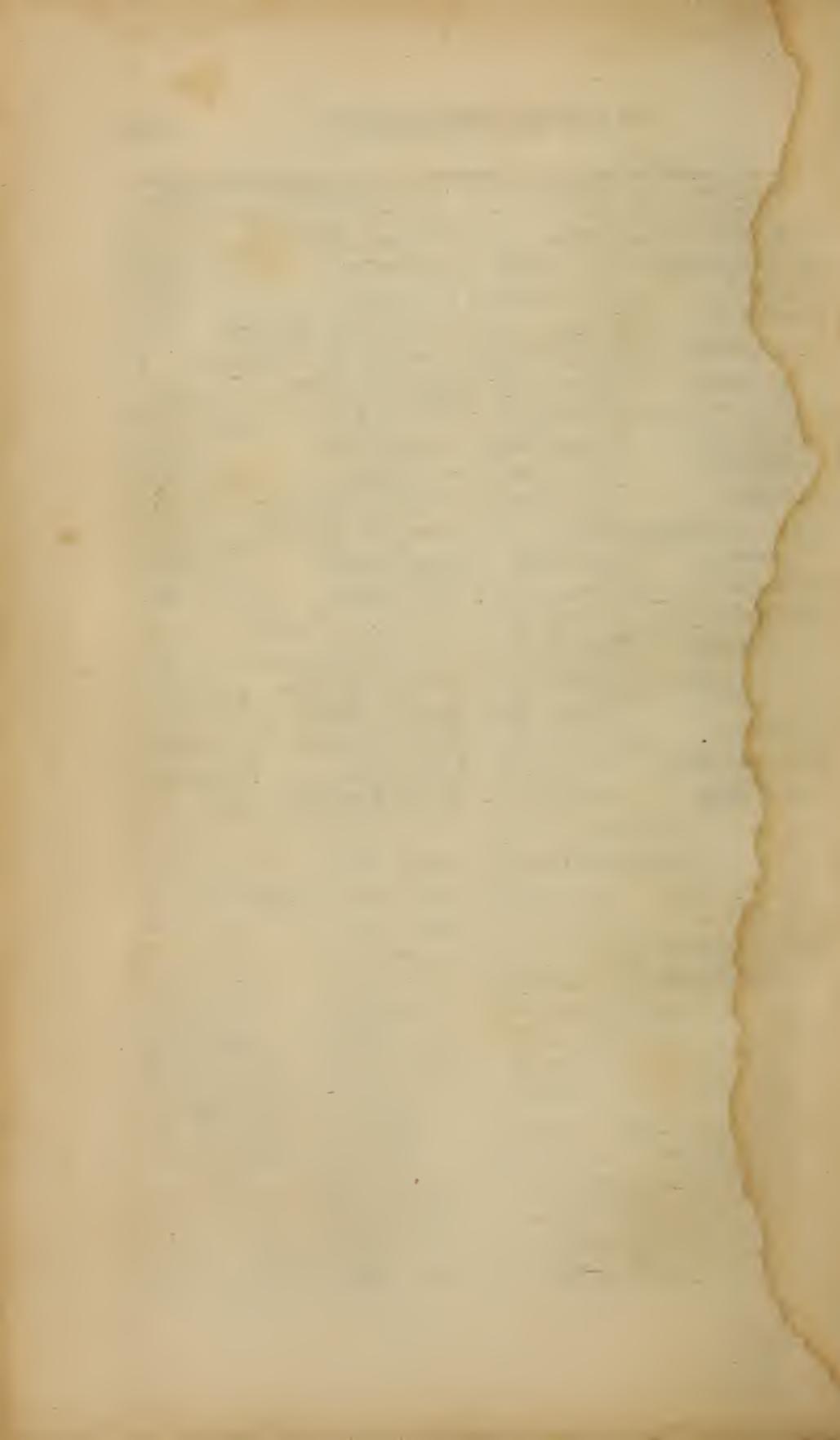
SYNOPSIS OF ROUTES

*Of Travel from the Northern, Eastern and Middle States,
to the Mineral Springs of Western Virginia.*

Where from.	Conveyances.	To what place.	Miles.
Richmond,	Rail Road,	Charlottesville,	97
Richmond,	Rail Road,	Top of Blue Ridge,	116
Richmond,	Rail Road,	Staunton,	140
Richmond,	Canal Boat,	Lynchburg,	146
Richmond,	Steamboat,	Old Point,	130
Richmond,	Rail Road,	Port Walthall,	18
Port Walthall,	Steamboat,	Old Point,	100
Richmond,	Rail Road,	Robiou's,	10
Robiou's,	Stage,	Huguenot Springs,	6
Richmond,	Rail Road,	Amelia Springs,	40
Richmond,	Rail Road,	Junction,	54
Junction,	Rail Road,	Lynchburg,	72
Washington,	Steamboat,	Aquia Creek,	50
Aquia Creek,	Rail Road,	Fredericksburg,	13
Aquia Creek,	Rail Road,	Junction,	56
Aquia Creek,	Rail Road,	Richmond,	76
Junction,	Rail Road,	Gordonsville,	45
Gordonsville,	Rail Road,	Charlottesville,	22
Charlottesville,	Rail Road,	Staunton,	40
Staunton,	Stages,	Lexington,	36
Staunton,	Stages,	Cloverdale,	30
Cloverdale,	Stages,	Bath Alum Springs,	15
Bath Alum,	Stages,	Rockbridge Alum,	16
Bath Alum,	Stages,	Warm Springs,	5
Warm Springs,	Stages,	Hot Springs,	5
Hot Springs,	Stages,	Healing Springs,	3½
Hot Springs,	Stages,	Callaghan's,	21
Callaghan's,	Stages,	Dickson's,	3
Dickson's,	Stages,	White Sulphur,	13

Where from	Conveyances.	To what place.	Miles.
Staunton,	Stages,	White Sulphur,	92
White Sulphur,	Stages,	Sweet & Red Springs,	16
White Sulphur,	Stages,	Salt and Blue,	25
White Sulphur,	Stages,	Red Sulphur,	45
Salt Sulphur,	Stages,	Red Sulphur,	17
Lynchburg,	Canal Boat,	Buchanan,	48
Buchanan,	Stages,	Dagger's Spring,	16
Buchanan,	Stages,	Covington,	38
Buchanan,	Stages,	White Sulphur,	59
Buchanan,	Stages,	Fincastle,	12
Buchanan,	Stages,	Natural Bridge,	12
Lynchburg,	Canal Boat,	Cedar Creek,	35
Cedar Creek,	Stage,	Natural Bridge,	2
Natural Bridge,	Stage,	Dibrell's Springs,	19
Natural Bridge,	Stage,	Lexington,	17
Lexington,	Stage,	Rock. Alum Springs,	17
Lynchburg,	Rail Road,	Bonsack's,	47
Lynchburg,	Rail Road,	Coiner's Sulphur,	50
Bonsack's,	Stages,	Fincastle,	14
Bonsack's,	Rail Road,	Salem,	13
Salem,	Stages,	Sweet Springs,	45
Bonsack's,	Rail Road,	Christiansburg,	39
Christiansburg,	Rail Road,	Newbern,	19
Newbern,	Rail Road,	Wytheville,	28
Newbern,	Stages,	Red Sulphur Springs,	38
Wytheville,	Stage,	Grayson's W. Sulphur	20
Bonsack's,	Stage,	Sweet Springs,	48
Bonsack's,	Stage,	White Sulphur,	63
Washington,	Rail Road,	Winchester,	144
Winchester,	Stages,	Woodstock,	30
Winchester,	Stages,	Harrisonburg,	68
Winchester,	Stages,	Staunton,	90
Baltimore,	Rail Road,	Washington,	40
Baltimore,	Rail Road,	Harper's Ferry,	82
Harper's Ferry,	Rail Road,	Martinsburg,	19
Martinsburg,	Rail Road,	St. John's depot,	28

Where from.	Conveyances.	To what place.	Miles.
St. John's depot,	Stage,	Berkeley Springs,	2½
Harper's Ferry,	Rail Road,	Charleston,	12
Charleston,	Rail Road,	Winchester,	20
Charleston,	Stage,	Shenandoah Springs,	5
Winchester,	R. R. & st'ge	Jordan's W. Sulphur,	7½
Winchester,	Stage,	Capon Springs,	23
Baltimore,	Steamboat,	Old Point,	179
Washington,	Steamboat,	Alexandria,	7
Alexandria,	Rail Road,	Junction,	27
Junction,	Rail Road,	Fauquier Springs,	23
Fredericksburg,	Stage,	Fauquier Springs,	40
Cincinnati,	Steamers,	Guyandotte,	150
Guyandotte,	Stages, &c.	Charleston,	48
Charleston,	Stages, &c.	Salines,	5
Charleston,	Stages, &c.	Great Falls,	35
Charleston,	Stages, &c.	Gauley Bridge,	40
Charleston,	Stages, &c.	Hawk's Nest,	48
Charleston,	Stages, &c.	Blue Sulphur,	90
Blue Sulphur,	Stages, &c.	Lewisburg,	13
Lewisburg,	Stages, &c.	White Sulphur,	9



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CHAPTER I.

MINERAL WATERS IN GENERAL.

Early use of, &c. &c.—Mineral waters rank among the ancient remedies used for the cure of disease. The Greeks, who in knowledge of medicine were superior to the nations who had preceded them, regarded natural medicated waters as a special boon of the Deity, and piously dedicated them to Hercules, the god of strength. They used them for drinking, and for general and topical bathing. Hippocrates was acquainted with the value and uses of various mineral waters, and many other Greek physicians, we are told, employed them for numerous diseases for which they are used at this day.

With the Romans, mineral waters were a familiar remedy, not only in Italy, but in all the countries over which that nation obtained dominion. Mineral springs were eagerly sought out in the countries over which their conquests from time to time extended, and prompted by "gratitude to the benefit which they experienced from their use, they decorated them with edifices, and each fount was placed under the protection of a tutelary

deity.”—(*Bell.*) Pliny, in his natural history, treats of various mineral waters and their uses; and it is a fact worthy of remark, that they were highly recommended by various Roman physicians, in the fifth century, in the same diseases for which they are at this day so much employed—particularly for nervous and rheumatic diseases, and for derangements of the liver, stomach and skin.

With the modern nations of civilized Europe, mineral waters, both as internal and external remedies, have always been held in high estimation. The national regulations that have, from time to time, been adopted to investigate their virtues, and their appropriate applicability, and to guard against their improper use, sufficiently manifest the importance that has been attached to them as remedial agents. Henry IV., we are told, “during his youth, had frequented the springs of the Pyrenees, and witnessing the abuses in the employment of so useful a remedy, sought to correct them after his ascension to the throne of France. He nominated by edicts and letters patent, in 1603, superintendents and superintendents-general, who were charged with the entire control over the use of mineral waters, baths and fountains of the kingdom. Most of the mineral springs and bathing establishments on the Continent of Europe, are placed under a somewhat similar superintendence, and a resident physician is also appointed by the government.”—(*Bell.*)

Although mineral waters had been favorite remedial agents with the enlightened nations of the earth for many centuries, it was comparatively but recently that

chemistry, by minute analysis, was able to determine with precision their constituent parts.

In 1670 the mineral waters of France were first fully analyzed by a commission appointed by the Academy of Sciences at Paris; but it was not until 1766, nearly a hundred years afterwards, that Bayen discovered the means of separating sulphur from sulphurous waters—nor until 1774 that the celebrated Borgamann demonstrated the existence of sulphuretted hydrogen gas. Meanwhile, physicians stationed at the several watering places were active in observing and noting the various operations of the different waters on the human system, and in determining, from experience, the various cases in which they were beneficial or injurious.

Experience the only sure Guide in the Administration, &c.—After all that science can effect in determining the component parts of mineral waters, it is *experience* alone in their use, that can be fully relied upon as to their specific effects, or applicability to particular diseases. Chemical analysis is important mainly as a matter of general scientific knowledge, and may be so far practically useful to the physician, as to enable him to form correct *general views* as relates to the nature and powers of the remedy; but it is fallacious to suppose that an analysis, however perfect, can ever enable the physician, in the present state of our knowledge, and in the *absence of practical observation*, to prescribe a mineral water with confidence or safety. An accurate knowledge of the component parts of mineral waters might do much,

I admit, to prevent the incessant mistakes and mischief which medical men commit in sending their patients, "*hap hazard*," to drink mineral waters which are often unadapted to their cases; but it never can, in the absence of experimental knowledge, qualify them for giving specific and detailed directions for their use. Dr. John Bell, in his valuable work on "Baths and Mineral Waters," has the following sensible and judicious passage upon this subject. "I wish not," he says, "to be ranked among the chemical physicians, who, having discovered the proportion of each foreign ingredient in the mineral spring, and studied its operation on the economy, pretend to determine the general effect of the compound. We may, indeed, by a knowledge of the constituent parts, predict to a certain extent, the medicinal power of the compound; but it is only by multiplied facts, that is, *experience of its use*, that we can speak positively of its virtues."

In no other country, perhaps, do mineral waters abound in greater variety than in the United States, and it is a subject of sincere regret, that their nature, applicability, and proper method of administration, should have been so little studied, both by physicians and the public at large. It is true that certain opinions generally prevail in enlightened circles, as regards the curative powers of some of our more celebrated fountains; and these opinions, so far as they go, being generally founded on experience, may, in the main, be tolerably correct. Nevertheless, there is a lamentable want of information generally, and even among our more enlight-

ened physicians, as to the *specific nature and adaptation of our mineral waters to particular diseases*—information, the want of which must always disqualify for the safe and confident recommendation of these valuable agents.

A perfect knowledge of the various influences, and of the peculiar minute circumstances that control the use of mineral waters in different systems, as well as the best methods of using them in certain pathological conditions of the system, must, as with all other medicines, be learned from observation. Now, as physicians but rarely have an opportunity of observing the use of mineral waters for a sufficient length of time and in a sufficient variety of cases, and as but little has been written by those who have observed their effects, it ought not to be supposed that the medical public generally would be greatly enlightened on this subject.

I have said that the opinions generally prevailing in enlightened circles relative to the curative powers of our principal mineral fountains, being founded on experience, may, in the main, be correct. I would not be understood, however, as advising a reliance upon such “popular fame.” Information of this kind is sufficient to awaken attention and incite inquiry, but certainly should not be implicitly relied upon in individual cases. At best, it is generally “hearsay” opinion, made up, ordinarily, from partial and empirical sources; or, quite as likely, from the prejudiced accounts which are brought by visitors from the different watering places, and which are *sweepingly* favorable, or prejudicial, as they may

chance to have been benefitted or worsted, and that without reference to the specific action of the agent, or that clear understanding of the pathology of the case, which would serve as a safe guide in its application to others. Every physician knows how prone persons are to err in the use of medicines, from the supposed resemblance of cases. Often am I pained to see persons persevering in the use of a mineral water to their evident prejudice, and for no better reason than that Mr. or Mrs. Such-a-one was cured of a disease supposed to be similar; or, by the general recommendation of some medical man who sent them to the "mountains" with a "*carte blanche*," to use "*some of the mineral waters*." Occasionally it has become my painful duty to advise patients to retrace their melancholy steps homeward, without using any of the waters, because none were adapted to their case.

Mineral waters are not a *panacea*; they act like all other medicines by producing certain *effects* upon the animal economy, and upon principles capable of being clearly defined. It follows, that there are various diseases and states of the system to which they are not only not adapted, but in which they would be eminently injurious.

Some years since, I was requested to visit a highly respectable gentleman, who had just arrived at the White Sulphur with his family, from one of our distant cities. He was in wretched health, and sought my advice as to the applicability of the water to his case. On examination, I felt astonished that any medical man of intelligence should have recommended such a case to mineral

waters for relief. I advised the gentleman to retrace his steps homeward, and put himself under medical treatment, as he had no time to lose. Accordingly, the ensuing morning, he recommenced his journey of seven hundred miles to reach his home. Medicine did for him what mineral waters were not calculated to do, and I have since heard of his entire recovery. This gentleman informed me that he had been influenced to undertake the distant, and, to him, painful journey, by a physician who had never before prescribed for his case, and who candidly stated to him that he knew but little of the mineral waters of Virginia; but he had heard of many cures from their use, and therefore advised that he should hasten to give them a trial. Influenced by this medical opinion, the unfortunate invalid had dragged himself and his family seven hundred miles, under the vain hope of finding a remedy, which the physician should, in such a case, have found in his own office. Now a little more knowledge of the nature of our mineral waters, and a more commendable caution in advising their use, would have prevented the heavy sacrifice this gentleman incurred. Nor is this by any means an isolated instance; my case-book furnishes me with many others equally strong, that have come under my observation within the last few years.

Medical Efficacy, &c.—Mineral waters are exceedingly valuable as medicinal agents, are applicable to a large circle of cases, and will, unquestionably, cure many which the ordinary remedies of the shops will not.

Nevertheless, it should always be borne in mind that they are not a *catholicon*; that they are not to be used for every disease; and that, to be prescribed successfully, they must, like all other medicines, be prescribed with reference to the nature and pathology of the case. Nor is this caution ordinarily more necessary in using the various medicines of the shops than in using our more potent mineral waters.

Some there are, I know, who profess to be unbelievers in the medicinal activity of mineral waters, and who, without denying the benefit that is often derived from visiting such fountains, attribute the whole to travel, change of air, exercise, relaxation from business, &c. &c. Now, I freely admit that these are often important agents in the cure of a large class of cases; but from long experience at a popular watering place, and the numerous cures I have seen effected from the water itself, totally disconnected with any of the adjuncts alluded to, it would be quite as easy to convince me that *bark* is not tonic, that jalap does not purge, or that mercury will not salivate, as that mineral waters may not be an active and potent means of curing disease, entirely independent of the valuable adjuvants that have been alluded to.

The advocates of the non-efficacy of mineral waters *per se*, would scarcely persist in this opinion, after seeing the large amount of active medical material obtained by evaporation from some of our more active waters; the *white sulphur*, for instance, which yields more than 150 grains to the gallon, and which, upon analysis, is found to consist of *iodine*, *sulphur*, the various combinations

of *soda*, *magnesia*, and other active ingredients. Would it not be absurd to believe, that so large an amount of these efficient medical substances, as is usually taken into the stomach by those who drink mineral waters in which they abound, could fail to exert a *positive influence* upon the economy? My own experience for many years, in the use of such waters, enables me to bear the most unequivocal testimony, as to the *direct* and positive influence of many of them upon the human body. In the language of the celebrated Patisserie, I can unhesitatingly say, that, "in the general, mineral waters revive the languishing circulation, give a new direction to the vital energies, re-establish the perspiratory action of the skin, bring back to their physiological type the vitiated or suppressed secretions, provoke salutary evacuations, either by urine, or stool, or by transpiration; they bring about in the animal economy an intimate transmutation—a *profound change*; they saturate the sick body. How many sick persons, abandoned by their physicians, have found health at mineral springs? How many individuals, exhausted by violent disease, have recovered, by a journey to mineral waters, their tone, mobility and energy, to restore which, attempts in other ways might have been made with less certitude of success." And hence, most cordially do I adopt the sentiments of the distinguished Dr. Armstrong, who, in speaking of the medicinal efficacy of mineral waters, says, "*I dare pledge my word, that, if they be only fully and fairly tried, they will be found amongst the*

most powerful agents which have ever been brought to the relief of human maladies."

Modus Operandi, &c.—Various attempts have been made to account for the peculiar effects of mineral waters upon the system. They seem to act, in the first place, as a simple hygienic agent. Secondly, they act, in accordance with their constituent ingredients, specifically on the animal economy. Mineral waters exert their more important influences upon the human body upon a different principle from many of the articles of the materia medica; they are evidently absorbed, enter into the circulation, and change the consistence, as well as the composition of the fluids; they course through the system, and apply the medical materials which they hold in solution, in the most minute form of subdivision that can be conceived of, to the diseased surfaces and tissues; they reach and search the most minute ramifications of the capillaries, and remove the morbid condition of those vessels, which are so commonly the primary seats of disease. It is thus that they relieve chronic disordered action, and impart natural energy and elasticity to vessels that have been distended either by inflammation or congestion—while they communicate an energy to the muscular fibre and to the animal tissues generally, which is not witnessed from the administration of ordinary remedies.

Many of the articles of the materia medica seem to act by sympathy and counter-irritation, and to cure one organ of the body by irritating another; thus calomel, by irritating the stomach and duodenum, is made to

act efficiently upon the liver, to which organ it has a strong specific tendency. Not so, however, with mineral waters; they never cure one organ by irritating another. I can with confidence assert, that I have never seen mineral waters successfully used in any case in which they kept up a considerable irritation upon any of the organs of the body.

Both physicians and patients are quite too much in the habit of looking to the *immediate* and *sensible operations* of mineral waters, and of judging of their efficacy from such effects. In most cases, it is serviceable for such agents to open the bowels gently; and in some, it is best for them to purge actively. Occasionally, advantage is derived from promoting an increased flow of urine or perspiration; but, as a general rule, the greatest good is derived from the absorption of the water, resulting in that "profound change" spoken of by Patissier, or, in other words, the *alterative* action of the remedy. It should always be borne in mind that this *profound change*—this *alterative effect*—is incompatible with constant or active action of the water upon any of the emunctories. This, unquestionably, is true as relates to the *White Sulphur Water*, with which I am most familiar, and I believe it to be so with all alterative waters.

So well convinced am I, that the *alterative action* is the real curative action effected by *sulphur waters*, in nine cases out of ten where any serious disease exists, that, ordinarily, I am not solicitous to obtain much daily increase of evacuation from any of the emunctories.

On the contrary, I often find great advantage from the administration of some appropriate means to *prevent* the too free action of the water, especially on the bowels and kidneys. As a general rule, it is far better that such waters should *lie quietly upon the system*, without manifesting much excitement upon any of the organs, and producing, at most, but a small increase in the quantity of the ordinary healthy evacuations.

The *quality* or kind of evacuations produced by mineral waters, is a matter of far more importance, and when strong sulphur waters are used, never fail to evidence the existence and the extent to which alterative action is going on in the system, and to this, persons using such waters should always pay a careful attention.

I have said that the best effects of mineral waters are their *alterative* or *changing* effects; and that in the administration of the White Sulphur Water, I do not, ordinarily, desire to provoke much increase of the natural evacuations. I do not wish, however, to be understood by this general declaration, as laying down an absolute rule of practice to govern all cases. The administration of this water, like the administration of every other active remedy, should be governed in reference to the particular character and demands of each case; and in such discriminating practice, it will sometimes be found best to use it in a manner to produce active operations for a short time. I have, indeed, generally found, that those who are actively purged by mineral waters, if they have strength to bear it, will be best satisfied with the remedy *at the time*, and, in fact, are

apt to feel better *at the time*, than those upon whom the water is exerting but little or no purgative effect. It may be laid down as a general fact, in the use of the *White Sulphur Water*, subject to but few exceptions, that those on whose bowels it acts freely, will feel best *while at the Springs*; while those who are but little purged, will feel best after they have *left the Springs*, and will, ordinarily, enjoy the most permanent advantage. The reason of this is obvious; in the first case, the active purgation throws off the gross humors of the body, and the patient feels promptly relieved; in the other case, the remedy lies upon the system, is absorbed, and gradually produces its changing influences—bringing the various secretory functions into a healthy condition—unloading and cleansing the machinery of the economy—silently putting its *works* to rights, and giving them their natural and healthy motion. All this requires time for its accomplishment; and hence, we often hear persons say, “I was no better while at the Springs, but I began to mend soon after I left, and have continued better since.” Declarations of this kind I hear every day by persons who have previously visited the Springs; and they verify the correctness of my proposition.

Length of Time to be used, &c.—To acute diseases, mineral waters are not adapted; for all such they are too exciting, too prone to increase the activity of the circulation, and to stimulate the general system. It is in *chronic* diseases only that they are found so eminently serviceable. By chronic diseases I mean those

slow diseases of the system, uniformly attended either with *simple excitement*, *chronic inflammation*, or *chronic congestion* of the blood-vessels. To be permanently beneficial in diseases of this description, the use of mineral waters, like the disease for which they are taken, should be "chronic." I mean an instantaneous cure should not be expected; but that the remedy should be persisted in, and the cure gradually brought about. Sulphur waters may be easily brought into disrepute by short and imperfect trials of them. To prove effectual, "they should for the most part be continued daily, in sufficient quantity, until the disease gives way, or until their inefficacy has been fairly proved by an unremitted perseverance. In some cases of ophthalmia, of rheumatism, and slight cutaneous affections, I have known them to effect a cure in two or three weeks, while in other cases, apparently similar in all respects, twice, thrice, or even four times that period has elapsed before the cure had been accomplished; and what is here affirmed of these external affections, is still more strongly applicable to internal diseases, which are seldom speedily overcome by these waters, how completely soever they may yield at last. In illustration of this point, as to internal diseases, it may be mentioned that I have seen both chronic inflammation of the liver, and chronic inflammation of the rectum, where no benefit was produced for three or four weeks, and yet a *continuation* of the waters for six or eight weeks longer has effaced every vestige of the morbid indications for which they were prescribed."—
(*Armstrong on Sulphur Waters.*)

There is no greater folly in the use of mineral waters, than that of laying down a *definite period of time for which they should be used*, without reference to their effects upon the system. Like all other medicines, mineral waters should be used, discontinued, or modified in their use, with a strict regard to their operations upon the body, and to their good or bad effects upon the disease. Whenever prescribed, their operations should be watched with the same care with which we watch the effects of any other medicine; and they should be persevered in, or temporarily, or permanently discontinued, or controlled in their action by some appropriate adjuvant, according to the indications presented in each case.

It will occur to every reflecting mind, that the expectation of being cured, or even essentially benefitted, in an *obstinate chronic disease*, from a few days' use of any mineral water, is altogether unreasonable. Nevertheless, I have often seen persons at watering places despairing of the efficacy of the water, simply because it had not produced an obvious and appreciable benefit in five or six days. A sort of *stereotyped* opinion indeed prevails with numerous visitors to such places, that the water should not in any case be used longer than two weeks. I scarcely need say that this is a most erroneous opinion, and often interposes between the patient and his recovery; instances of which I almost daily see at the White Sulphur. It is true, that some who hold the unwarrantable opinion alluded to, perseveringly endeavor to drink as much in the "two weeks," as they should do

in six, but this only serves in a common way, to make them abandon it four or five days before their prescribed time, by absolutely disqualifying the system for its reception at all.

I can say, as the result of many years' observation, that the *White Sulphur*, which is one of the strongest sulphur waters in the world, rarely produces its full *alterative* effects within two weeks, under its most judicious administration, and under favorable circumstances for its use; and that three, four, five and even eight weeks often elapse before it has displayed its full remedial powers in obstinate cases.

General Remarks on the Administration, &c. &c.—Mineral waters are all *stimulants* in a greater or less degree, and some have attributed much of their virtue to this property. Such an opinion, however, is clearly erroneous. I have already remarked that such waters are rarely serviceable when they keep up any considerable irritation of an organ. I now remark that any considerable excitement of the general organism is equally prejudicial: indeed I have often been embarrassed, and sometimes thwarted in the successful use of mineral waters, from the prevalence of this quality. The amount of excitement resulting from the use of such waters, depends upon the nature of their constituent principles; upon the quantity taken, the manner of taking it, and the excitability of each individual's constitution. If it be a water abounding in sulphuretted hydrogen gas, the most essential difference exists in taking it *with* or *with-*

out its gas; that is, in taking it fresh at the spring, or after its gas has flown off. In the use of the *White Sulphur Water*, with or without its gas, the most marked difference exists in its stimulating quality. In relation to this particular water, it is greatly advantageous in many cases, particularly in very excitable persons, to have the gas expelled in part, or in whole, before using it.

Some mineral waters, by varying the method of their administration, or, by the interposition of appropriate adjuvants, are capable of extensive and valuable modified actions and effects upon the human body. The *White Sulphur* is susceptible of as many varied, different, and modified actions upon the system generally, and upon its particular organs, by varying the methods of using it, as is mercury, or antimony, or any of our leading therapeutical agents. For instance, it can be so used as to *stimulate* distressingly—or, without any *appreciable stimulating effect*. It can be so given as almost invariably to *purge actively*; or, without lessening the quantity producing such effect, but merely by changing the time and manner of taking it, it can be so given as to exert little or no cathartic operation. It may be directed to, or restrained from the *kidneys*, or skin; and what, in a general way, is far more important, it can be so used as to *lie quietly* on the system, producing no excessive action upon any of the organs, and, with a quiet but sure progress, go on breaking up the obstructions in the glandular organs and removing the impediments to the proper discharge of their functions: equalizing the

circulation, removing chronic inflammations, and generally restoring the energies of the system.

Between the action of mercury, and the more powerful of the sulphur waters on the organic system, the most striking similarity exists. Dr. Armstrong long since remarked the resemblance between mercury and the sulphur waters of Europe, and confidently expressed the opinion that the latter are equally powerful as the former, in their action upon the secretory organs; and with this very important difference, that while the long-continued use of mercury in chronic disease generally breaks up the strength, that of the sulphur waters generally renovates the whole system. Mercury has heretofore, by common consent, been regarded as the most powerful alterative we possess. I am not prepared to dispute this high claim of the medicine, but this much I will assert, as a matter of professional experience, that sulphur water, in my hands, has proved an *alterative* quite as certain in its effects as mercury, though somewhat slower in its operations. Not only so, I believe it to be far better adapted than mercury to a large circle of cases in which glandular obstructions and chronic inflammations are to be subdued. If the claims of the two remedies for preference were otherwise nearly equal, the great advantage on the score of safety from the sulphur water would give it an immense preference over its rival. Numerous cases present themselves, however, in which they are used in conjunction to great advantage. Where this becomes necessary, however, I have, as a general rule of practice, found it best not to continue the mer-

cury longer than six or eight days; nor is it often necessary to use it continually during that period.

The effects of the *White Sulphur Water* upon the human body resemble mercury in several respects. Not to mention others, its resemblance is strikingly manifest from the fact of its producing salivation under certain peculiar circumstances. Another marked similarity may be mentioned, especially as it has a direct bearing upon the proper method of its administration: I allude to the existence of a phlogistic diathesis in individuals with whom either remedy is used. "When the system resists the specific action of mercury, it is a certain test that the inflammatory diathesis prevails to a considerable extent, and this is the cause of the resistance; for lessen the inflammatory diathesis by proper evacuations, and the specific action of the mercury will be readily induced." The system often offers the same resistance to the successful use of this water, which is evidently occasioned by the excess of the inflammatory diathesis, inasmuch as when the inflammatory disposition^m is abated by the lancet, purgatives, &c., the water promptly produces its wonted good effects. In the administration of the *White Sulphur Water* it is of the utmost consequence to keep this practical fact constantly in view, and by proper treatment to keep down both general and local excitement.

"Notwithstanding mineral waters are so well adapted to the cure of chronic diseases, it should not be expected that they will be uniformly successful; for it must be remembered that such diseases are only remediable when

unconnected with alterations of organic tissue, which is their ultimate and mortal product. Nor is it reasonable to expect that any plan of treatment will succeed in all cases of chronic disease unconnected with alteration of tissue; and I have accordingly found the methods recommended at times ineffectual, even when they were tried under circumstances which simply indicated disorder of the function, without any concomitant sign of disorganization."

Errors, and Abuse of Mineral Waters, &c. &c.—I have before alluded to some of the abuses of mineral waters by those who resort to them for relief: this subject, I conceive, may be still further pursued with profit to my readers. To one familiar with the many errors and mistakes committed in the use of mineral waters in this country, it is not wonderful that numbers return from visiting our most celebrated watering places, without having received any essential benefit; it is rather a matter of surprise that so large an amount of good is achieved. The precautions in the use of such waters, deemed indispensable in France, Germany and England, are greatly neglected here. There, the advice of a competent physician who is well acquainted with the nature and peculiarities of the water, is thought so important, that persons rarely enter upon their use without such *advice*, and at some places are actually not *permitted* to do so. If similar precautions were more commonly adopted by visitors at our various watering places, a far larger amount of good would be achieved to the afflicted,

much injury prevented, and the character of the several waters better established and preserved. It is a subject of daily and painful observation at all our principal watering places, to witness numerous individuals using mineral waters that are not adapted to their cases; and still more common is it to see those, to whose cases they are adapted, using them so improperly as entirely to prevent the good they would accomplish under a proper administration. Professor Mütter, of Philadelphia, makes the following judicious remarks when speaking of the use and abuse of mineral waters in this country: "Like every other remedy of any efficacy, mineral waters are liable to abuse, and it is really astonishing that such glaring errors should be daily committed, not only by the patients, but often by the *physicians* who recommend their employment. It is by no means an uncommon occurrence (and those who have visited the springs of our country, will bear me out in the statement I am about to make,) for an individual to arrive, furnished with a 'carte blanche,' from a physician who has probably little or no knowledge of the active properties of the agent he recommends, to use the water as he may see fit, or with merely a charge to '*use it with caution.*' Others are sent without any direction whatever, in the hope that the water *may suit* their condition, and come trusting in Providence alone. Others, again, arrive with written instructions, to drink so many glasses of the water *per diem*, whether it agrees with them or not. Many patients do not take the advice of a physician at all, but relying on the representations of those who have

derived benefit, imagine that they, too, will be cured, although in all probability, from the nature of their disease, the water may be the most prejudicial to which they could resort. Used in this careless and dangerous manner, is it to be wondered at, that so many individuals leave the springs, either not at all benefitted, or in a worse condition than when they arrived? The regulations which are thought necessary, and which are adopted in most European countries, especially France and Germany, during the use of a mineral water, are either unknown or neglected in this. There, nearly every spring is supplied with an experienced physician; one familiar with the character of the water, whose duty it is to take charge of the sick as they arrive; here, with but one or two exceptions, those who frequent our watering places have to rely on *chance* for medical aid. Is this as it should be?"

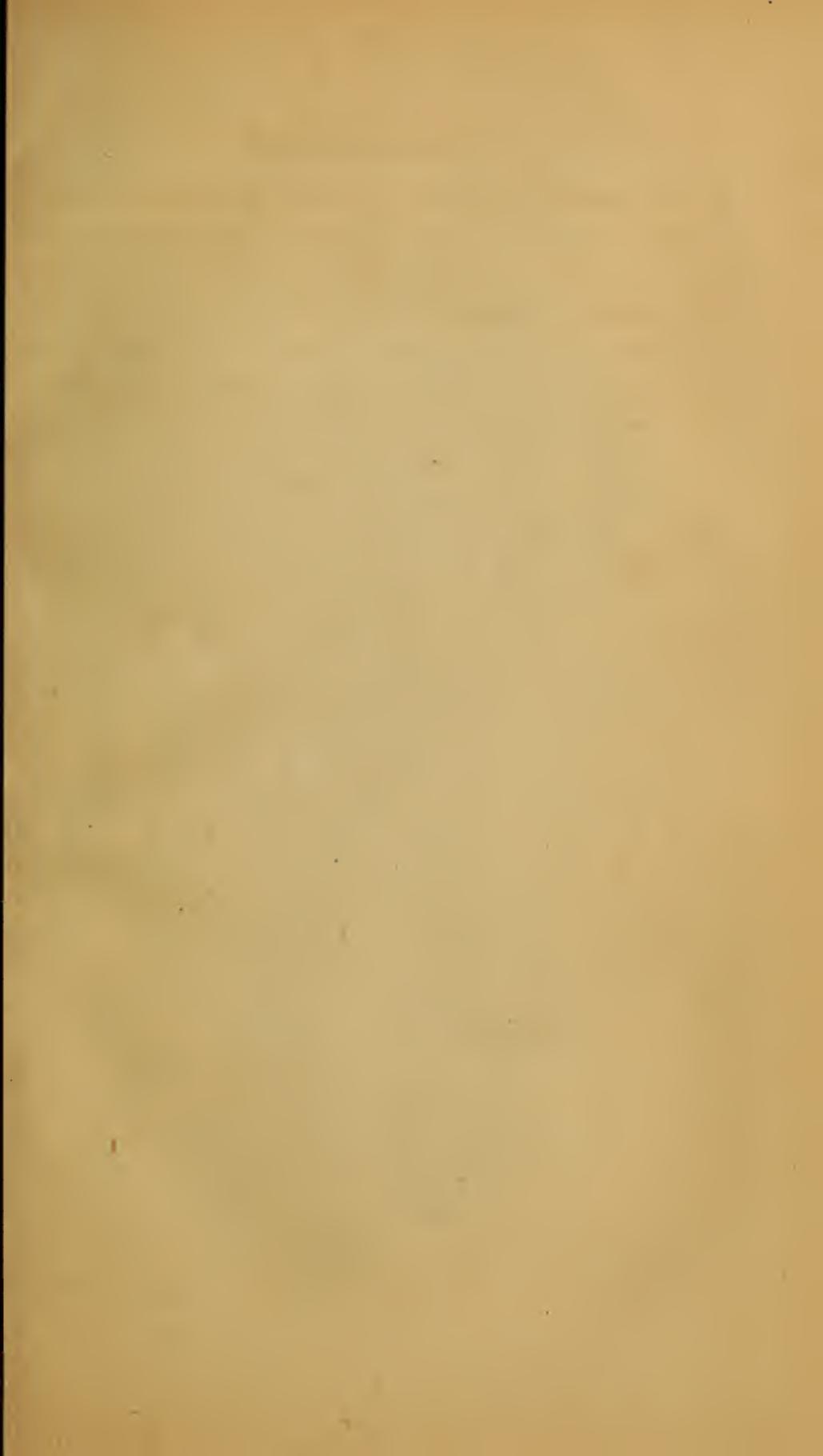
A vague impression seems to pervade the public mind, that mineral waters, as medicinal agents, are totally unlike all other medicines, and that in their administration there is no necessity for observing any cautions or for adopting extraneous expedients to procure the best effects of the agent employed. This is an error as injurious as it is common, and ought to be corrected in the public mind. Our more potent mineral waters ought indeed to be regularly incorporated into our *materia medica*, their several qualities properly defined, and the medical mind thus instructed to regard them not only as valuable therapeutical agents, *per se*, but as agents capable of extensive and valuable modifications in their application to dis-

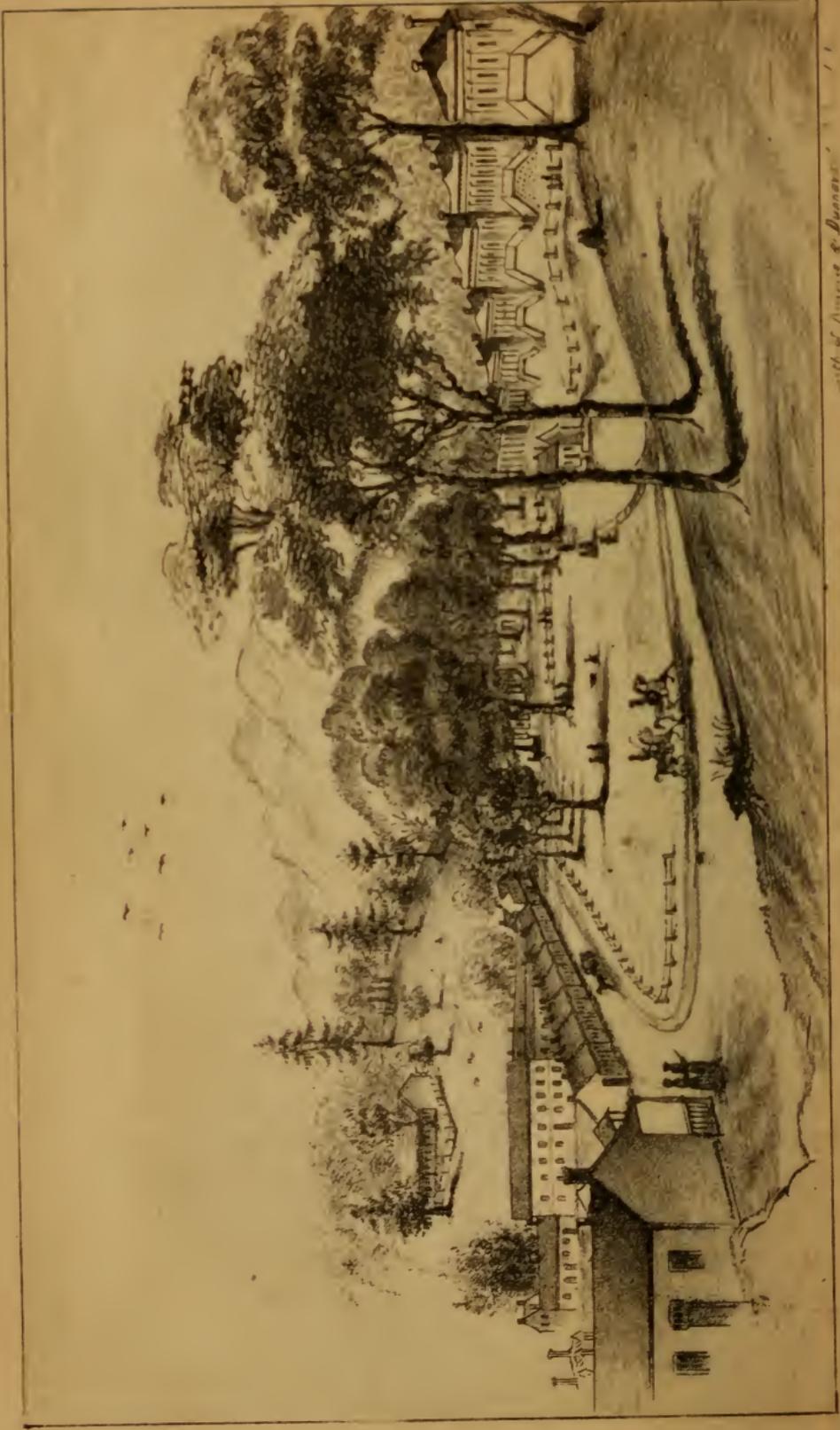
ease. A *pathological practice* should be established in relation to them, not less strict than in relation to the ordinary remedies of the shops, and the best means of influencing their sanative operations on the system understood.

The physician who desires to throw his patient under the *alterative* influence of mercury, is not so discouraged as to abandon the remedy, if it chance at first to run off by the bowels, and thus thwart his object; but either by changing the method of using his medicine, or by uniting with it some soothing astringent, he ultimately effects the important object in view. Neither should the physician be discouraged in the use of a mineral water because it occasionally manifests a vagrant and improper effect; for facilities can be commanded to control its operations as readily as we can control the improper operations of mercury. Such facilities may generally be found, either in an *increase* or *diminution* of the quantity taken—an alteration of the *periods* at which it has been taken—or, in the manner of using it (where gases prevail,) in relation to its *gaseous* or *ungaseous* form. Occasionally, medical adjuvants are found necessary, and then I have been in the habit of using those most simple, and which least derange the animal economy.

As a general rule, I have found mineral waters most serviceable in those cases in which the stomach and general system tolerated them readily; yet such toleration depends so much upon the proper *preparation of the system*, and the manner of using the water, that the patient should by no means infer that it is unsuited to

his case, simply because it has manifested some improper operation in the commencement. For, as before intimated, it will often happen, that by changing the method of using the water, or by the administration of some appropriate adjuvant, the difficulty will all be removed, and the agent afterwards act most pleasantly and profitably upon the system.





with St. Augustine & Duval

MILTON SIMPHER - GREENBRIER VA

CHAPTER II.

WHITE SULPHUR SPRINGS.

THE White Sulphur Springs are located in the county of Greenbrier, Virginia, on Howard's Creek, and on the immediate confines of the "Great Western Valley," being but six miles west of the Alleghany chain of mountains which separates the waters which flow into the Chesapeake Bay, from those which run into the Gulf of Mexico.

The waters of the spring find their way into Howard's Creek, two hundred yards from their source, which, after flowing five miles, empties into Greenbrier River.

The spring is situated on an elevated and beautifully picturesque valley, hemmed in by mountains on every side. *Kate's Mountain*, celebrated as the theatre of the exploits of a chivalrous heroine in the days of Indian troubles, is in full view, and about two miles to the south; to the west, and distant from one to two miles, are the *Greenbrier Mountains*; while the towering *Alleghany* in all its grandeur is found six miles to the north and east.

This spring is in the midst of the celebrated "spring region," having the "Hot Spring" thirty-five miles to

the north,—the “Sweet,” seventeen miles to the east,—the “Salt” and “Red,” the one twenty-four, the other forty-one miles to the south—and the “Blue,” twenty-two miles to the west. Its latitude is about $37\frac{1}{2}^{\circ}$ north, and $3\frac{1}{2}^{\circ}$ west longitude from Washington. Its elevation above tide-water is two thousand feet. It bursts with unusual boldness from rock-lined apertures, and is enclosed by marble casements five feet square and three and a half feet deep. Its *temperature* is 62° of Fahrenheit, and remains uniformly the same during the winter's blasts and the summer's heat; any apparent variation from this temperature, will be found, I think, to have been occasioned by the difference in thermometers, as repeated trials with the same instrument prove the temperature to be uniform.

The principal spring yields about thirty gallons per minute; and, it is a remarkable fact, that this quantity is not perceptibly increased or diminished during the longest spells of wet or dry weather; while other bold springs of the country have failed during the long droughts of summer, this has invariably observed “the even tenor of its way.” There is no discoloration of the water during long wet spells, or other evidences that it becomes blended with common water percolating through the earth. The quantity and temperature of this spring being uniform under all circumstances, gives a confidence, which experience in its use has verified, of its uniform strength and efficiency. The water is most clear and transparent, and deposits copiously, as it flows over a rough and uneven surface, a *white*, and some-

times, under peculiar circumstances, a *red* and black precipitate, composed in part of its saline ingredients. Its *taste* and *smell*, fresh at the spring, are that of all waters strongly impregnated with sulphuretted hydrogen gas. When removed from the spring, and kept in an open vessel for a sufficient length of time for this gas to escape, or, when it has been *heated* or frozen for this purpose, it becomes essentially *tasteless*; and *inodorous*, and could scarcely be distinguished, either by smell or taste, from common limestone water. Its cathartic activity, however, is rather increased than diminished when thus insipid and inodorous.* It does not lose its transparency by parting with its gas, as many other waters do; nor does it deposit its salts in the slightest degree when quiescent—not even sufficiently to stain a glass vessel in which it may be kept.

The *gas* of this spring is speedily fatal to all animals, when immersed even for a very short time in its waters. Small fish thus circumstanced survive but a few moments, first manifesting entire derangement, with great distress, and uniformly die in less than three minutes.

The springs are surrounded with mountain scenery of great beauty, and blessed with a most delightful climate in summer and fall. Independent of the benefit that may be derived from the waters, a better situation for the invalid during the summer months can scarcely be imagined. They have the advantage of a salubrious and

See CHAPTER III.—On “*The relative virtues of the saline and gaseous contents of the White sulphur water.*”

invigorating air, an agreeable temperature, cool at morning and evening, the thermometer ranging at those periods during the summer, between 50° and 60°, and rarely attaining a greater height than 80° at any time of the day, and an elasticity in the atmosphere that prevents the heat from being at any time oppressive, and enables the invalid to take exercise in the open air during the day without fatigue.

There is but little in the early history of this celebrated watering place especially worthy of preservation.

Tradition says that the charming valley in which it is situated, was once a favorite "hunting ground" of the proud *Shawances*, who then owned and occupied this fair region, and the numerous ancient graves and rude implements of the chase that are found in various parts of the valley, sufficiently attest the truth of this legend. That a small marsh, originally contiguous to the spring, was once a favourite deer and buffalo "lick" is well known to the oldest white settlers in the country; and it is confidently asserted by some of that venerable class, that the spring was known to the Indians as a "*medicine water*," and that since their migration across the Ohio, they have occasionally been known to visit it for the relief of rheumatic affections. Whether this legend be truth or fiction, I cannot avouch; authentic history, however, abundantly testifies to the reluctance with which its ancient owners abandoned this lovely valley, to the rapacious avarice of the invading white man.

During the year 1774, the proud, but ill-fated *Shawances*, being overpowered by the encroaching colo-

nists from Eastern Virginia, and having sustained, in October of that year, a signal defeat by the colonial troops, at Point Pleasant, were forced finally to abandon their country, and seek shelter and protection with the main body of their tribe, then living on the waters of the great Sciota; not, however, until by frequent battles and midnight murders, they had testified their attachment to their ancient hunting grounds and the graves of their fathers.

The property on which this spring is situated, was originally patented to ——— Carpenter, one of the earliest pioneers of the country, and who was subsequently killed by a band of marauding Indians, at the fort at the mouth of Dunlap's Creek, near where the town of Covington now stands. It is rather a remarkable fact, in a country like this, in which land is so prone to change owners, that this, as a whole, has never been bought or sold, the present proprietor owning it by right of descent from the original patentee.

The precise time at which this spring, now so celebrated among mineral waters, was first used for the cure of disease, cannot be ascertained with absolute certainty. It is believed, however, that a Mrs. Anderson, the wife of one of the oldest settlers, was the first white person who tested its virtues as a medicine.

In 1778, this lady being grievously afflicted with rheumatism, was borne on a litter, from her residence, ten or fifteen miles, to the spring, where a tent was spread for her protection from the weather; and a "*bathing tub*," provided by felling and excavating a huge tree that grew

hard by. Here she remained until she had entirely recovered, drinking the water from the fountain, and bathing in the sulphur water previously heated in the trough by "hot rocks." It is reasonable to suppose that the fame of this cure spread abroad among the "settlers," and from them into Eastern Virginia, and among the few "spring-going folks" who then annually visited the Sweet Springs, not many miles distant. Accordingly, in 1779, and from that to 1783, there were annually a few visitors here, who spread their tents near the spring, no house having then been erected, and with the rude "trough" for a bathing tub, and this protection from the weather, are reported to have spent their time most agreeably and profitably. Some of these primitive visitors, "who dwelt in tents," have visited the springs of late years, and with pleasurable emotions marked out the spot where their tents stood some sixty years ago, while they recounted with delight the amusements and pleasures they then enjoyed.

In 1784-5 and '6, numerous "log cabins" were erected, not where any of the present buildings stand, but immediately around the spring, not one of which, or the materials which composed it, is now remaining.

The present proprietor of this property came into possession of it in the year 1808, but did not personally undertake its improvement until the summer of 1818. Before this period, the buildings for the accommodation of visitors, although sufficient for the number that then resorted to the place, were exceedingly rude, being altogether small wooden huts. The interest and enterprise

of the proprietor soon led him into a different and more appropriate system of improvement, and from small beginnings, he has gone on, progressing in the rapid ratio of demand, until from the "tent" accommodations in 1779, and the "log cabins" in 1784, the place now, both in elegance and extent, exhibits the appearance of a neat and flourishing village, affording comfortable and convenient accommodations, (including the surrounding hotels,) for from twelve to fifteen hundred persons.

ANALYSIS.

In the winter of 1842, Mr. *Augustus A. Hayes*, of Massachusetts, made an analysis of the White sulphur water, at his laboratory, in Roxbury, from a few bottles of water forwarded to him from the spring the preceding fall. The following is a communication received from him on that subject :

"This water is colorless and transparent; when agitated it sparkles from the disengagement of air bubbles. Taste hepatic, resembling that of a solution of hydrosulphuric acid in water. Exposed to the atmosphere, the hepatic odor is succeeded by a slight earthy odor. It blackens metals and salts of lead. Compared with pure water, free from air, its specific gravity is 1.00254.

"50.000 grains (about 7 pints) of this water contain, in solution, 3.633 water grain measures of gaseous matter, or about 1-14 of its volume, consisting of—

Nitrogen gas	-	-	-	-	1.013
Oxygen gas	-	-	-	-	.108
Carbonic acid	-	-	-	-	2.444
Hydro-sulphuric acid	-	-	-	-	.68
					<hr/>
					3.633

“One gallon, or 237 cubic inches of the water contain 16 739-1000 cubic inches of gas, having the proportion of—

Nitrogen gas	-	-	-	-	4.680
Oxygen gas	-	-	-	-	.498
Carbonic acid,	-	-	-	-	11.290
Hydro-sulphuric acid,	-	-	-	-	.271
					<hr/>
					16.739

50.000 grains of this water, contain 115 735-1000 grains of saline matter, consisting of—

Sulphate of lime	-	-	-	-	67.168
Sulphate of magnesia	-	-	-	-	30.364
Chloride of magnesium	-	-	-	-	.859
Carbonate of lime	-	-	-	-	6.060
Organic matter (dried at 212° F.)	-	-	-	-	3.740
Carbonic acid	-	-	-	-	4.584
Silicates (silica 1.34, potash .18, soda .66, magnesia and a trace oxyd. iron)	-	-	-	-	2.960
					<hr/>
					115.735

“Unlike saline sulphuretted waters generally, this water contains a minute proportion of chlorine only, the sulphates of lime and magnesia forming nearly ten-elevenths of the saline matter.

“The alkaline bases are also in very small proportion, and seem to be united to the silicious earths, in combination with a peculiar organic matter. The organic matter, in its physical and chemical character, resembles that found in the water of the Red Sulphur Springs, and differs essentially from the organic matter of some thermal waters.

“In ascertaining its weight, it was rendered dry at the temperature of 212° F. When dry, it is a grayish-white, translucent solid. When recently separated from a fluid containing it, it appears as a thin jelly or mucilage, and gives to a large bulk of fluid a mucous-like appearance, with the property of frothing by agitation. It unites with metallic oxydes and forms compounds both soluble and insoluble. In most cases an excess of base renders the compound insoluble. The compound with oxyde of silver, is soluble in water; with baryta and lime it does not form a precipitate, while magnesia forms with it a hydrous white, gelatinous mass. In acids it dissolves, the oxy-acids do not change its composition, while they are diluted and cold, by boiling they produce sulphuric acid from its constituent sulphur, and change its carbon to other forms. In contact with earthy sulphates at a moderate temperature, it produces hydro-sulphuric acid, *and to this source that acid contained in the water may be traced.* This substance does not rapidly

attract oxygen from the atmosphere and from colored compounds, as some other organic compounds do. The proportion of organic matter, like that usually contained in our waters, is in this water very small; until forty-nine fiftieths of the bulk of a quantity is evaporated the residual matter does not become colored, and when the saline residue is dried it is of a pale yellow.

“The medicinal properties of this water are probably due to the action of this organic substance. The hydro-sulphuric acid resulting from its natural action is one of the most active substances within the reach of physicians, *and there are chemical reasons for supposing that, after the water has reached the stomach, similar changes, accompanied by the product of hydro-sulphuric acid, take place.**

“Substances having characters similar to those presented by this matter, have been classed with the lower order of living plants. With such matters, this substance does not belong in the state in which it is found in the water, for it there forms compounds, the result of chemical affinities, wholly incompatible with vital action. In its altered state, produced by atmospheric agencies, it may nourish plants and develop the growth of seeds fitted to such a soil as its elements form.

“AUG. A. HAYES.

“*Roxbury Laboratory, Feb. 1st, 1842.*”

* See Chapter III.—On “*The relative virtues of the saline and gaseous contents of the White sulphur water.*”

Professor William B. Rogers, of the University of Virginia, has also, in the course of his Geological Survey of the State, analyzed this water. The following is the result of his examinations :

Solid matter procured by evaporation from 100 cubic inches of White Sulphur Water, weighed after being dried at 212°,

65.54 grains.

Quantity of each solid ingredient in 100 cubic inches, estimated as perfectly free from water.

Sulphate of lime	-	-	-	31.680 grains.
Sulphate of magnesia	-	-	-	8.241 "
Sulphate of soda	-	-	-	4.050 "
Carbonate of lime	-	-	-	1.530 "
Carbonate of magnesia	-	-	-	0.506 "
Chloride of magnesium	-	-	-	0.071 "
Chloride of calcium	-	-	-	0.010 "
Chloride of sodium	-	-	-	0.226 "
Proto-sulphate of iron	-	-	-	0.069 "
Sulphate of aluminae	-	-	-	0.012 "
Earthy phosphates	-	-	-	a trace "
Azotized organic matter blended with a large proportion of sulphur, about	-	-	-	5 "
Iodine, combined with sodium or magnesium.				

Volume of each of the gases in a free state, contained in 100 cubic inches.*

Sulphuretted hydrogen	0.66 to 1.30	cub. inches.
Nitrogen	- - -	1.88
Oxygen	- - -	0.19
Carbonic acid	- - -	3.67

* 100 cubic inches amounts to about 3½ pints.

CHAPTER III.

ON THE RELATIVE VIRTUES OF THE SALINE AND GASEOUS CONTENTS OF THE WHITE SULPHUR WATER.

SPECULATION has existed as to the relative efficacy of the different component parts of the White Sulphur Water in the cure of disease, and while some have supposed that its *gaseous contents* are essential to its sanative virtues, others, and we think the best informed observers, attribute its medicinal virtues mainly to its *solid* or *saline contents*. To the latter opinion the able Professor of Natural Philosophy in the University of Virginia, who has carefully examined the water, and other distinguished chemists and physicians, decidedly incline.

It certainly is a question of no little interest to the valetudinarian, whether he should use this water fresh as it flows from the spring, and abounding in all its stimulating gas, or whether he should use it after it has *partially* or *entirely* parted with this gas. To this subject we have, for the last several years, devoted the most laborious and particular attention, having instituted, with great care, various and diversified experiments, in order to establish something like definite and positive conclusions.

Although the value of this water in what is usually termed its *non-stimulating form*, or, in other words, when deprived of its gas, has long been known to many who are familiar with its use, it was not until the last few years that it was commonly used from choice, after it had been long removed from the spring, or from any cause had parted with its gaseous contents; an opinion, the correctness of which had never been examined, prevailed in the minds of many, that in losing its gas, it lost its strength and efficacy.

Having settled at the "White," as the resident physician of the place, it became alike our duty and our interest to investigate the character and operations of its waters under every possible form and modification in which they could be presented. In the pursuit of this duty we resolved to take no opinion upon "trust," but carefully to examine and investigate for ourselves. A prominent question immediately presented itself for inquiry, involving the relative merits which the *solid* and *gaseous* ingredients of the water possess as remedial agents. It would be tedious, and to many uninteresting, to detail the several steps and multiplied experiments which led us to conclusions upon the subject, satisfactory to our own mind, and upon which we have established certain practical principles in the use of the water, which have enabled us to prescribe it, especially for *nervous* and *excitable patients*, with far greater success than heretofore. It is sufficient for our purpose at present to state, that while we freely admit that the *gas*, which abounds in the water, is an active *nervine stimulant*, and therefore may be a

most potent agent in some cases, we are fully impressed with the belief that either in its *direct* or *indirect* effects, we must look *mainly* to the *solid contents* of the water for its *alterative* power as well as for its activity manifested in its operations through the different emunctories of the human body.

Whether the efficacy of the solid contents of this water be owing to the specific character of any one, or to all of the *thirteen different salts* of which it is composed, and which exist in the water in the most minute form of subdivision, and in this condition enter the circulation, and course through the whole system, applying themselves appropriately to diseased tissues; or, whether its efficacy depends upon the *evolution* of sulphuretted hydrogen gas *after the water has reached the stomach*, is a matter of curious and interesting inquiry.

The distinguished chemist, Mr. Augustine A. Hayes, of Roxbury, after having bestowed much pains in analysing the White sulphur water, and in studying its peculiar character, comes to the following conclusions as to the source of its medicinal power. After describing, at considerable length, a certain matter which he found to abound in the water, and which he terms "*organic matter*," in the course of which he says, it "differs essentially from the organic matter of some thermal waters," he proceeds to say, "In contact with earthy sulphates, at a moderate temperature, it produces hydro-sulphuric acid, *and to this source that acid contained in the water may be traced*. This substance does not rapidly attract oxygen from the atmosphere, and from colored compounds, as some other

organic compounds do,—*the medicinal properties of this water are probably due to the action of this organic substance.* The hydro-sulphuric acid resulting from its natural action, is one of the most active substances within the reach of physicians. *There are chemical reasons for supposing that, after the water has reached the stomach, similar changes, accompanied by the production of hydro-sulphuric acid, take place.*" *

Before Mr. Hayes had communicated the above opinion, growing out of his chemical examinations, we had again and again been much interested with certain phenomena which we have termed the *secondary formation* of gas in the White sulphur water. Instances had frequently been reported to us of the water having been put into bottles after it had *lost its gas entirely*, being void both of taste and smell, and yet, after these bottles were kept for some days in a warm situation, and then opened, the water appeared equally strong of the hydro-sulphuric acid, as it is found to be fresh at the fountain.

In a shipment of this water to *Calcutta*, some years since, the "transporting company" had the water bottled in Boston, from barrels that had been filled at the spring six months before. This water, although *tasteless and inodorous*, when put into the bottles at Boston, was found, on its arrival at *Calcutta*, so strongly impregnated with the hydro-sulphuric acid gas as to render it necessary, under the direction of an intelligent gentleman of Boston, (who had witnessed this secondary

*See Hayes' Analysis, Chapter II.

formation of gas before,) to uncork the bottles for some time before using, that the excess of gas might escape.

We had also known that in the process of *thawing* sulphur water in a warm room, that had been previously frozen, sulphuretted hydrogen gas is evolved; for although the ice has neither the taste nor smell of sulphur, a strong smell of sulphuretted hydrogen gas is manifest as the ice is returning to water.

We had often observed that individuals who drank the water entirely *stale*, and void alike of *taste* and *smell*, were as liable to have eructations of sulphuretted hydrogen gas as those who drank the water fresh at the fountain. These, and other facts connected with the peculiar operations and effects of this water, when used in its ungasous form,—operations and effects which it is not necessary here to refer to, but all going to prove the *secondary* formation of gas under certain circumstances—had, in our investigations of this water, interested us exceedingly, and consequently, we were not a little pleased that Mr. Hayes' chemical examinations so fully sustained the opinions we had been led to entertain from our personal observations.

The interesting opinion of this distinguished chemist, in connexion with the numerous proofs, derived from analogy and observation, of the *secondary* formation of sulphuretted hydrogen gas in this water, would seem to be well calculated to harmonize the opinion advanced by us of the equal efficacy of the water when deprived of its gas, with the sentiment entertained by some, that the hydrogen gas is essential to its sanative operations.

The phenomena of a *secondary formation* of sulphuretted hydrogen gas in mineral waters, has not, that we are aware of, been noticed before; it certainly has not in relation to the White sulphur water, and we hope that medical gentlemen generally, who may have occasion to use the water, will direct a careful attention to this singular fact. For ourselves, we promise still further to investigate the subject, and may, at some subsequent period, lay the results of such investigation before the medical public.

Our investigation of the relative virtues of the gaseous and saline contents of this water, have fully satisfied us that the physician, in making up his judgment as to the best method of administering it in particular cases, may always properly moot the propriety of using it either *fresh* as it flows from the spring, *deprived of its gas*, or with *modified quantities*. He should bear in mind that there are cases in which it is preferable that the water should be used *stale*, and that by depriving it in *whole* or in *part* of its gas, which is its active stimulating principle, he can graduate that amount of stimulus to the system which it may demand, and this, in most cases, without lessening the *actively operative* or *alterative* effects of the water.

For some patients, the White sulphur water, as it flows from the spring, is too *stimulating*, and hence, before the *non-stimulating* method of using it was introduced, many such patients annually left the spring, either without giving the water a trial, or actually rendered worse by its stimulating influence. This class of

persons can now use the water *when deprived of its gas*, not only with impunity, but often with the happiest results. Numerous cures, effected by the use of the water for the last ten or fifteen years, have been in that class of patients by whom the water, *fresh at the spring*, could not have been used without injury. The cases of Mr. Morton, of Mississippi, and J. L. Jernagan, Esq., reported at large in a pamphlet published in 1841, are pertinent examples of such cases.

In the case of many nervous persons, and especially those whose *brain* is prone to undue excitement, we have often found it necessary, either by *freezing* or *heating* the water, to throw off its gas completely, before it could be tolerated by the system; and some of the happiest results that we have ever witnessed from the use of the water, have been achieved by it after being thus *prepared*. The cases of Mrs. H., of Georgia, and of Mr. B., of Massachusetts,* the one afflicted with disease of the stomach and chest, the other with chronic inflammation of the brain, are instances, among scores of others that might be referred to. But this is not all. With the view of guarding effectually against any errors that might arise from a defect in our own observations, we procured the assistance of several physicians, and other intelligent gentlemen, all of whom were familiar with the operations and effects of the water when drunk fresh at the spring, and who, with the view of testing the facts we have mentioned, used it themselves, and gave it to

*Reported at large in a pamphlet published in 1841.

others, *after it had been long removed from the spring,* and to all appearances *parted with its gas*; and with the same results that they had previously experienced in their own persons, or witnessed in others, from like quantities of the *fresh* water, abounding in its gas.

Our object in prescribing White sulphur water has been to pursue a discriminating or *pathological* practice. We regard it as an active and potent *medicine*, and believe that, like all such medicines, it should be used with a wise reference to the nature of the case, and the state of the system. *We must not be understood as advancing the opinion, that the White sulphur water is always to be preferred after the escape of its gas.* We entertain no such opinion; on the contrary, for a large class of visitors to that watering place, we think it preferable that they should avail themselves of the use of the water either at, or recently removed from the fountain, and as it naturally abounds in its gases. There are other cases in which the exciting influence of its gas can only be borne *in a more limited degree*, and for such, we permit its *partial escape* before using the water; while in a numerous class of cases, (and especially on first commencing the use of the water,) we esteem it indispensable to its quick and beneficial operation, that its *uncombined gas*, which gives *taste* and *smell*, should have escaped.

In recommending the White sulphur, then, to the use of the invalid, we esteem it quite as necessary to investigate the manner of using, as relates to its *fresh* or *stale* quality, as we do in reference to its dose, or the times of

administering it; and for neither would we lay down positive and absolute rules in advance; for each case must, in the nature of things, to a great extent give rules for its own government.

The great value of this water as a therapeutical agent to a large class of persons who visit the fountain, is a fact alike unquestioned and unquestionable. That in its natural condition, as it flows from the bosom of the earth, it is happily adapted to numerous cases of disease, is a truth established by upwards of sixty years' experience, as well as fully sustained by the numerous cures that are constantly occurring. The great value of the water, then, fresh as it flows from the spring, and abounding in its gas, is a truth, so far as we know, that is *unassailed*, and which, we believe, is *unassailable*. Nevertheless, that there are many cases in which the gas is not beneficial *in the amount* in which it exists in the fresh water, is a fact which our experience enables us to assert with the utmost confidence. That the water in such cases, therefore, is better without its gas than with it, follows as effect follows cause. But we do not teach that the water, *per se*, and without reference to cases, should always be preferred without its gas. We base not our practice upon any such narrow and exclusive views; nor do we deny the value of the agency of the gas in appropriate cases.

We, then, regard the *solid contents* of the White sulphur water, either in its direct or indirect influences, as the *main* agency in its medicinal efficacy. Whether the *efficacy* of the salts of the water be owing to their absorption into the system as such, or whether it depends upon

the *secondary formation* of hydro-sulphuric acid gas in the stomach, or whether it ought to be ascribed to the combination of these different agencies, we leave for others more fond of speculation to decide. We have heretofore been satisfied with the *knowledge* of the efficacy of the solid contents, without much theorizing to explain the *why* and *wherefore*.

But, it may be asked, If the gas does good in the state of a *secondary formation* in the stomach, would not a larger quantity, taken with the fresh water, do more good? We reply, that this by no means follows in that class of cases for which we specially advise the ungasous water; for our only objection to the fresh water in such cases is, that it has *too much gas*. Admitting, then, as we do, that the gas may exert an influence, we allege that in nervous and excitable cases, the quantity is not only better adapted to the system, but that any given quantity, under a *secondary formation*, excites the system less, from its gradual formation in the stomach, than if suddenly received in volume into that viscus.

Nor do we, because we recommend the ungasous water in *particular cases*, repudiate and disallow all medicinal agency of the gas as a general principle? Not at all. We simply contend that *for the treatment of certain cases*, there is *more of the stimulating gas* in the fresh water than such cases can bear with advantage or impunity; and that its excessive excitation in such cases would be prejudicial instead of beneficial.

But do we find it necessary to guard the amount of gas for every water drinker? or in effect to erect a bed of

Procrustes, and oblige every one to conform to its length? By no means. A. arrives at the springs, not much debilitated by disease, and with a firm, nervous, and muscular system; there is no excessive excitability in his case, and neither his cerebral, nervous, nor vascular system is particularly prone to be affected by stimulants or exciting medicines. We advise him to use the water as it flows from the fountain, and if he should, contrary to expectations, find that it stimulates him unpleasantly, to set it by for a short time before using.

B. calls for advice as to the manner of using the water;—his *temperament*, and the state of his cerebral, nervous, and vascular system is the opposite of A's,—his physical energies have been prostrated by disease; his nerves are *unstrung*, and, like his brain, prone to be painfully affected by stimulants or exciting medicines. We advise him to use the water after it has, either *partially* or *entirely*, parted with its gas, that is, after it has been set by for *twelve* or *eighteen hours*, as the delicacy and excitability of his system demand.

The following extract of a letter from Charles Keen, Esq., so happily represents the different effects we daily witness, from the use of the water in its ungasous state, that we insert it in elucidation of our own views.

“DEAR SIR,—When I first came to the Springs I commenced using the water *fresh at the fountain*, but was compelled to discontinue it, in consequence of its *stimulating effects upon my system*, producing at the same time *headache, dryness and burning in the skin, with constipation of the bowels*. I then had recourse to it, brought to my room in an open vessel, and let it remain until its gas

had partly escaped, before I drank it. The use of it in this way *produced the most desirable results*, and in a reasonable time did much to restore me to health, having been previously afflicted with disease of the liver and stomach, with a symptomatic affection of the lungs.

CHARLES KEEN."

In cases of inflammation of the *parenchyma* of the brain, and in other highly excitable conditions of the cerebral or nervous system, we have the water more carefully prepared, either by heating or freezing it. We have a case at this time under treatment, in the person of Mrs. F., in which there is such an extreme susceptibility of the brain, that absolute derangement for several hours was the consequence, in several instances, of taking two glasses of the water fresh from the spring; although she bears with impunity, and is improving rapidly, under *prepared* water.

In graduating the amount of stimulus, or if the gaseous theorist please, the amount of medical material to the wants of the system—in other words, *varying our prescription to suit the case*—are we departing from a scientific and improved system of practice? What would be thought of the science of a medical man, who invariably used, either the same medicine, or the same dose of any medicine, without regard to the peculiarities or constitution of his patients? Just what ought to be thought of us, or any one else, who would direct so potent an agent as White sulphur water to be used alike in every *variety* of constitution and disease.

A popular error, in relation to mineral waters, is that they exert a sort of mysterious influence on the system;

and that as nature has elaborated them in the bowels of the earth, they are, therefore, formed in the best possible manner for the cure of disease. This opinion is not more reasonable than it would be to suppose that nature has formed *antimony* in the best possible form, for the cure of disease, although we know, that in this form, under the administration of the celebrated Basil Valentine, it slew all the *monks* in his cloister.

Like all other remedial agents, potent mineral waters produce certain *effects* upon the animal economy, and these *effects* will be beneficial or injurious, as the remedy is properly or improperly employed. For instance, C., who is nervous, delicate, and excitable, and is affected with functional derangement of the organs, requires to receive for a certain time, the influence of a mineral water, which while it acts as an aperient upon his bowels, enters his circulation, courses through his system and *alterates* his deranged organs; being at the same time so bland and unstimulating in its general effects, as not to arouse any one, or a series of organs into undue excitement and rebellion against the common good. Such a remedy is found in the *stale* and *ungaseous* White sulphur water.

D. requires the very same effects to be exerted upon his diseased organs,—but he is of very different temperament and constitution. His brain and nerves are prone to no unnatural excitement, and he is unaffected with the thousand physical sensibilities to which C. is subject. D. may take the White sulphur water with impunity and advantage, in any manner most agreeable

to him. In his case its exciting gas constitutes no objection to its use. The good effects of the water, so differently used by C. and D., will be the same, *because the difference in their cases makes the difference in the use of the remedy.*

In conclusion let us for a moment look into the reasonableness of ascribing medicinal efficiency to the saline matter of mineral waters, and inquire what the most distinguished physicians have thought on this subject.

The analysis of this water shows it to be composed of several of the more active alteratives of the *Materia Medica*; and this alone would seem to settle the question of its alterative power. To what medicine, next to mercury, do we look as the most certain alterative? In the mineral kingdom, to *iodine* certainly;—this we have in the White sulphur water. Sulphur too, is a powerful alterative. This we have in the form of *precipitated sulphur*. We have also its combinations in the active forms of sulphate of lime, sulph. magnesia, sulph. soda, and sulph. hyd. sodium. We, also, there find various carbonates and chlorides, all more or less alterative in their character. These salts exist in the water in the most minute form of subdivision that can be conceived, or, in other words, in solution; they are absorbed into the mass of the circulation, course through the whole system, applying themselves as appropriate agents to diseased organs and tissues.

Professor *Mütter*, of Philadelphia, when speaking of the different ingredients of mineral waters, says, “It is general admitted, I believe, that when absorbed and con-

veyed through the economy, they have the property of changing the consistence as well as the composition of our fluids, thereby accomplishing what is called an *alterative action*."

Dr. *John Bell*, confessedly the standard authority in the United States, on such subjects, in his admirable work on "Baths and Mineral Waters," bears the following emphatic testimony to the virtues of the saline ingredients in mineral waters: "When taken into the stomach or intestines, they (mineral waters) have a double operation, the one common, and generally uniform, depending on their basis, or their pure watery vehicle; the other proper and peculiar, *being the effect of their saline or mineral substances held in solution*." The same author continues to remark, "that the small proportion of foreign ingredients in mineral waters, compared with the quantity of the same substances prescribed in medical practice, has created surprise in the minds of some, and incredulity in others, at the alleged efficacy of the former, when the latter, in so much larger doses, has been attended with comparatively trifling results. In reply to this it is only necessary to remind my readers of a few tolerably familiar principles in physiology and therapeutics. First, we know that the action of many remedial agents, chiefly of the stimulant and narcotic tribes, is primarily and almost exclusively exerted on the stomach, and by sympathy on the rest of the system. Solids, vegetable and metallic, in small bulk, and taken without much dilution, are nearly equally local, in their first effects, with the additional application to the surface of

the intestines, but in either case their action is diffused by the same law of sympathy. In the second place, as the whole mucous surface of the stomach and intestines has this great sensibility to the impression of ingesta of every kind, especially those of a remedial nature, it is very obvious that the sensations produced by these means will be active, and their diffusion through the system by nervous agency or sympathy prompt and general, in proportion to the extent of the surface acted on. Now, mineral waters taken usually in considerable quantity, so as to fill the stomach, and pass promptly into the intestines, are so applied to these parts, as to enable their *saline* and *metallic* ingredients to act on almost the entire surface of the digestive tube, and of course to produce all the effects which we could desire from such ingredients; effects not to be expected from them, even though in larger quantities, when applied but to a few points, or limited extent of surface. Finally, the experiments of late years have most satisfactorily established the fact of the *absorption* of various substances, nutritious and medicinal, and above all, fluids, by the veins of the stomach and intestines, as well as by the lacteals, without, in many cases, those substances losing their distinctive character: nay, further, that the peculiar and specific action and effects of the various agents, are as operative when injected into the veins as when taken into the stomach.

It is then hardly necessary, after such preliminaries, to draw the inference in which most reader will have anticipated me; namely, that the *absorption of the mineral water, drunk in large quantities*, must be prompt and

abundant,—and consequently that the *different ingredients of which the fluid was the memstruum, being thus thrown into the circulation*, will produce varied and decisive results, such as could not be expected from any other mode of administration.”

Dr. Bell, after laying down the positions we have just quoted, makes this additional reflection upon the subject, which we commenced to such as form hasty theories and opinions, as to the virtues of mineral waters; and we will add, as to the virtues of the *different ingredients* of mineral waters, “*that it is only by multiplied facts, that is, by experience of its use, that we can speak positively of its virtues.*”

CHAPTER IV.

GENERAL DIRECTIONS FOR THE USE OF THE WHITE SULPHUR WATER.

MUCH that might have been said under this head, has been anticipated in the chapter on "mineral waters in general."

1. It is scarcely necessary to remark after all that has heretofore been said of the necessity of using MINERAL WATERS, with strict reference to the nature of the disease in which they are employed, and of the injurious consequences, often arising from their careless or improper use, that it is not designed that the directions herein given, shall be considered sufficient to guide in the use of the White sulphur water in all cases, nor in any difficult and important case to the exclusion of the more minute and specific directions which such case may demand. It is my intention rather to indicate the *general rules*, which ordinarily must be observed in its administration, than to lay down definite directions which shall apply to all cases.

Every one who is familiar with the various types of disease, and with the peculiarities and radical difference in different constitutions and temperaments, modifying

and influencing diseased action, will at once be satisfied of the impossibility of laying down any *absolute* rule for the use of a potent medicine, that should be strictly adhered to in all cases. Each case, to a certain extent, must, with this, as with all other medicinal agents, indicate the proper dose, and the proper manner of administration.

2. As has been already remarked, it is very common to attribute the beneficial effects of mineral waters to their immediate *sensible* and *obvious* effects upon the human body. I have already shown this opinion to be erroneous: that so far from it being true that mineral waters uniformly manifest their beneficial effects by their *active operations*—that such operations frequently delay, or entirely prevent the good which they otherwise would have accomplished through the medium of their *alterative* effects.

Those who desire to obtain the *alterative* operations of the water, must, as a *general rule*, take it in small quantities, and continue its use for such length of time as will be sufficient, in common spring parlance, to “saturate the system.” Patients thus using the water are apt, however, to become restless and dissatisfied for the first few days; so much so, that it is often difficult to reconcile them to this manner of administration; because, say they, “it is doing me no good:” they wish to see such tokens of activity as are given by prompt and vigorous purgation. In a general way, I prefer that the water should act sufficiently on the bowels, even when given in reference to its

alterative effects, to obviate the necessity of giving any other medicine for that purpose: but it is often better to use some mild purgative from the shops to effect this object for the first few days, than that the quantity of water should be greatly increased. This advice we know is very different from that generally given, and but too willingly pursued by those who receive it.

Comparatively but few strangers who visit the White Sulphur, are aware of the potency of its waters, and under the false impression that no harm will arise from any quantity that the stomach will bear, many are induced to use them in quantities that not only defeat their sanative effects, but do much positive injury.

I have just remarked that it is often difficult to reconcile patients to the use of small and inoperative quantities of this water. Many such instances have come under my observation, and some in which painful experience alone could control. A prominent instance of this kind, occurred in my practice several years since, in the person of Mr. C——. He was under treatment for a complicated stomach and neuralgic affection, and had used the water twelve days in small doses with happy effect,—he was lodging at one of the adjoining hotels, and believing that he was doing well, I did not see him for two or three days, and then casually met with him. I was astonished to find him greatly changed for the worse. His appetite, before good, had almost entirely ceased; his system was irritable and feverish; could not sleep at night; and in every respect was sensibly worse; had begun to despair, and proposed leaving for home, as he was “satisfied the

water was not agreeing with him." I accused him of impropriety in diet, or of other imprudences, but he satisfied me that he had followed my directions in all "such things," but that he had so far varied from my advice in the use of the water, as to take *sixteen* instead of *six* glasses daily for the last few days. I advised this gentleman, as I would all others who have committed a similar "debauch" on cold water, to discontinue its use entirely for a time—take some cooling opening medicines, and then return to the use of it in rational doses. This plan was pursued by Mr. C., and with the happiest results.

The opinion is as common as it is erroneous, among those who visit mineral waters, that they are to be benefited in proportion to the quantity they drink. Persons in health, or not debilitated by disease, do sometimes indulge in enormously large and long-continued potations of such waters with apparent impunity; but it by no means follows, that those whose stomachs are enervated by disease, and whose general health is much enfeebled, can indulge the habit with equal safety. In such stomachs, the effects of inordinate distension are always painful and injurious, while the sudden diminution of the temperature, from large quantities of cold fluid suddenly thrown into the system, can scarcely fail to prove injurious.

We sometimes meet with another class of visitors who err just as much on the opposite extreme: they arrive at the springs, and place themselves under the government of a *recipe* for the use of the water, drawn up,

most commonly, by some distant medical adviser, who has never himself had an opportunity of observing its effects; and such we not unfrequently see taking this *aqua medicinalis* in literally *broken doses*;—in quantities altogether insufficient to produce any sanative effect.

3. QUANTITY OF THE WATER TO BE USED.

The quantity of the water to be taken in the course of the day, depends, in a very great degree, upon the nature of the case and the peculiar condition of the system at the time of taking it. Comparatively but few invalids should use, *at first*, more than from four to eight glasses during the day; in some instances, not more than two or three. In most cases these quantities may be gradually increased to ten or twelve glasses. In a general way, this should be considered the maximum quantity, even for robust persons, though there are cases in which the amount may be still further enlarged.

4. PERIODS FOR THE USE OF THE WATER, &c.

The periods at which the water should be used is a matter of no little importance. A common practice at the springs is to drink it a short time before each meal, morning, noon, and afternoon. In some cases this manner of using the water is to be preferred; in others, it is better that the whole that is taken in the course of the day, be divided into *two parts*, and taken, either in the morning before breakfast, and a short time before dinner;

or, in the morning, and a short time before going to bed at night.

Advantage is very seldom secured from the water taken before supper, and often it is prejudicial from its proneness to run off by the kidneys. Observations lead me to believe that, as a general rule, the water taken *before breakfast*, and *before going to bed at night*, is most serviceable to a majority of invalids; though there are some who cannot very well bear it at night, and attention should always be paid to this circumstance.

It should not be used immediately before or after a meal; nor should glass after glass ordinarily be taken in *rapid succession*. By this reprehensible practice the stomach is often overtaken, and immediately-unpleasant consequences result, such as *eructations*, *giddiness*, unpleasant *excitation*, and a painful sense of fullness, and sometimes a permanent injury of the stomach with *atonic dyspepsia*. Such a course also disposes the water to run off hastily by the kidneys—an operation for which it has naturally a strong tendency, and which often embarrasses in its administration.

Now and then advantage is derived from using the water at meals, and sometimes a *tolerance* is established for it in this way, which cannot be achieved by any other. In most cases, however, it is very unpleasant to the invalid to use it with his meals.

I cannot leave this branch of the subject without earnestly urging upon invalids the importance of strict attention as to the *manner* and *periods* of using the White sulphur water;—much, very much, of its curative power

depends upon the use of proper quantities and upon the periods of administration. A series of comparative experiments with the water as to *times of using, quantities used, &c., &c.*, has fully satisfied me, that its influences on disease are as much modified by the different methods of using it as we find to be the case with mercury, or any other article in general use by the physician.*

5. LENGTH OF TIME TO USE THE WATER.

The length of time the invalid should continue the use of this water, depends entirely upon the *nature of the case*,—the manner in which it has been used, and the *susceptibilities of the system*. Most erroneous notions exist in a large portion of the public mind upon this subject. Many believe that it will exert all its good influences; or, as they say, will “saturate the system,” in eight or ten days; others allow it two, three, and four weeks to effect the same object. Now, the truth is that the time, in which the ultimate good effects of the water are accomplished, always depends, as before remarked, upon circumstances;—*upon the nature of the case,—the manner in which the water has been used, and upon the susceptibilities of the system*. Some persons will be thrown as fully under its influence in two weeks as others will be in four; and yet it may be equally well adapted to each case. In every case of its administration, respect should rather be had to the *effects* it is producing, than to the time it has been used. It never cures diseases until it has first produced certain *effects* upon the animal economy—EFFECTS

which can always be distinguished by the practiced observer during the progress of their operation, with the same certainty that we can distinguish the effects under the alterative operation of mercury.

It often happens that persons to whose cases the water is well adapted, use it assiduously for three or four weeks, without deriving a particle of permanent benefit;—and all in consequence of so improperly using it, both in time and quantity, as to force it out of the system by the emunctories, without “touching the case,”—without being permitted to tarry long enough to produce any of those *salutary effects* which must precede a cure.

It cannot, therefore, be too earnestly urged upon those who are using the water for any *obstinate disease*, to have their attention fixed upon the *effects* which it is producing, or has produced, rather than upon a given number of days, in which they may have been taught to believe their systems would become changed or “saturated.”

Dr. Armstrong found that from *six to twelve weeks* were often required for Harrowgate and Dinsdale waters to produce their full curative effects; and we occasionally see similar time required for the development of the full sanative effects of this water. In some cases, however, where the system was previously well prepared, and the subsequent management judicious, the White sulphur water will produce its full *alterative* operations in about two weeks. Such cases, however, are rare, and it will generally be found that from *three to six weeks*, or even longer, must elapse under its use, before those “*profound changes*” are wrought which precede and ensure a return

to health. These remarks, as far as they relate to *time*, are applicable to all our mineral waters that cure disease in virtue of their *alterative* action; for if they be true as to the *Harrowgate*;* admittedly one of the strongest sulphur waters in the world, and of the *White Sulphur*, scarcely, if at all inferior in strength to that celebrated

* NOTE.—The *Harrowgate* and *White Sulphur waters* differ very materially. The author visited and spent some time at *Harrowgate* in 1851, and expresses the opinion, as the result of his own personal observations and enquiries at the Springs; that the *Harrowgate Sulphur Waters*, while they are stronger than the *White Sulphur* in some of the *salts* common to both, are nevertheless inferior to the latter in *alterative* potency and efficacy.

There are no less than *fourteen* different Wells at *Harrowgate*, all of which are more or less resorted to on account of their medical properties. Six of them are impregnated with sulphuretted hydrogen; five of them are pure chalybeates; one is a saline chalybeate; and two may be considered as simply saline, since they contain little iron and are destitute of sulphuretted hydrogen.

The *Old Sulphur Well*, the strongest of this class of waters at *Harrowgate*, is beautifully transparent and sparkling; of the temperature of 49°, supposed to be the mean temperature of that part of *Yorkshire*. By analysis, it is found to contain in an imperial gallon—

Chloride of sodium, - - - -	867.0	grains.
Chloride of calcium, - - - -	87.0	"
Chloride of magnesium, - - - -	42.5	"
Bi-carbonate of soda, - - - -	20.0	"
	<hr/>	
	1016.5	"
	<hr/>	
Sulph. hydrogen gas, - - - -	15.64	cub. in.
Carbonate acid gas, - - - -	2.72	"
Carburetted hydrogen gas, - - - -	6.80	"
Azotic gas, - - - -	8.84	"
	<hr/>	
	34.00	
	<hr/>	

European spring, they cannot be less true of waters of the same class, but inferior in point of strength.

When sulphurous waters are prescribed, their operations should be narrowly watched, and if they produce untoward and unpleasant symptoms, such as headache, gastric distress, furred tongue, quick and irritable pulse, with costive bowels and loss of appetite, they should ordinarily be temporarily, or permanently discontinued, as circumstances may demand. The temporary discontinuance of the water under the circumstances just supposed, and the use of a brisk cathartic, or the lancet, if the state of the blood vessels demand it, will generally enable us to return to its use in a day or two with safety and success.

6. PREVIOUS PREPARATION FOR THE USE OF THE WATER.

Some preparation of the system preceding the use of the water, is often, though not always, necessary for its safe and advantageous administration. Most persons, after the excitement usual to the travel in visiting the springs, will be profited by taking some gentle purgative, and by the use of a light and cooling diet for a day or two before the water is freely used. Those in feeble health should always commence the use of the water with great caution, and generally in its *least stimulating form*, that is, after it has set in an open vessel until its gas has escaped. If, with these precautions, it fail to exert its desired effects, or produces unpleasant symp-

toms, the medical adviser, to whom it would be necessary to resort in such an emergency, would, of course, prescribe according to circumstances; nor can any general rule be given as respects the treatment that would be necessary in such a case; one patient often requiring treatment essentially different from another.

Invalids, however, ought not to despair of the use of the water, and of its adaptation to their cases, simply because it may, at first, or even in the progress of its use, display some vagrant and improper action upon the system. *Errors in its action, if they may so be termed, generally arise from errors in its use, and may generally be prevented by a change in the method of administration, or by some medical adjuvants, so that the water may be safely continued.*

7. EFFECTS OF THE WATER ON THE SYSTEM.

The sensible medicinal effects of the water are prominently displayed in its action upon the Bowels, Liver, Kidneys, and Skin, and when drunk fresh at the fountain, by a lively Stimulant effect upon the system in general, and upon the brain in particular.

Proper quantities, taken in the morning before breakfast, will often exert some *cathartic* effect in the course of the day. The liver is, in most instances, brought under its influences, from a few days perseverance in the use of it, as will be manifest from the character of the excretions. Its action upon the *kidneys* is readily induced, and we occasionally see it exerting at the same

time, both a diuretic and cathartic operation. Very commonly the exhalent vessels of the skin are stimulated to increased *perspiration*; but its full effects upon the surface, manifested not only by increased but *sulphurous perspiration*, do not often occur until it has been freely used for several weeks, nor until the secretory system generally has been brought under its influence.

As the system is brought under the influence of the water, the appetite and the ability to digest food are sensibly augmented. The spirits become buoyant and cheerful, with increased desire for social company and amusements.

Exercise, previously irksome, is now enjoyed without fatigue, and so great is the change in the whole man, that the patient often expresses his appreciation of it by declaring that he is "a new man,"—and so he is in reference to his physical and social feelings.

8. USE OF MEDICINES.

Advantage is often derived during the administration of this water, from the judicious use of appropriate medicinal adjuncts, whose tendency is to give to the water a specific direction upon the organs, or to restrain some untoward and improper action.

In most obstinate cases in which it is desirable to procure the specific operations of the water on particular organs, much time, to say the least of it, is saved by uniting with the water for a few days, some adjuvant that *specifically determines to such organs*. By such a

procedure, the water may be *invited* to the organs and establish its action upon them much sooner than it would without such aid.

In diseases of the abdominal viscera, generally, the patient may often economise a week or more of the time, which otherwise it would be necessary for him to use the water, by the proper introduction of some medical adjunct to the end that has been intimated. The milder mercurials, in union with some of the vegetable purgatives, often answer exceedingly well in such cases.

I believe that the proportion of invalids, especially of such as are suffering with Biliary derangements, that will derive increased benefit from the employment of mild alterative cathartics, to precede or accompany the use of the White sulphur water, is as ten to one at least,—and that, in nine cases out of ten, the subject of biliary derangements, will economise a week or ten days in the necessary use of the water, by the occasional use of such medicines. As this is a matter of importance to many invalids, I remark, that of the varied forms of purgatives which I have tried, none have proved so generally beneficial as the following:

R. Extract Colocinth Comp.	ʒ i ss.
Blue Mass,	ʒ ii ss.
Ant. Tart.,	gr. ij.
Oil Caraway,	gtt. vj.

Mix and make 25 pills.

The dose must be regulated by the effects produced. One or two stools should be procured each day, and ordinarily two of the pills will produce this effect, until the

water has time to alterate the liver and supercede their use altogether.

During the same period, advantage may generally be derived from the use of some of the vegetable bitter extracts or infusions, such as the Quassia, Gentian or Colombo.

A most valuable aid in the use of this water is the *tepid, warm, or hot* sulphur bath. We cannot here enter into particular directions for the use of such baths. We just observe that they may be made a most important auxiliary in a large circle of cases, if timely and otherwise properly employed.

Hot sulphur bathing, indeed hot bathing of any kind is a remedy potent and positive in its influences;—capable of effecting much good when judiciously employed, or corresponding evil when improperly used. Like potent mineral waters, it is often used empirically and improperly, and, hence, becomes a curse when it should have been a blessing. It is a remedy essentially revolutionary in its character,—never negative, but always producing positive results upon the economy for good or for evil.

The condition of the system indicates with sufficient clearness the time for commencing, and the temperature of the bath. In most cases, the *bathing point* is as clearly indicated under a course of sulphur waters as the blistering or bleeding point is in inflammations, and the value of the remedy is much dependent upon such timely employment. When the water has well opened the bowels, has found its way into the general circula-

tion, softening the skin and calming the irritation of the arterial system, the sulphur baths may be used with great confidence in their efficacy.

Hot baths should never be taken during the existence of febrile excitement. They should be used on an empty stomach, and, as a general rule, before the decline of the day, and their temperature always carefully regulated to suit the nature of the case and the state of the system.

9. CHANGING FROM SPRING TO SPRING.

A very common error in the use of Mineral Waters, is the belief that the patient should often change from one water to another, and that no one should be used longer than some given number of days, and this without any reference to its effects upon the system. This absurd notion leads many persons to fly from spring to spring, performing in a few weeks or days the circuit of the whole "*spring region*," and without remaining long enough at any one to receive permanent benefit. Now, if the position heretofore laid down be correct, that "mineral waters, like all other medicines, cure disease by exerting *effects* upon the animal economy," the impropriety will be obvious to all, of rapidly hastening from one fountain to another, without tarrying long enough at any to receive those *effects* upon the body which are necessary to a cure. Such a water-drinker acts like the "maid of all works," always busy, but accomplishing nothing.

What would be thought of the physician, who, having decided that his patient must undergo the influence of alterative action upon his system, and having put him upon a course of mercury to accomplish this object, should, just before this drug would have accomplished the end, discontinue its use, and put him upon iodine; and just as this was about to alterate the system, abandon it and substitute sarsaparilla; and thus, from one drug to another, running through the whole routine of alterative remedies, without giving any sufficient time to effect the object. This would surely be an absurd method of practice; and yet it would not be more absurd than the course we often see pursued by visitors at our springs,—who literally waste their whole time “in the mountains,” and debar themselves of all permanent good, by spending their time rather *among* the springs, than at any one of them. The state of mind which leads invalids thus improperly to act, is often induced from the random opinions or injudicious advice of their fellow sufferers whom they meet with at the various watering places. One will tell another that they have seen or heard of some person that was cured at once, at this, that, or the other spring. You will be assured by one, that the “White” is the place; by another, that the “Salt” is better suited to your case; a third informs you that you would do better at the “Blue;” while others will tell you there is nothing like the “Red,” the “Sweet,” the “Warm,” the “Hot.” Thus are the minds of persons frequently perplexed, until they come to the conclusion to “make the rounds” and try them all for a day or two. In this way the hapless

invalid is often led to fritter away the whole time he remains in the mountains, without deriving permanent advantage from "*all the springs,*" when, very probably, the time he had fruitlessly spent at them all, would have been sufficient to have cured him at *any one of them.*

Let it be distinctly understood that these remarks are meant for the serious invalid only. Persons who visit the springs for amusement or pleasure, or those who come merely as a relaxation from business, and require only the tone which travel and mountain air can give, may, with great propriety, go from spring to spring, and spend their time just where they are the happiest. But for the invalid *who has something for the waters to do,* it is not so; he should first wisely determine which of the springs is best calculated to cure his disease; and having settled this important question, should persevere in the use of that particular water; carefully watching its effects, and "not be carried about by every wind of doctrine." If the appropriate agent for his cure be the "Blue," the "Red," the "Salt," the "White," let him use it to the exclusion of all others, either until its inapplicability has been proven, or until it produces the specific effects which he desires.

10. DRESS.

Delicate persons visiting the mountains for health, should be particularly cautious on the subject of dress. It is rather more easy to dress with the ever varying fashions, than to dress appropriately for *all the weather*

that happens in our mountains during the "watering seasons." The weather is often so variable and uncertain as to make it a good general rule for the invalid to dress without reference to any particular state of it, but always warm and comfortable, with (in most cases) but little change from his dress in the spring season before he reached the mountains.

Some invalids will be benefitted by constantly wearing soft flannel next the skin, not only because it keeps up a more uniform temperature than linen, but also because of the gentle excitement it occasions on the surface of the body. The best summer dress, however, which we have ever seen worn next the body—and always a valuable *accompaniment of flannel*, winter and summer, is *woven silk*. We are led to believe from experience, that silk, worn next the skin, is the very best protection we can command against the influence of cold. In *rheumatism* and *neuralgia*, a covering of woven silk is a valuable *remedy*; and for all delicate persons, and for those peculiarly susceptible to colds, it is a most invaluable shield to the body. The superiority of silk over every other covering is probably owing to its peculiarity as a non-conductor of electricity; but whether this be so or not, is left to the astute medical philosopher to determine; it is sufficient for us to know the fact of its superior efficacy, without stopping to account for it.

Since the above paragraph was written, we have had six years additional observation of the use of silk as a covering for delicate and susceptible persons; and the result is, that we are more than ever convinced of its

great superiority. Indeed, such persons, while in our variable climate, and under the influence of Sulphur Waters that increase the susceptibility of the system, cannot by any other dress, so effectually secure themselves against the encroachment of colds, as by the use of silk sacks worn next the skin. Nor ought this precaution to be neglected by such, especially, as the existence of a cold always renders the use of the waters less efficacious, and sometimes positively injurious, for the time it may continue.

11. DIET, EXERCISE, &C.

Diet and exercise during the use of mineral water, are of too much importance to be passed over without notice. It is to be regretted that so little as relates to diet, is placed within the power of the invalid at our watering places generally. Usually there is but one general system of living at all such places, and this invariably a system very illy adapted to the invalid.

Persons using the White sulphur water may ordinarily, indulge in moderation, in that diet which they found to agree best with them at home. Imprudencies as to the kind of food, or of excess in its quantity, should be as carefully avoided by the invalid while using the water, as when under treatment by other medical means. This however is by no means commonly the case.

The use of the water generally removes acidity from the stomach and sharpens both the appetite and the digestion; hence it is often really difficult for the invalid to

restrain himself at table, and we might be astonished to see the quantity and quality of food he sometimes consumes. Dyspeptics, as might be expected, suffer most from impropriety in diet: indeed we are persuaded that more than half the good this water would otherwise achieve in such cases, is prevented by impropriety in diet. But the evil of over and improper feeding, although, most manifest in dyspeptics, is by no means confined to such. Upon the subject of diet Dr. John Bell has well observed, that "slow and laborious digestion, heartburn, disordered kidneys, discoloration of the skin, and some affections of the liver, often the effects of excessive eating and drinking alone, are not to be readily cured by visiting mineral springs, and keeping up the same kind of living." If they, and the remark applies to all invalids, be sincerely desirous of gaining health, they will most successfully do so by simplifying their regimen, and abstaining from all those appliances to force appetite and tickle the taste which they had formerly used in the shape of ardent spirits, wine, and malt liquors, fried meats, pastry, and unripe fruits. In fine, we may sum up in a few words, by repeating after the great father of medicine, that *all excesses are dangerous*; a maxim every one must have fully tested.

Eating much in the evening, sitting up late, prolonged and immoderate dancing, remaining too long in the cool air of the evening, are often the cause of many unpleasant complaints, which might have been easily prevented.

The passions are to be kept in check by avoiding every exciting cause, either of the boisterous or melancholy kind. A giddy chase after pleasure and luxurious indul-

gence, are scarcely more reprehensible than an indolent and secluded life. The kind and amount of exercise to be indulged in by the patient, must of course be regulated by the nature of his disease and the attendant circumstances: walking, riding on horseback or in a carriage, may be selected, as one or the other may be best adapted to the physical ability, and to the inclinations of the patient; but in some form or other, all whose strength will admit of it should take regular exercise in good weather.

CHAPTER V.

SOME ACCOUNT OF THE DISEASES IN WHICH THE WHITE SULPHUR WATERS HAVE BEEN FOUND SUCCESSFUL, WITH DIRECTIONS FOR THEIR USE.

ALL Mineral waters, as before remarked, are stimulants to a greater or less degree, and consequently are inapplicable to the treatment of acute, or highly inflammatory diseases. This remark is especially true as relates to the White sulphur, particularly when drunk fresh at the spring, and abounding in its stimulating gas. It is true, as before shown, that when its exciting gas has flown off, it becomes far less stimulating, and may be used with safety and success in cases, to which in its perfectly fresh state, it would be totally unadapted. But even in its least stimulating form, it is inadmissible for excited or febrile conditions of the system; and especially to cases of inflammatory action;—at least, until the violence of such action has been subdued by other and appropriate agents.

It is to chronic affections of the organic system that the White sulphur water is peculiarly applicable.

Various diseases of the stomach, liver, spleen, kidneys, and bladder, as well as some derangements of the brain and nervous system generally, are treated successfully by

this agent. To the various affections of the skin, unattended with active inflammation; to chronic affections of the bowels, and to gout and rheumatism, it is well adapted. In hæmorrhoids; in some of the chronic affections of the womb; in chlorosis and other kindred female disorders; in mercurial sequelæ, and especially in the secondary forms of lues, and ill-conditioned ulcers in depraved constitutions, it constitutes the most valuable agent to which the invalid can resort.

If the individual about to submit himself to the use of this water, is suffering from fullness and tension about the head, or pain with a sense of tightness in the chest or side; he should obtain relief from these symptoms before entering upon its use. If his tongue be white, or heavily coated; or, if he be continuously or periodically feverish, or have that peculiar lassitude, with gastric distress, manifesting recent or acute biliary accumulations, he should avoid its use until, by proper medical treatment, his biliary organs are emulged, and his system prepared for its reception. Much suffering, on the one hand, would be avoided, and a far larger amount of good, on the other, would be achieved, if visitors were perfectly aware of, and carefully mindful of these facts.

It is an every-day occurrence during the watering season at the "White," for persons to seek medical advice, for the first time, after they have been using the water for days, perhaps for weeks, and it is then sought because of vagrant operations, or injurious effects of the water. In most such cases there will be found, upon examination, either the existence of some of the symptoms just men-

tioned, or evidences of *local inflammation* in some part of the body, sufficient to prevent the constitutional efficacy of the remedy. We are often struck with the control which an apparently inconsiderable local inflammation will exert in preventing the constitutional effects of mineral waters. To remove such local determinations where they exist, or greatly to lessen their activity, is all-important to secure the constitutional effects of sulphur water.

It is necessary to reflect that Mineral Waters, like all medicinal substances, are adapted only to certain diseases, and that the more powerfully they act, the greater mischief they are capable of doing if improperly administered; for, if it be asserted that they are capable of doing good only, without the power of doing harm, we may be satisfied that their qualities are too insignificant to merit notice.

This consideration indicates the necessity of some caution in the use of waters which possess any sanative powers, and suggests the propriety in all doubtful cases, of consulting some professional man familiar with the subject whose judgment may determine how far the water is applicable to each individual case, and in what manner it should be employed to be most efficacious.

A long list of successful cases that have fallen under my care, adapted to illustrate the beneficial effects of these waters, in some of the more general and important maladies, might perhaps, without impropriety, be inserted here; but I am induced to omit the insertion, because I am aware with what suspicion medical cases, however well

authenticated, are received from an individual, when they are given to favor any particular practice, or to recommend any particular water. Besides, the insertion of names is objectionable in all private practice, and I consider the reputation of the waters to be now too well established to require such assistance.

But, anxious to obviate all possibility of mistake, and to prevent the reputation of a remedy so well deserving public confidence from being sullied by failures, on account of misapplication and improper collateral treatment, I shall add to a catalogue of the leading diseases to which these Mineral Springs are more immediately adapted, a few succinct directions for the rational observance of such cautions as well be most likely to increase their salutary efficacy. And this, from local situation, and the ample experience of near twenty years, I flatter myself, I am in some measure capable of doing.

DYSPEPSIA.

In this common and annoying disease, consisting in derangement of function in the organs of digestion, the White sulphur water has long maintained a high character. In this affection, especially in its confirmed stage, we almost invariably find the biliary secretions either vitiated in quality or deficient in quantity; constituting an important, and not unfrequently an embarrassing, feature in its treatment: nor can we ordinarily succeed in effecting a cure, until the secretory functions of the liver are restored to a natural and healthy condition.

The beneficial effects of this water in *dyspepsia*, seem to result mainly from its sanative action upon the liver. To *alterate* the secretory functions of that organ, and establish a flow of healthy bile, is one of the great fortes of the water, and almost an invariable result of its persevering use.

That the water benefits the stomach in many cases by a primary action,—first, as an alkali and stimulant, neutralizing its acidity, and imparting directly a tone and energy to the viscus—and, secondly, by a positive influence on its glandular structure, occasioning a healthy flow of gastric juice, we do not doubt. Still, the most decided and permanent benefits derived by dyspeptics, have always seemed to us to be the result of full alterative impressions upon the liver. Certain it is, that without such an influence upon that organ, the dyspeptic can never be confident of the permanency of his relief. It would be well for sufferers under this distressing malady to bear this in mind, and not abandon the use of the water, as many do, until it has fully impressed the liver; nor be discouraged at its apparent want of efficacy until it has been used sufficiently long to effect this object.

In the course of our observations, we have often alluded to the *alterative effects* of sulphur water on the liver as affording a most important indication of its efficacy. It may be asked, how shall it be known when this alterative effect has taken place? We reply, you are to judge of this mainly by the character of the excretions, and by all the indications by which you judge of the alterative effects of mercury upon the same organ.

Dyspeptics often grievously err in the use of the water, by mistaking its primary effects, which are generally transitory, for a permanent cure; and hence abandon it before its *permanent sanative* action has been obtained. Such patients not unfrequently, after taking the water for a week or ten days, find that the acidity of the stomach has been relieved, their appetite increased, and that they are able to "eat every thing before them." This is all very well, as far as it goes, and if their attack be recent and slight, this comfortable state of things may continue; but it will much oftener turn out to be merely the alkaline and stimulant influence of the water upon the coats of the stomach, imparting this generous tone to the viscus for a season, and which in all probability is destined to lure them into an excess of diet and other imprudences, which will, ere long, develope to them the fact, that the monster was "scotched, not killed."

The importance of the subject urges us to repeat, that the *confirmed dyspeptic* cannot too forcibly impress upon his mind, the essential practical truth, that the *alterative* influences of the water must be exerted upon his system before he can have assurance of permanent good from its use.

As costiveness and irregularity of bowels are generally found in dyspepsia, some of the warm laxatives may be occasionally used for a short time after commencing the use of the water. And, as the disease is seldom unaccompanied by chronic obstructions, or at least a torpid secretion in the liver, it will generally be found advisable

to combine a slight mercurial with the medicine, intended to act slowly on the bowels, and for this purpose pills, composed of aloes, ex. colocynth and blue mass, taken in such doses as to keep up a regular peristaltic motion in the bowels, will be found to answer very well. At the same time, it will be found advantageous to use some of the bitter vegetable tonics a short time before each meal.

The water, as a general rule in dyspepsia, should be taken in *moderate* or small quantities, and with less or more of its gaseous contents, agreeably to the excitability of the system, and the amount of excitation which it may be desirable to produce. From *four* to *eight* glasses in the course of the day is the quantity that is generally found most serviceable in dyspeptic cases.

Where the nervous system bears the fresh water with impunity, we prefer that the dyspeptic take it soon after it has been removed from the spring. With many, however, there is found too much excitability for the water perfectly fresh; such, therefore, should use it more or less stale, as their system will bear it.

GASTRALGIA, or *Nervous Dyspepsia*, is a form of disease occasionally met with at our watering places, and is an affection often of difficult and uncertain management, whatever be the remedies employed. When it is purely functional and disconnected with organic lesion, the White sulphur, administered in moderate quantities, and in its least stimulating form, is a safe, and sometimes an efficacious remedy. We usually prefer, however, to con-

tinue its use, at first, no longer than may be necessary to bring the bowels and the secretory action of the liver under its influence, and then give the patient the advantage of the tonic influence of the waters of the Sweet, or Red Chalybeate, and their *champaigne* baths. Advantage is often derived by alternating during the season between the latter springs and the White, or some other sulphur water.

PYROSIS, or *Water Brash*, is another form of stomach disease, in which this water is occasionally used, and sometimes with very good effects. Indeed, it is rarely used in water brash without benefit. In this form of disease, the water should never be taken in large and often repeated draughts: from such a course increased debility of the stomach, with other deleterious consequences, would rarely fail to follow.

When good reasons exist for supposing the stomach to be *schirrous* or *cancerous*, the patient should carefully abstain from the use of this, or any of our mineral waters. Two cases have come under our notice, in which much injury was received from their use, one from the Alum water, the other from this.

It is scarcely necessary to say to the intelligent reader, that dyspepsia is rarely cured, whatever be the remedies used, without a careful attention to *diet*. By care in diet, we by no means wish to be understood, that the patient is to confine himself to the *stereotyped recipe* of "black tea and toast," and other light slops—the tendency of which is rather to enervate than invigorate the

stomach—or that, in his mind's eye, he is ever to be weighing or measuring the quantity of food he is to consume at each meal. It has rarely been our good fortune to see any one cured of confirmed dyspepsia, who had been long kept on the miserably attenuated debilitating slops, so often recommended for such; and especially one who weighs, if not his appetite, at least his aptitude to eat by *avoir du pois*. The fastidious particularity *secundum artem*, in such cases, that is often witnessed, serves admirably to impress upon a mind disposed from the nature of the case to be distempered, the appalling truth that mortal disease is ever threatening; to induce low spirits and despondency, and to superadd new horrors to a disease of itself sufficiently horrible.

The diet in dyspepsia should always be appropriate to the wants and ability of the stomach. In a majority of cases, the dyspeptic will more readily digest the lighter meats than the vegetable matter, upon which they generally feed; and in such case there is nothing more proper than light meats. Fresh eggs, properly prepared, may always be taken. Coarse rye bread is often the best diet of the kind. When wheat bread is used, it should always be well lightened and stale. Bread of corn, popular as a diet in Virginia, is found to agree admirably with some dyspeptics. Milk, as a general rule, is not only harmless but useful. Vegetables, whether dressed or undressed, in their simple state, or manufactured into pies, tarts, sweet-meats, &c., &c., must be repudiated. The same of soups, gravies, molten

butter, &c. After all, however, there is no one who can judge of diet for the dyspeptic like the dyspeptic himself. Let such carefully examine themselves, and especially the effects of different articles of diet upon their system, and they may without mistake settle down upon those that are most beneficial. The true and only secret upon this subject is, to eat nothing that disagrees, and any thing does not.

DISEASES OF THE LIVER.

The liver is the largest gland in the human body and the first to exhibit development in the fœtal state. It exists in almost every variety of animals, even in those whose other organs are very imperfectly developed. Its great size, its early and relative development in the fœtus, and the complicated character of its vascular machinery, all point it out as an organ of immense importance in the animal economy, and renders the opinion very probable, which has been long entertained by physiologists, that it performs other functions and offices in the body besides the daily secretion of a small quantity of bile.

The amount of bile secreted by the liver in twenty-four hours, in an ordinary healthy condition of the body, is said not to exceed six or eight ounces—a relative amount altogether inadequate to its vast size and vascularity, in contrast with any other gland of the body. It serves as a central termination of the black blood of the abdomen, as the lungs do of the blood of the general system—a peculiarity which distinguishes it from every

other gland of the body, and renders it probable that, like the lungs, it exerts a peculiar influence upon the circulating fluid.

The variety of forms and phases under which liver complaints exist, and the sympathies by which the liver is connected with other organs and tissues of the body, demand the careful consideration of the medical practitioner in making up his diagnosis, and must always be duly weighed in forming his prognosis as to the results of clinical effort.

The sympathy between the liver and stomach is constantly remarked, and is often so intense as to cause the practitioner to doubt as to which of the organs is the primary seat of disease. Indeed, the symptoms attending biliary derangements are so easily mistaken for, and so generally accompanied by derangements of the other digestive organs, as often to mislead both the patient and his medical adviser. Hence it is that liver disease and dyspepsia are so often confounded, and the intelligent physician unable clearly to determine which of these organs was the original seat of the malady.

The sympathy between the liver and brain has long been observed. In functional or structural derangements of the liver, there are few symptoms more constantly present than vertigo, head ache, or disturbance of the mental faculties. So constantly do these disturbances of the mental functions exist in liver complaints, that they present one of the leading diagnostic symptoms of the existence of the disease. It has long been observed that intense thought, or any strong emotion of the

mind, will derange the biliary secretions. Fear, grief, and the other depressing passions, lessen; while anger, hope, joy, &c., increase and sustain a rapid flow of bile.

Diseases of the liver not uncommonly assume the appearance of *pulmonic affections*, and sometimes end in actual disease of the lungs. Doubtless this is often owing to the encroachment of the liver on the lungs, when the former is morbidly enlarged—thus disturbing the respiratory functions; or an irritation may extend itself from the former to the latter, and assume all the symptoms of an original idiopathic affection, while the original malady lies concealed.

CHRONIC HEPATITIS is a very common disease in this country, especially in our warmer latitudes and miasmatic districts. In its least complicated form it is characterized pathologically by a plethora or congested state of the vascular system of the liver, accompanied, of course, by derangements of the biliary functions and of the nervous system of the organ. Its* approaches are generally slow and insidious, and often the health is entirely undermined before the sufferer is fully aware of his danger. For, without any symptoms of severe indisposition, it will often run on to suppuration or organic induration of the viscus, before its existence is suspected.

I once saw a patient, (a young man,) whose first serious concern for his condition was occasioned by the bursting of an abscess in his liver. He died a few hours afterwards, and a post mortem examination revealed the fact that his liver had been so entirely absorbed as to leave only a very small portion investing the gall bladder.

Chronic inflammation of the liver seldom goes for a great while without producing important mischief in the organs, occasionally resulting in abscess or tubercles, but more generally in indurating the structure or enlarging the volume of the viscus, constituting what is termed "*enlarged liver*," schirrous liver, &c.

While this chronic inflammation, obstruction, or impaired function of the liver is going on, they occasion indigestion, flatulence, a tenderness or pain in the right hypochondrium, which pain is often extended to the right scapula or top of the shoulder, but occasionally in the back, or on the left side over the region of the heart, (Johnson.) To these symptoms are usually added an unpleasant sense of distension about the stomach, acidity, inability to lie comfortably on the left side, with pale or sallow complexion, and a gradual diminution of the flesh and strength.

In the beginning of these affections, the bowels are generally constipated, the feces being at one time of a dark and at another of a lighter color than natural. As the disease advances, it sometimes ends in diarrhœa or dysenteric irritation.

Listlessness, languor and aversion to enterprise are characteristics of the disease. The sufferer delights to detail the misery of his case, and contemplates it ordinarily in its most unfavorable results. Wherever we find derangements of the hepatic functions, we find low spirits, irritability of temper, fickleness, timidity and hypochondriacism to a greater or less extent, and this

irrespective of the high natural order or cultivation of the mind of the sufferer.

The White sulphur water acts specifically upon the secretory organs, and especially upon the liver.

We have already, in another part of this volume, shewn the striking similarity of action between mercury and sulphur waters upon the animal economy. In nothing is this more manifest than in their operations on the liver.

The *modus operandi* of sulphur water upon this viscus is dissimilar, we conceive, from that of mercury, and yet the effects of the two agents are strikingly analogous. The potent and controlling influences of the water over the secretory functions of the liver, must be regarded as a specific quality of the agent, and as constituting an important therapeutical feature in the value of the article for diseases of this organ. Its influence upon this gland is gradually but surely to unload it when engorged, and to stimulate it to a healthy exercise of its functions when torpid. The control which it may be made to exercise over the liver, in correcting and restoring its energies, is often as astonishing as it is gratifying—establishing a copious flow of healthy bile, and a consequent activity of the bowels—imparting vigor to the whole digestive and assimilative functions, and consequently energy and strength to the body, and life and elasticity to the spirits.

Attention was directed at an early period in the history of mineral waters, to their controlling influence over diseases of the liver, and by the best informed practi-

tioners both of Europe and this country, sulphur waters have always been favorite remedies in the treatment of that class of affections.

The celebrated Dr. Armstrong, although of cool discriminating and well balanced mind, was so much devoted to their use in chronic inflammations and congestions of the liver, that some of his contemporaries, less practised in their use, thought him infatuated upon the subject. He preferred them, most decidedly, as an independent remedy, to mercury in all its forms; but very properly observes, that in some cases it will be found best to combine the operation of the two agents at the same time.

For many years we have kept a *case book* at the White Sulphur, and have carefully noted the influence of the water upon such diseases as have been submitted to our management. Among the number are several hundred cases of chronic affections of the liver, embracing disease of *simple excitement*, chronic *inflammation*, *congestion*, *engorgement* and *obstruction* to the biliary ducts, &c., &c. These cases were all treated either with the White sulphur water alone, or aided by some other appropriate alterative remedy, and in looking at the results, we must be permitted to express a doubt whether a larger *relative amount* of amendments and cures have ever been effected by the usual resources of the medical shop. This we know is high eulogy of sulphur water in such diseases. It is considerably made, and is not higher than their merits deserve.

It is proper that those affected with liver disease, (and

they constitute no small portion of the population, in certain districts of our south-western territory,) should know something of the confidence they may place in these waters for relief.

Volumes might be filled with details of gratifying results that have taken place in the cases of invalids, from almost every section of the country, who visited these waters as a sort of "last resort" for liver disease. And hundreds of delighted witnesses may be found, especially in the warmer regions of the south, who bear a willing and grateful testimony to their utility in such cases.

Let us not be understood, however, as advancing the opinion, that sulphur water will cure every case of chronic liver disease. Far from it. We have already stated elsewhere, that mineral waters will sometimes fail in chronic diseases of *disordered action only*. This, it is most probable, happens in cases where the blood-vessels have been so long distended as to have lost their power of returning to their natural state. Besides, it will happen, that among the number of invalids that crowd our watering places, seeking relief from this common affection, many will be found, in whose livers organic lesions have already taken place. In such, perfect cures need not be expected, either by sulphur waters or any other agents.

In another part of this volume,* the importance of using mild alterative cathartic medicines, in connection

* See Chapter IV.—*On the Use of Medicines.*

with the sulphur water, has been distinctly stated. In a large majority of cases, in commencing the use of the water, perhaps in nine out of ten, decided advantage will accrue to the patient, by taking every third or fourth night, the Compound Cathartic Pill, composed of Colocynth, Blue Mass and Ant. Tartar; or, if the liver be obstinate, Calomel may be substituted for the Blue Mass in forming the pill, using half the quantity that is directed for the latter.

In obstinate cases, or in those in which the use of Mercury is admissible, the *Nitro Muriatic Bath* may be resorted to with good effect. It may be prepared as follows: Mix Nitric and Muriatic Acids together in equal quantities, and pour two ounces of the mixture into $2\frac{1}{2}$ gallons of warm water, in a narrow wooden bucket. The feet and legs of the patient ought to be immersed in this bath, made of the temperature of blood heat, and kept there for twenty or thirty minutes, every night before going to bed. The same bath will remain good for three or four nights. The region of the liver may be sponged night and morning with the same, or a similar mixture. The bath should be increased or diminished in strength, according to the age, strength, or peculiarities of the patient. I have seen this bath, unaided by any other means, produce heavy bilious operations, such as are commonly produced from decided mercurials.

JAUNDICE.—Jaundice is a form of liver disease in which the White sulphur water is used with very happy effects.

This affection is characterized by a yellow tinge of the skin generally, and particularly of the tunica conjunctiva: deep yellow or brown color of the urine, pale or clay-like color of the stools, sense of languor and lassitude, with depression of spirits and a disinclination to exercise. A sense of weight or uneasiness is often felt about the pit of the stomach, while the bowels are costive and the urine very high colored.

The cause of this disease has always been considered to be obstructions of some kind or other to the free egress of the bile from the excretory ducts of the liver. Most commonly, these obstructions are occasioned by inspissated bile or calculous concretions within the gall ducts themselves: occasionally from spasmodic constrictions of the biliary tubes; and now and then from external pressure by tumours on the liver itself, or some neighboring part.

When the obstruction arises from inspissated bile or very small calculi, or from spasm of the gall ducts themselves, the disease is comparatively easily relieved; and such cases are generally cured by the White sulphur water with certainty, in a few weeks.

When, however, the obstructing calculi is large, and the spasm and irritation considerable, the disease is not only more tedious, but the measure of relief from the water more uncertain.

The use of mercurial aperients, especially small doses of calomel with aloes, or col. and ant., which, while they clear the bowels, excite the biliary ducts, are generally valuable adjuvants to the water. Advantage is also

derived, especially in the declining stage of the disease, from the bitter vegetable infusions, such as camomile, gentian or quassia. The *Nitro-Muriatic* bath is a remedy of much promise in this disease, and should not be overlooked in obstinate cases.

CHRONIC ENLARGEMENT OF THE SPLEEN.—Disorder and enlargement of the spleen are very often met with at all our watering places. For many years we have carefully noted the operation of the White sulphur water in such cases. Unaided by other means, it has not altogether realized the high hopes which we once had of it. Satisfied of the great advantage—we might say absolute necessity in many cases—of urging a treatment more active than the water alone, we now rarely rely on it to the exclusion of other agents.

The preparations of iodine, used both internally and externally, are valuable adjuncts to the water in these cases. We have in some instances derived the happiest effects from large doses of quinine; and often find it necessary to aid the purgative operations of the water in these cases, by the use of mild cathartics.

CHRONIC IRRITATION OF THE BOWELS.

Our note book exhibits a variety of cases of disorders of the alimentary canal, which were treated by this water. They were generally connected with chronic irritation or inflammation, and attended with mucous or serous discharges from the bowels.

In such affections, attended with frequent or copious serous dejections, sulphur water, if admissible at all, should be used with great care, and in small portions at a time. In cases attended with much irritability of the canal, we have found the water entirely inadmissible.

Somewhat less difficulty is presented in mucous diarrhœa, and the action of the water is often favorable. We sometimes find an affection of the mucous coat of the bowels, especially in persons from the warmer regions of our country, connected with functional derangements of the stomach and liver; and, in such cases, it will usually be found, that in proportion as the tone of the former, and the healthful secretions of the latter are restored, the morbid condition of the bowels ceases. In no class of cases, however, if we except diseases of the lungs, is more prudence demanded in the administration of the water than in irritated conditions of the bowels. When judiciously and cautiously prescribed, the agent is not only a safe, but a valuable remedy in several diseases of this class; but when used, as it sometimes most imprudently is, in cases attended with exalted irritation, or ulceration of the coats of the bowels, the most prejudicial consequences may result.

In connection with the water in this class of diseases, we often, and with excellent effect, use warm emollient cataplasms, with the internal administration of some mild alterative and soothing medicine.

To warm sulphur bathing in such cases, much confidence is due. To be safely and successfully employed,

the bath should be carefully adapted, both as to *time* and *temperature*, to the demands of the case.

We know that it is usual to decry the use of sulphur waters in bowel complaints. We admit that those who enter at random, and without proper discrimination, upon their employment in such cases, will often have cause for regret. But we venture, nevertheless, to aver, that in many cases of *chronic irritation of the bowels*, attended with *diarrhœa*, they are, when properly administered, not only safe, but a valuable remedy.

COSTIVENESS.—In costiveness dependent upon deficient or depraved biliary secretions, great confidence may be placed in the persevering use of the water, especially if it be aided by the occasional administration of small mercurials combined with taraxicum and rhubarb.

Where great paucity or deficiency of bile exists, the *inspissated ox gall* is found to be useful. It may be taken in pills, in quantity of 10 or 15 grains daily, with a little taraxicum and rhubarb.

In costiveness from general *inertia* of the alimentary canal, there is less cause to be pleased with the efficiency of the White sulphur water. Such cases are commonly found connected with great languor of the body and general nervous irritability. The use of the *sulphur baths*, of a temperature from 98 to 106 should be employed in such cases, in connection with the water, which should be drunk as freely as the stomach will bear it, morning, noon and night, unless it run off by the kidneys; in

which case it ought to be entirely suspended for a day, and an active cathartic taken before its use is resumed.

PILES.—The use of mild laxatives in hæmorrhoids has been so long a favorite practice, that nothing need be said here in its favor. The beneficial effects of this water in Piles, are doubtless, in some degree, owing to its mild purgative operations, but to a still greater extent, to its alterative action. In most cases of this disorder, the liver is more or less implicated, and the relief of that viscus brings relief to the hæmorrhoidal vessels. We will only add, that both in the *common* and *blind piles*, the water is advantageously used, but more especially in the latter.

DISEASES OF THE URINARY ORGANS.

Incipient Calculous affections are occasionally submitted to the use of this water, and for such cases it has long maintained a reputation. Cases are said to have occurred, though none such have come under our observation, in which it displayed *lithontriptic* qualities.

The *palliative* effects of the water in calculous affections are often experienced to the great comfort of the sufferer; but it is only, we believe, in the earlier stages of such affections, that it can be regarded as better than a palliative.

Chronic Inflammation of the Kidneys, as well as similar affections of the *Bladder* and *Urethra*, are often successfully treated by this water. We deem it our duty to allude to a very common error in the manner of using the water in these affections. We have reference to the practice of drinking it in large quantities, with the view of establishing copious discharges from the kidneys. By an imprudence of this kind, the cure of the case is not only often prevented, but lasting injury inflicted in a superadded debility of the organs.

In these cases, the water should be so used as to keep up a gentle diuretic action for several weeks, carefully guarding against excessive discharges of this kind.

DIABETES.—The nature of Diabetes is so imperfectly understood, that medical men do not agree as to the part of the body in which it is primarily situated. Some suppose that the kidneys are the original seat of the disease; others that it depends on the state of the stomach; while it has been imputed by others to a diseased state of the blood. Its exciting causes are numerous, such as overbodily or mental exercise, use of spirituous liquors, excessive or improper indulgences, the depressing passions, &c. It is commonly connected with a depraved and shattered constitution, and it is often difficult, when physicians are consulted, to say whether it be the cause or the consequence of the constitutional deprivation.

It is often attended with indigestion, general debility, constipation of the bowels, thirst, dryness of the skin, and irregular, capricious, and sometimes voracious appe-

tite. Its pathognomic symptom is a great increase in the flow of urine, which is generally of a pale straw color, sometimes insipid, but oftener of a sweetish taste and faint smell resembling that of violets, and containing a considerable quantity of sugar.

Cases of Diabetes have not been very numerous at the "White," but they have occasionally come under my observation. One of great interest fell under my notice some years since, in the person of Mr. S., a very intelligent gentleman from the State of Georgia. He was greatly emaciated, from the effects of the disease, but after using the water for some ten days, he commenced improving, and regained his flesh at the rate of a pound a day for a number of days. Another case was so far relieved last summer as to give me confidence in its ultimate recovery.

In Diabetes, the water should be administered in small and oft-repeated doses. The diet should be the most nourishing kinds of animal food, and in quantities suited to the strength of the digestive powers. The tincture of iron is useful in connection with the waters, and the hot sulphur bath is a valuable adjunct in such cases.

Amenorrhœa, Dysmenorrhœa, and Atonic Leucorrhœa, are sometimes submitted to the use of the White sulphur water. For these disorders, considered specifically, we would not prefer this water. It is inferior in efficacy to many other remedies that might be employed. We often, however, find these affections connected with a peculiar state of the general system,

rendering it a valuable adjunct in their treatment. As a general rule, either local or general depletion, or both, as may be necessary, is required to precede the use of the water in these affections, when they are found connected with general plethora of the system, or with congestion in the uterine region. During the use of the water, the important auxiliary of warm sulphur baths should not be neglected.

Sufferers from the diseases under consideration should not lose sight of the potent influences which the baths at the *Hot Springs* are so well calculated to produce. Many who are languishing under the blighting influences of these affections, might, doubtless, find a sure and speedy relief from a few weeks' use of these valuable agents.

CHRONIC AFFECTIONS OF THE BRAIN.

Many interesting cases of chronic inflammation and congestion of portions of the cerebral mass, are met with at the White Sulphur.

It is only since the discovery of the successful use that may be made of the water, after being deprived of its stimulating gas, that it has been prescribed advantageously in affections of the brain. We have never, indeed, seen a case of inflammation of this organ, in which the fresh water could be borne. When it is carefully deprived of its gas, however, either by *heating* or by being *kept for a sufficient length of time in an open*

vessel, it agrees well with such affections, and we have in many instances prescribed it with the most happy results. Mr. B., whose case we referred to in another part of this volume, had been for more than a year under the care of distinguished physicians for the relief of chronic inflammation of the brain, without having derived any permanent benefit, was cured by four weeks' use of the ungasous water. In this case it was carefully deprived of its gas by being heated nearly to the boiling point, and suffered to cool before using. This gentleman attempted repeatedly during the progress of his case, to use water that had stood twelve or eighteen hours from the spring, but found it too exciting, and was forced in each instance to return to the heated water.

Mr. M. arrived at the White Sulphur in June, 1839, laboring under agonizing distress in the head, attended at intervals with partial derangement, and with horrid threatenings of *confirmed mania* constantly before him. Cups were repeatedly applied to the base of the cranium, gentle cathartics were administered for a few days, and the water *perfectly deprived of its gas* was perseveringly pressed. In six days it became obvious that Mr. M. was improving, and in four weeks he left the Springs entirely restored. He has visited his "old benefactor," as he terms the White, every year since, and it is gratifying to know that his cure was in every respect complete and permanent.

Many cases might be mentioned not essentially dissimilar from the two just noticed, but we deem it unne-

cessary. The efficacy of the water in chronic inflammation of the brain has been rendered as obvious to us as its efficiency in similar inflammations of other organs.

NERVOUS DISEASES.

The great increase of nervous diseases within the last decade must have attracted the attention of every observant individual.

Neuralgia, in one form or another, has become the prevailing disease of the whole country. It has been but a few years since it was only known among us as a tooth-ache from a denuded nerve, or in the form of the erratic but twinging *Tic-dou-lou-reux*. Now it is not only the common, but the *fashionable*, disease of the country. Once it was the peculiar privilege of the wealthy and the luxurious to boast of their neuralgia, as the *parvenu* does of his gout; but now, the poorest, most unpretending subject can have his full share of this aristocratic affection. Formerly, a vulgar rheumatism took possession of the extremities, while a still more vulgar dyspepsia claimed the dominion of the stomach. But, how changed. Neuralgia now takes the limbs, and gastralgia the *primæ viæ*. Formerly, a fashionable lady, to induce a reluctant husband or father to make a pilgrimage to a fashionable watering place, was driven to a vulgar dyspepsia to effect the object; now, a "*little neuralgia*," which may be located just at her pleasure, will answer every purpose.

But, soberly, we are, and have been for ten years, living under the reign of a nervous *diathesis*, which literally obliges every species of disease, acute and chronic, to wear its livery. The revolution that it has effected in the type and the treatment of disease is wonderful. To a large extent, even our fevers obey its behests, and hence *inflammatory* and *bilious* have almost given way in our nomenclature to nervous and typhoid.

In every acute disease, we are admonished that there is a prevailing constitution that inhibits the lancet and other rapid depletory practice, that so distinguished our country within the present generation.

The most apathetic are now obliged to yield to the reign of the nerves, and look around for a *placebo* that was formerly allotted to the most effeminate alone.

The various nervous affections, such as *neuralgia*, *hypochondria*, *hysterics*, *chorea*, &c., &c., are not unfrequently met with at the springs. Sometimes as primary or independent diseases, but more frequently in connection with derangements of the digestive organs. The direct influence of the water in restoring the tone and energy of the general system, by removing obstructions and correcting the functional derangements of the organs, obviously point to it as a remedy in the latter class of cases. The invigorating effects of the salubrious and charming climate in which the spring is situated, and, we might add, the advantage of the exercise necessary to reach it, are efficient auxiliaries in such cases.

In nervous diseases, especially under exalted nervous excitement, the water should almost invariably be used

in small quantities at first, and *in its least stimulating form*; that is, after it has been deprived of its gas by standing at least twelve hours in an open vessel. In many cases it is indispensable that it should be suffered to stand even for twenty-four hours, or be gently heated, that its gas may be entirely thrown off before it is used.

It was in nervous cases, many years ago, that I was led to appreciate the advantage of administering the water in its unstimulating form; a practice that has effected a triumph over the former method of using it fresh from the spring, as complete as it has been beneficial to thousands of nervous individuals. After thus using it a few days, the patient will probably bear it fresh from the spring, and when such a tolerance is established, there is no objection to its being thus taken.

In *simple* or *independent* affections of the nerves, (those that do not depend upon disease in other regards,) the waters of the *Sweet* and *Red Sweet Springs* are a valuable remedy. Indeed, in noxious disorders generally, whatever be their cause, the bracing influence of those waters, especially the delightful *bath* that is found at either of these places, will prove eminently serviceable, after sulphur waters have corrected the digestive and assimilative organs.

For the treatment of this class of affections, when perfectly unconnected with organic derangements, we would also call attention to the "Rawley Springs."

The Rawley water is the purest and strongest chalybeate that is found in our country, and where a strong

iron tonic is demanded, it may be relied on with confidence.

For many years I have occasionally sent patients to this water, and have generally been much pleased with its effects.

PARALYSIS.—In most cases, Palsy is the sequel of an attack of apoplexy, which has come on suddenly and unexpectedly. In other cases, however, it is brought on slowly and from causes that do not directly implicate the brain, affecting certain muscles only, leaving others of the same parts untouched.

Paralysis may be complete or incomplete; that is, the muscles affected may be totally or partially powerless. There are many other causes besides apoplexy, that produce paralysis; such as tumors, injuries caused by violence, cold, the action of poisons, excessive or improper indulgences, derangement of the digestive functions, &c.

When palsy occurs without being preceded by apoplexy, its approaches are generally gradual and connected with some appreciated derangement of the health.

A gentleman was under my care last summer with a decided paralysis of the entire right side, resulting from derangement of the chylopoiëtic viscera, in whom the disease came on so gradually, that he was unable with distinctness to designate the time of its first appearance. Another individual, an elderly gentleman, was under my direction the same season, with a paralysis that had been induced by injudicious perseverance in cold shower bathing. Although this was an unequivocal case of

hemiplegia, barely enabling the patient to drag his *leaden-like* limbs along, it was preceded by no apoplectic shock, the gentleman being quite conscious of the occasion and progress of the attack. There are other cases in which the loss of power over the muscles takes place instantaneously, although not preceded by a distinct apoplexy.

The number of paralytics that resort to the White Sulphur is large, and their success from the use of the waters has been various. Cases resulting from dyspeptic depravities are oftener cured than those from any other cause; but in almost every case some amendment of the general health takes place, notwithstanding the paralysis may not be removed. Warm or hot sulphur baths are useful in connection with the water.

CHRONIC DISEASES OF THE CHEST, OR BREAST COMPLAINTS.

The public generally, and no portion of it more than valitudinarians themselves, are prone to be exceedingly loose, undefined and inaccurate in drawing distinctions between the different and dissimilar diseases that occasionally affect the same organs of the body. This is especially the case when such diseases have one common generic name; as, for instance, the name of "*Breast Complaint*," which, by a comprehensive and sweeping application, is made to embrace, not only *Tubercular Consumption*, a disease of scrofulous origin, and generally, if not uniformly incurable, but also a large number

of other affections of the "breast," whose nature and termination are altogether dissimilar, and none of which, from their peculiar pathology, ought to be regarded as necessarily incurable.

The same want of discrimination that confounds diseases affecting the same organ and of the same generic name, is prone, as might be expected, to confound the practice appropriate for their cure. This is constantly found to be the case in reference to the use of the White sulphur water in *breast complaints*.

PULMONARY CONSUMPTION (*Phthisis Pulmonalis*) has to an alarming extent become a disease of our country, and especially in the more Northern and Northwestern portions of it; yet, notwithstanding its frequency, it is unquestionably true, that many diseases, accompanied by wasting of the body, hectic fever, cough and mucous expectoration, are often classed with it, both by friends and medical attendants, where no scrofulous taint lurked in the constitution.

It is often embarrassing, even to the most experienced physician, to decide with clearness whether the lungs are the primary seat of disease, or whether they are merely the seat of a sympathetic irritation originating in some other organ. Nor can the practitioner always, with more than problematical conjecture, decide as to the existence or condition of tuberculous formations. But whatever may be the medical opinion as to the precise pathology of the disease, if the hectic flush be upon the cheeks, the vermilion upon the lips, the burning heat in the palms

of the hands and soles of the feet, with evening fever or cold colliquative sweats, connected with hollow, pale, languid countenance, sharpened features, purulent expectoration and progressive emaciation, constituting the ever present symptoms of *Phthisis Pulmonalis*, the use of the water ought to be withheld.

The symptoms just enumerated are those that distinguish tubercular consumption in its ultimate or matured stage, and in which the use of the water would prove injurious; but in no stage of formed, or forming tubercles of the lungs, should it be relied upon as a remedy.

But it by no means follows, either from sound reasoning in the premises, or from observation and experience, that the want of adaptation in the waters to *tubercular consumption* proves their want of adaptation to other forms of breast complaints. On the contrary, we know that the very best effects have often been derived from their use in various cases that seriously implicated the lungs.

Caution, however, should be exercised in submitting *breast affections* to the use of the White sulphur water; and where doubts exist as to the nature of the case, a careful exploration of the chest should be made, and the best professional opinion elicited as to its true pathology. If tubercles in a mature or immature state are found in the lungs, prudence dictates the avoidance of the water; but if there be no tubercles, and no febrile excitement, the water may be employed without fear, although there may be cough, mucous expectoration and other symptoms evidencing a morbid determination to the lungs.

I might give numerous cases illustrating the safety and success of the water in several forms of "breast complaints," unconnected with a scrofulous diathesis or tubercles, but I will give one only, and that because it is of very recent occurrence, and happened in the person of an intelligent young physician of my acquaintance.

Dr. H., of C., had been suffering for more than two years with an affection of the lungs, during which time he has had several hemorrhages, with two distinct attacks of apoplexy of the lungs; requiring, in each instance, active treatment for his relief. One of these apoplectic attacks, attended with hemorrhage, had occurred two weeks before I saw him. On his arrival at the springs, his pulse was 115 beats a minute, sense of fullness about the chest, with restlessness and general nervous excitability. I discouraged him from the use of the waters, under the apprehension of an increased excitement from their use, both in the vascular and nervous system, and advised him to visit the Red Sulphur, as offering a safer remedy. He disliked to make the journey, and determined to remain a few days at the White without using the water, and then return home. Under this state of things, and as he was a physician and could watch his own case intelligently, I advised him to make a careful trial of the water in its *ungaseous* form; enjoining it upon him to discontinue its use if he found it to increase his pulse, and to persevere if the force or frequency of the pulse was reduced. The experiment was most fortunate; his pulse was reduced day by day, until it came down to its natural standard, the sense of fullness in the

chest disappeared, the nervous excitement was assuaged, and in every respect, the amendment was clear and unequivocal; not evanescent, but progressive, and as I believe, permanent.

It is proper to state that Dr. H. made several attempts to take the water fresh from the spring, but always found it too stimulating, and was forced to return to the ungasous water.

It would be impossible, without going into a very tedious dissertation on the nature and causes of the various diseases of the chest, (and which would be foreign to the objects of this work,) to set forth with such clearness as would be useful to the invalid, the various forms and modifications of *Breast Complaints*, for the cure of which the White sulphur water may be safely and profitably employed. I shall allude here to but one of these forms, and to that mainly because it is of very common occurrence and not unfrequently mistaken for *genuine Consumption*.

I shall take the liberty of calling this form of disease *Sympathetic Consumption*, because this name will more clearly convey a correct idea of its character than any other I could give it.

Sympathetic Consumption, although not peculiar to, occurs most frequently in persons of some constitutional disposition to phthisical complaints. It is the result of morbid sympathies extended from some other parts of the body, and more commonly from a diseased stomach or liver. The great par vagum nerve, common to both

the stomach and lungs, affords a ready medium of sympathy between those two important organs. In protracted cases of dyspepsia, the stomach often throws out morbid influences to the windpipe and surface of the lungs, occasioning cough, mucous expectoration, pain in the breast, and many other usual symptoms of genuine consumption. So completely, indeed, does this *translated* affection wear the livery of the genuine disease, that, as before remarked, it is often mistaken for it. This form of disease comes often under my notice at the springs, and I frequently witness the happiest result from the employment of the water in such cases: and the more so, because its beneficial effects resolve a painful doubt that often exists in the mind of the patient as to the true character of his disease.

BRONCHITIS.

Bronchitis is often met with at all our watering places; sometimes as a primary affection of the bronchia, and often in connection with other diseases.

Of late, this has become an exceedingly common disease with the Clergy of our country; so much so, as eminently to demand an investigation into the peculiar causes that render this valuable class of men so subject to its influence. Such an investigation would not only be highly interesting as a curious subject of pathological inquiry, but also might be valuable by enabling the Clergy to avoid the exciting and predisposing causes of the malady. It is not our purpose to enter into this

investigation; it would be foreign to the objects of this work; but merely to observe, for the benefit of those thus afflicted, that the Mineral Waters of this region afford encouraging prospects of relief. We occasionally meet with cases that are relieved at this place; and similar results occur at all watering places.

The *Red Sulphur* is well adapted to many cases of Bronchitis. When a strumous diathesis prevails, the waters of the *Alum Springs* are happily adapted for relief, and in such cases, we would give them a preference over any of our springs.

We often see *Bronchitis*, at the White, give way and disappear, in the same ratio in which the water exerts its alterative power over the digestive and assimilative organs. Dr. R., of lower Virginia, was relieved of an obstinate attack in this way; an officer of our navy experienced the same good fortune.

CHRONIC DISEASES OF THE SKIN.

The sympathy existing between the surface of the body and the large internal organs, particularly the stomach and liver, has long been known and appreciated by medical men. The celebrated practice of Abernathy, of directing his remedies to the stomach and bowels for the cure of cutaneous diseases, was based upon a knowledge of this sympathy. Dr. James Johnson, of London, in treating of the morbid sympathies of the organs, remarks, that in *Cutaneous and Eruptive Complaints*, “an extensive class of diseases, whose treatment has hitherto been

very puzzling, the stomach, in company with the liver and intestines, sympathises to an extent that is little imagined;" and adds, "that from the midst of the most inveterate of these, there is scarcely one that is not more or less connected with derangements of the above-mentioned organs, but particularly the liver, and consequently under the control or influence of remedies directed to them."

I have very generally observed in the administration of sulphur waters for cutaneous diseases, that just in proportion as the great abdominal organs became altered, the disease of the skin was relieved; nor do I anticipate any very decided amendment in such cases, especially if they be of long standing, until the water has exerted its sanitary effects upon those organs.

The warm *sulphur bath* is a valuable assistant to the internal use of the waters in cutaneous diseases, and should be daily employed after the water has begun to shew its alterative effects upon the liver and bowels.

It is often exceedingly gratifying to residents at the springs, to witness the progressive disappearance of cutaneous eruptions, and ultimate recovery in the course of the season, of persons who come there with unseemly affections of this kind.

We occasionally see eruptive disorders located in the beard of gentlemen, generally caught from want of care or cleanliness on the part of their barbers. This affection, although slight at first, assumes in its progress an obstinate and unpleasant character. The sulphur water,

in connection with the *cream-like deposit* found about the spring, will ordinarily be successful in its relief.

In *ill-conditioned ulcers* of the extremities, which are most generally found connected with some general depravity of the constitution, the water, in a general way, displays very fine effects. In such cases, we prefer the water to be so used as to make decided impressions upon the *bowels and skin* for a few days, to be continued afterwards in smaller and less operative quantities.

RHEUMATISM AND GOUT.

Next to diseases of the abdominal viscera, rheumatism is most frequently met with at our watering places. The ancient reputation of the White Sulphur, and that which at an early day directed public attention to its potency, was derived from its successful use in rheumatism. Tradition says, that the efficacy of this spring in this disease was known to the Indians whilst they dwelt in the country; and it is a matter of history that the first important cure it is known to have effected among the whites, was in a disease of this kind. The reputation thus early acquired has not been lost, but, on the contrary, has become established by the experience of more than half a century.

It must be borne in mind, however, that it is not adapted to every case of rheumatism. It is only in the *chronic form* of this disease, when active inflammatory action is not present, that it can be looked to for success.

We often see at our watering places, and particularly in persons from warm miasmatic regions, a form of rheumatism intimately connected with, and dependent upon derangement of the internal organs. For the cure of such cases, the water is peculiarly adapted. The same discriminative and especial praise may be bestowed upon it in *Mercurial* rheumatism, which we occasionally find connected with chronic inflammation and enlargement of the bones. In most cases it will be advisable to connect the use of *warm* or *hot* bathing with the drinking of the water, and in many, especial advantage will be derived from the local application of this adjuvant in the form of a *douche*.

The united effects of these agents, operating for a sufficient length of time, rarely fail to relax the rigidity of the muscles, to give strength, ease and elasticity to the diseased joints, and to impart vigor and tone to the whole system.

The reputation of the *Hot Springs* in diseases of this class, is too familiar to the public to require any special comment here. The well-contrived arrangements at that place for receiving baths of a variety of temperature, and in different forms, from the *douche* to the *sweating* process, gives to that place great advantages, so far as hot bathing is concerned.

GOUT is not unfrequently seen at this, and all our watering places. The general operative influences of sulphur waters, and the tone and energy which they impart to the digestive and assimilative functions, are

often serviceable in this painful affection; and especially, when, with the use of the water, the patient pursues that prudent course of regimen which in this, not less than in other diseases originating in the stomach, is absolutely necessary to a cure.

As a palliative, the water is very generally serviceable.

DROPSIES.

The alterative influence of sulphur waters is often very conspicuously displayed upon the *absorbent* as well as upon the secretory system, and hence, under its use, dropsical effusions are often removed, while the general health and tone of the system is so improved as to prevent their re-accumulation.

Perhaps there is no season at the White during which dropsical cases are not cured. A case came under my notice some years ago, in which a radical cure was effected after the patient had undergone the operation of *paracentesis*, and had become much emaciated by the disease.

In cases originating, and dependent upon obstructions of the glands, the sulphur waters may be used with great confidence.

SCROFULA.

The celebrated Dr. Armstrong states that he found the internal and external use of sulphur waters far more efficacious in scrofula than the common measures; for, after all the ordinary treatment had failed, he had seen

scrofulous affections cured by drinking such waters, and using them as a tepid bath.

We regret that we cannot award the same unlimited praise to sulphur waters in such cases. Our success with them has been various. In the early stages of scrofulous affections, their administration is generally attended with benefit—occasionally, with marked benefit. In the advanced stages, there is generally less cause of gratification, though even in such we have occasionally seen them serviceable, and in no instance injurious, except in a single case, which was attended with ulceration of the bowels.

The Alum Spring offers a valuable resource in scrofulous affections. In the united use of sulphur and alum waters in this disease, there is a perfect compatibility, and the employment of the former for a few weeks, often constitutes the best preparation for the use of the latter.

MERCURIAL DISEASES.

In that enfeebled and peculiar condition of the system resulting from the long protracted or injudicious use of mercury, the White sulphur water has displayed its happiest effects.

The extraordinary powers of this water in correcting the injurious *constitutional* and local effects of this drug upon the system, cannot be appreciated too highly by the medical profession or the public.

After long experience with the water in this peculiar form of disease, we have no hesitation in observing, that

if called on to designate a particular affection, or state of the system in which the agent is most beneficial, we would not hesitate to name *Mercurial diseases*; because we regard the water in such cases as a specific agent, and as almost certain to bring relief where other known agents would not. This we know is strong praise, and nothing but long and successful observation could induce us to award it.

Of the many patients afflicted with disease from the abuse of mercury—and many of them in a state of great wretchedness—who annually resort to this place for relief, we have rarely seen a case, in which the water was properly used for a sufficient length of time, that was not either *cured*, or so *relieved* as to evidence the triumph of the remedy. The salutary action of the water in such cases may be considerably expedited by uniting with it some of the preparations of sarsaparilla or of iodine. The *warm sulphur bath* also, in such cases, comes in as an important auxiliary.

The patient laboring under this anomalous affection, is required to exercise fully as much patience in the use of the water as is demanded in any other case. To make it fully successful in bad cases, *from one to three months' use of it* will generally be required; occasionally intermitting it, for short periods, during this time.

CHALYBEATE SPRING.

ABOUT forty rods from the White Sulphur Spring, and near the road that leads to Lewisburg, is a *Chalybeate Spring*, which is now being much and beneficially used by invalids. The existence of this iron water has long been known, but it is only within the last two years that it attracted sufficient attention to induce the proprietor, Mr. Calwell, to have it deepened, walled up, and properly enclosed.

The water has not been analysed, but there can be no doubt that the efficient medical material in it is iron, and that this is held in solution in the form of a carbonate, constituting the mildest, least offensive, and ordinarily the most efficient form in which ferruginous waters are found.

I allude to this Spring in connection with the White Sulphur, because it is found immediately contiguous to it, and will doubtless be used in connection with it to a considerable extent.

During the two last seasons, it has been much used by invalids, either in connection with the White sulphur water, or as an independent remedy, and its tonic effects in several cases that have come under my observation, have been gratifying. Judging from the taste of the water and its kindly influences upon the stomach, I infer that it is, to a great degree, exempt from the irritating salts that impregnate the waters of limestone regions.

It acts mildly as a diuretic, and slightly on some persons as an aperient, but its chief value must be attributed to its tonic powers.

Near the White Sulphur Hotel, familiarly known as "Mastin's," and not more than the fourth of a mile from the Sulphur Fountain, *Alum water* of very good quality, was discovered in digging a well, some years ago. It was found issuing from a thick stratum of semi-soft slate stone, about fifteen feet below the surface of the earth. This water was favorably noticed by Professor Hayward of Boston, who visited the Springs while it was in use. - It was chemically examined by Professor Rodgers, but his notes in reference to it have been misplaced. As a medicinal agent, it was thought favorably of by several persons who used it. The year after it was discovered, the late Mr. Mastin, then the lessee of the Hotel near which the water was found, very injudiciously deepened the well, penetrated through the slate formation and struck upon a bold stream of common water, which submerged and thus destroyed the alum water. It is probable that, by sinking a well into the same slate formation, at some other point, the same kind of water may be found; or, by filling up the old well with hydraulic cement, near to the point at which the alum water issued, it might be recovered and made useful.

CHAPTER VI.

SALT SULPHUR SPRINGS.

THESE springs, three in number, are about twenty-four miles south from the White Sulphur, in the county of Monroe, and near Union, the seat of justice for that county. They are encircled by mountains on every side,—having Peters' Mountain to the south and east, the Alleghany to the north, and Swopes' Mountain to the west, near the base of which are the three springs alluded to.

This watering place has been a popular and profitable resort for invalids for the last forty years; having always heretofore, as now, enjoyed a high reputation, alike for the virtue of its waters and the excellence of its accommodations. It is owned by Messrs. Erskine & Caruthers, worthy and enterprising proprietors, under whose personal management the establishment has been for many years, and who made the principal improvements at the place—which are both comfortable and extensive; being sufficient for the accommodation of three hundred and fifty persons.

The "*Salt Sulphur*" proper was discovered by Erwin Benson, Esq., in 1805, when boring for salt water, which

he was induced to believe might be found there, from the fact that, in *old times*, the spot had been a favorite "Lick" for deer and buffalo. This spring is neatly enclosed in a marble reservoir, two feet square, and about two feet ten inches deep, and is protected from the weather by a neat and comfortable edifice.

The following is the *analysis* of this water, as furnished by Professor Rodgers:

Temperature variable from 49° to 56°.

Solid matter procured, by evaporation, from 100 cubic inches, weighed, after being dried at 212°, 81.41 grains.

Quantity of each solid ingredient in 100 cubic inches, estimated as perfectly free from water:

1. Sulphate of lime, - - -	36.755	grains.
2. Sulphate of magnesia, - -	7.883	"
3. Sulphate of soda, - - -	9.682	"
4. Carbonate of lime, - - -	4.445	"
5. Carbonate of magnesia, -	1.434	"
6. Chloride of magnesium, -	0.116	"
7. Chloride of sodium, - -	0.683	"
8. Chloride of calcium, - -	0.025	"
9. Peroxide of iron, from proto- sulphate, - - - - -	0.042	"
10. An azotized organic matter, blended with sulphur, about	4	"
11. Earthy phosphates, - -	a trace.	
12. Iodine.		

Volume of each of the gases contained in a free state in 100 cubic inches :

Sulphuretted hydrogen,	1.10 to 1.50	cubic inches.
Nitrogen,	- - - - - 2.05	“
Oxygen,	- - - - - 0.27	“
Carbonic acid,	- - - - - 5.75	“

The above analysis applies to the Iodine, or New Spring, as well as to the Upper, or Old Spring, as the following extract of a letter, from Professor Rodgers to the proprietors, will show :

“I enclose you a list of the ingredients in the Salt sulphur water, which applies to the New as well as to the Old Spring, the former having rather a smaller amount of saline matter in general, though in some ingredients surpassing the other. It has been very minutely analyzed, and is the first of all the waters in which I was enabled to detect traces of iodine, which it contains in larger amount than the Old Spring, and, indeed, than most of the other waters in which I have been so fortunate as to discover this material.”

The *Iodine*, or *New Spring*, was accidentally discovered by the proprietors in 1838, while engaged in opening a drain for the water of the “Salt,” and was immediately deepened and enclosed in a marble reservoir, and covered by an appropriate building. Owing to a large deposit of sulphur in combination with some peculiar organic matter, which floats as a pellicle upon the surface of the spring, this water is less limpid than that of the “Salt.” Under

an intense heat of the sun, it occasionally deposits a beautiful pink sediment upon the bottom and sides of the reservoir. In taste and smell, it much resembles the water of the other springs, but being *ten degrees* warmer, is less palatable to some persons. Its temperature varies from 62° to 68° Fah.

The presence of a larger quantity of iodine in this spring, *points* it out as a superior agent in many affections for which iodine is successfully employed, particularly in scrofula, goitre, and some diseases of the skin.

The Upper, or *Old Spring*, was discovered in 1803, by Alexander Hutcherson, Esq., who was searching for salt water on Indian Creek. It soon came into high reputation as a mineral water, and was the annual resort of a large company. The house now occupied as a hotel, and several of the old cabins, were erected at that early day. The water of this spring is now almost exclusively used for the baths: the opening of the *Salt Sulphur* proper, whose waters are more strongly marked, having in a great degree superseded it as a drink.

The water of the Salt Sulphur possesses all the sensible properties of the sulphur waters in general. "Its odor, for instance, is very like that of a 'tolerable egg,' and may, in certain states of the atmosphere, be perceived at some distance from the spring, and in taste it is cousin-german to a strong solution of Epsom salts and magnesia. In a short time, however, strange to say, these disagreeable properties are either not observed, or become, on the other hand, attractive; indeed, there is

hardly an instance of an individual's retaining his original repugnance to them longer than three or four days, and some there are who become so excessively fond of the water as to give it the preference over any other liquid. Like most of the sulphurous, this water is perfectly transparent, and deposits a whitish sediment, composed of its various saline ingredients, mingled with sulphur. It is also for the most part placid; occasionally, however, it is disturbed by a bubble of gas, which steals slowly to the surface, where it either explodes with a timid and dimpling smack, or is eagerly caught up by some careworn and almost world-weary invalid as a gem from the treasury of Hygeia!"

We are indebted to Dr. Mütter's pamphlet on the Salt Sulphur for many of our facts in relation to this interesting establishment, and shall still further avail ourselves of it in noticing the various diseases to which these waters are applicable.

DISEASES TO WHICH THE SALT SULPHUR IS APPLICABLE.*

The Salt Sulphur, like almost all the sulphurous waters, being a stimulant, should consequently not be employed in acute or highly inflammatory affections; nor in those in which there exists much active determination of blood to the head, or at least not until this determination has been guarded against by previous

*Dr. Thomas D. Mütter.

diet, purgation, and, if necessary, blood-letting. But in all *chronic* affections of the *brain, nervous system,* some diseases of the *lungs, stomach, bowels, liver, spleen, kidneys and bladder,* it is one of the most valuable of our remedial agents. In diseases of the joints (gout and rheumatism) and skin; in *mercurial sequelæ*; in hæmorrhoidal affections; and in chronic diseases of the *womb,* it is also a remedy of immense importance.

1. OF CHRONIC DISEASES OF THE BRAIN.—In no class of diseases, probably, is there required more caution in the exhibition of a mineral water, and especially of one which under ordinary circumstances excites the system at large. Many persons, on this account, have prohibited its use; but experience, the only sure guide, has shown that many a case of chronic head-ache, incipient mania, and local palsy, dependent upon congestion or chronic inflammation of the brain, will yield to the steady use of a cathartic mineral water, when almost every other agent has failed. For such cases the Salt Sulphur seems peculiarly adapted, but it must be used with caution, and assisted, if necessary, by local depletion, counter irritation, and diet.

2. NEURALGIA.—It is well known to the profession, that neuralgic affections are often dependent upon a deranged condition of the chylopoiëtic viscera. The habitually costive, or those who have suffered from repeated attacks of miasmatic diseases, and the dyspeptic, are generally most liable to attacks of neuralgia. In

such cases I have known the Salt Sulphur prove highly beneficial.

3. NERVOUS DISEASES.—The various affections termed nervous, such as hypochondria, hysteria, catalepsy, chorea, &c., are also frequently dependent upon disorder of the digestive apparatus, and resist all our remedies for months or years. In such cases a trip to a mineral spring is generally recommended, not so much for the waters, probably, as for the change of air, scene, mode of life, &c., which it entails. Making all due allowances for the beneficial action of the last named agents, I am confident that the steady cathartic action of the water is of infinite benefit. Two cases of chorea and one of hysteria I saw completely relieved in the course of six weeks, by the use of the Salt sulphur water.

4. CHRONIC DISEASES OF CHEST.—Diseases of the thoracic viscera are unfortunately too common in our country, and hence we find crowds of their unfortunate victims at nearly every watering place, seeking, and too often but vainly, some relief from their distressing condition. In some cases—those, for example, in which the irritation is dependent upon the retrocession of some habitual discharge, and those too in which the skin is *dry* and *cool*, and the indication is to produce a revulsion to the surface by directing the fluids from the centre to the circumference, which will also facilitate expectoration—the cautious administration of the Salt sulphur

water will be useful. In those cases also in which the cough is sympathetic or dependent upon some lesion of the chylopoiëtic viscera, it may be employed. But in every instance where it can be traced to an organic affection of the *heart* or *large blood vessels*, and if there be fever, emaciation, tubercles with cavities in the lung, hæmoptysis or diarrhœa, the death of the patient will be hastened by the employment of a stimulant so active as the Salt Sulphur. For pulmonary cases the Salt Sulphur offers the advantages of an agreeable temperature, and a *dryness* of atmosphere not possessed by the other springs in the mountains of Virginia. During the season, which continues from the first of June to the middle of September, the thermometer ranges from 70° to 85° Fahrenheit, and there is little or no fog in the morning.

5. CHRONIC DISEASES OF THE ABDOMINAL VISCERA.—In making an estimate of the cases of disease one meets with at a watering place, it will not, I think, be going too far to say, that two-thirds at least are referable to some affection of the abdominal viscera. Hepatitis, jaundice, splenitis, gastritis, gastralgia, pyrosis, dyspepsia, enteritis, diarrhœa, &c., are encountered at every turn.

In *Hepatic affections*, or those commonly called *Bilious*, the Salt sulphur water is, without doubt, one of the most powerful and efficient remedies we possess. When taken in a proper manner, its sanative influence is speedily manifested by a change in the biliary secretion.

Constipation, the usual attendant upon such cases, is relieved, the sallowness of the skin disappears, and in the course of a few weeks a complete and radical cure is often accomplished.

Chronic Splenitis, one of the most common, and at the same time one of the most obstinate of the sequelæ of the fevers of the South, I have known frequently relieved by the use of this water, as well as by that of the White Sulphur.

Chronic Gastric Irritation, it is well known, is often relieved by the administration of an agent calculated to set up a new action in the mucous coat, and those cases of dyspepsia which depend upon such a condition of the stomach are often relieved by the use of a sulphur water. A number of such are annually met with at the Salt Sulphur, many of which leave the spring perfectly cured.

Gastralgia, or Nervous Dyspepsia, is also occasionally met with, and may depend upon a variety of causes. When it is purely a functional disease, unaccompanied by organic lesion, a sulphur water, along with sulphur baths, will sometimes produce a very happy effect.

Pyrosis, or Water Brash, is another disease in which the Salt Sulphur proves pre-eminently useful. I have known cases in which a pint or more of a secretion so acid as to set the teeth on edge, was daily thrown up, radically cured, by the use of this water, in the course

of six or eight weeks.—(Mr. F., of Princeton, is an example of this.)

When *Dyspepsia* is known to be dependent upon scirrhous or cancer of the stomach, I would strenuously advise the patient to abstain from the use of the Salt Sulphur, and indeed from that of any mineral water. Mrs. C——, of North Carolina, was, I am convinced, destroyed by it.

Chronic Irritation of the Bowels, giving rise to chronic diarrhœa or dysentery, upon the principle of a new action being set up, are frequently cured by the use of the Salt sulphur. I wish this statement to be borne in mind, for it is usual to decry the use of a sulphur water in such cases; but the experience of those who have paid attention to the subject, will bear me out in the assertion. Mr. T., of Philadelphia, who for three years labored under chronic diarrhœa, and who was supposed to have ulceration of the mucous membrane of the bowels, was radically cured by a few weeks use of the water.

Constipation.—Habitual costiveness is another affection for which the Salt sulphur water is an excellent remedy.

Hæmorrhoids.—The use of laxatives in piles is a treatment so long in use that nothing need be said in its favor, but the sulphur waters operate much more beneficially than any other agent, inasmuch as in nearly every case of

chronic piles we find the liver more or less affected. This fact, first observed by Armstrong, is so universally admitted, that I shall not stop to say any thing towards its further substantiation.

7. CHRONIC DISEASES OF THE URINARY ORGANS.—

From the fact that nearly all mineral waters, either from the quantity usually taken, or from some peculiarity of their ingredients, prove diuretic, they have always been favorite remedies in diseases of the urinary organs. Those which contain an excess of alkaline ingredients, have, without doubt, proved remarkably serviceable in cases of *acid* calculous diathesis, but it must be confessed that as a general rule, and always where the stone is large, they prove but a doubtful remedy. In the incipient stages of calculous disease, however, and those especially in which the formation of stone is dependent upon some disease of the digestive apparatus, the sulphur waters are often useful. Many such cases have been benefited at the Salt Sulphur. When this water fails to accomplish the desired object, I have seen that of the *Sweet Spring* productive of much good.

Although this water may be considered as a somewhat doubtful remedy in calculous diseases of any duration, it must be allowed to possess astonishing sanative properties in chronic irritation of the *mucous membrane* of the *kidneys, bladder, prostate gland, and urethra*. Many cases of chronic *nephritis, vesical catarrh, prostatic irritation* and *gleet*, are annually cured by its employment.

8. CHRONIC DISEASES OF THE GENITALS.—Like all sulphur waters, those of the Salt Sulphur are often very useful in obstinate cases of general or local debility, the result of previous excessive indulgence. They are also remarkably beneficial in *atonic leucorrhœa*, *amenorrhœa*, and *dysmenorrhœa*; but when either of these complaints is dependent upon *local* or *general* plethora, the use of the water must be preceded by depletion, either *local* or *general*, according to circumstances.

9. CHRONIC RHEUMATISM AND GOUT.—The diseases most frequently met with, after those of the digestive organs, at our different watering places, are rheumatism and gout. In all such, the alterative influence of a sulphur water is invariably, I believe, more or less useful; but to receive full benefit from its use, the *warm* or *hot mineral bath* should be resorted to, and the *dict*, *clothing* and *exercise* properly regulated. With many others, I cheerfully acknowledge the immense benefit derived from the use of Salt sulphur.

10. MERCURIAL RHEUMATISM, PERIOSTITIS and INFLAMMATION OF THE BONES, are also very much relieved (in most cases) by the use of the Salt sulphur. Along with the water, it will be well to use the *hot baths*.

11. CHRONIC DISEASES OF THE SKIN.—When judiciously administered, no remedy is productive of more permanent benefit in all cutaneous affections, than the sulphur waters; but unfortunately they are but too often

abused. They are only suitable when the eruptions are of long duration, and unaccompanied by inflammation. Used in the acute stages, they aggravate the symptoms. It is always proper, moreover, to employ the warm or hot baths, during the use of the water. The Salt sulphur is often eminently successful in relieving cases of this kind.

We insert the certificates of several persons, going to shew the medicinal efficacy of the Salt Sulphur waters. Those from Baron Burnaby and Mr. Polk are particularly interesting and instructive. We find these certificates in Dr. Mütter's pamphlet, from which we have already so freely quoted.

SALT SULPHUR SPRINGS, Aug. 13, 1838.

Messrs. Erskine & Caruthers :

Gentlemen—Having been greatly benefited by drinking of your valuable spring, I deem it a duty to my fellow-beings, to leave this statement of my case in your hands.

For six months previous to my coming here, I had been suffering with a most obstinate constipation of the bowels, which I had tried in vain to remove by medicine, diet and exercise, and during that time I could not obtain a stool without the aid of an injection, and great pain attending it. After being here ten days, the Salt sulphur water began to act freely on my bowels, and now, at the expiration of a month, I am glad to inform you that the constipation is entirely removed, and my health and strength restored. I am now going home in cheerful spirits to my friends. Yours, truly,

GEO. A. BUTT, New York.

STAUNTON, March, 1822.

Some years since, I was afflicted with an obstinate and dangerous disease, from which I was unable to obtain relief, until I visited the Salt Sulphur Spring, near Union, in the county of Monroe. The use of that water restored me to perfect health—which makes it my duty to state, at the request of the proprietors, the high opinion I have formed of its medicinal efficacy. I consider the Salt sulphur water eminently useful in all cases that require cathartic remedies, particularly such diseases of the liver and stomach as proceed from biliary obstructions. The operation upon the bowels is active, but not violent—cleansing effectually the alimentary canal, and promoting digestion in a remarkable degree. The cathartic tendency of the water is so mild and certain, that the stomach and bowels are never oppressed or irritated, and whilst the healthy functions of the system are enabled to take their course, the suspended causes of disease are gradually worn away.

BRISCOE G. BALDWIN.

SALT SULPHUR SPRINGS, Aug. 31st, 1836.

Messrs. Erskine & Caruthers :

Gentlemen—Intending to leave your excellent and perfectly arranged establishment to-morrow, on my return home, I cannot, however, do so without expressing my thanks to you for your politeness and attention to myself, (and I observed the same attention to others) during my stay at the Salt Sulphur; and I have much pleasure in saying that the use of the Salt Sulphur Spring water has been eminently beneficial to me; for, prior to my coming here, I had been suffering for upwards of eighteen months from a total derangement of stomach from a long residence in a warm climate, (Bermuda,) say, bad bile, great

acidity of stomach, and an overflow of mucus to the lungs; in short, I had dyspepsia, with all its disagreeables, accompanied with debility of body. Having tried the White sulphur water for ten days without benefit, I came here, and in a week I found relief from all my complaints; but my medical adviser, who practised at the White, recommended me to try the Red Sulphur, notwithstanding my having written to him of my improved state—my pulse, for one thing, being reduced from 80 to 73 beats. I went to the Red and stayed there eight days; my pulse rose on the third day to 82, the fifth day to 89, the sixth day to 96 and 100; I was obliged to be leeches, which reduced my pulse to 84; I had there headaches and great dryness of tongue; so on the ninth day, in the morning, I returned to the Salt, where, on the fourth day my pulse was again at 73, on the sixth day at 71 beats, and has continued from that day to this, varying from 71 to 72, night and morning. *I always counted my pulse in bed*, when quiet, before drinking the water, for after drinking the spring water, my pulse latterly came down to 68 beats. I was attentive to my diet, taking only stale bread or dry toast with scarcely any butter, two cups of tea with milk (no cream) for breakfast; dinner was mutton, (*no gravy*), with rice and stale bread, no other vegetable—sometimes I took roast fowl, but no pudding or pies; at tea time, I took one cup of tea and stale bread, no butter, I found grease so bad for me. The quantity of water taken by me was two half-pint tumblers at half past 5 o'clock in the morning, in bed, one tumbler at 12 o'clock, sometimes one at 5 o'clock, and when in bed at night I took one more tumbler of the water; but if I wished to perspire a little more freely, I took two tumblers of it. I found the water determine gently to the bowels, rather than to the kidneys; what I took produced a full movement of the bowels. Before breakfast I walked a quarter of an hour; between breakfast and dinner I walked about five miles, often going to

Union; between dinner and bed-time I think I walked about two miles more: I used to calculate about seven miles a day. For one hour after dinner I remained quiet in my room. I ate fruit once, and it gave me such a lesson I never tried it again. I am thus particular; for it may be of benefit to some one else next year; and you are quite welcome to show this letter if you wish it.

Wishing you your healths, not forgetting Mrs. Erskine, I remain, gentlemen, your obedient servant,
W. H. BURNABY, Baronet.

SALT SULPHUR SPRINGS, Sept. 22d, 1839.

Messrs. Erskine & Caruthers:

I have been affected for five or six years with an obstinate disease of the liver, and dyspepsia, and have visited nearly all the springs in the mountains without having experienced any material benefit, until I came to this place. I have applied to some of the best physicians without being relieved, but am happy to state, that the Salt sulphur water has had a most beneficial effect in removing many of the inconveniences attending my disease, insomuch that I am induced to carry a portion of it home with me.

Yours, most respectfully,
JOSEPH E. GARRATT.

P. S.—I am a resident of Knoxville, Frederick county, Maryland. J. E. G.

WILMINGTON, DELAWARE, Aug. 31st, 1846.

Calling at the Salt Sulphur Springs this summer, on my way to the Red Sulphur, where I had received great benefit last season, I was induced by a friend to stop a

day or two and try the effect of the water. After staying a day or two, I was so much pleased that I determined to stay longer; and being more and more pleased with the water, I declined my visit to the Red, and staid here three weeks. My pulse, ranging when I arrived at from 70 to 72, was reduced, in two or three days, to from 59 to 63, where it remained so long as I staid. I always felt my pulse before getting up in the morning.

My disease is one of the lungs. I have had six hæmorrhages, and been severely threatened with pulmonary consumption. I spent the last three winters in Florida, and about a month last summer at the Red, and I can say, without hesitation, that I have never received so much benefit any where. I found the water much more active than any I had before tried, and at the same time very gentle and soothing in its operations. It excited me very little, if any, and reduced my pulse several beats lower than it was reduced by the Red last summer. I used the Iodine spring altogether.

ROBERT POLK.

RICHMOND, May 20th, 1840.

Messrs. Erskine & Caruthers:

Gentlemen:—It is with great pleasure that I answer your enquiry. I consider the Salt Sulphur Spring one of the most valuable of the sulphur waters of Virginia. I speak from my own experience, an opinion formed from several years use of those waters, during a period of very ill health. I went first to the Springs by the advice of an able physician, who recommended for me the use of the Red Sulphur. On trial, I found the Salt Sulphur much more salutary. I was laboring under a highly excited state of pulse, which indicated low febrile symptoms, with a pulse ordinarily at about 90 to 100 beats to the minute, accompanied with much difficulty

of breathing upon the slightest exercise. I was much benefited by the use of the Salt Sulphur water, and I think I can safely say that any one similarly affected will derive sensible benefit from its use.

Very respectfully,

J. B. ABBOTT.

SALT SULPHUR SPRINGS, Aug. 10th, 1836.

Mrs. ——— left her house in a state of great debility, scarcely able to walk, and was but little recruited by the journey. She reached the Salt Sulphur on the 20th of July, having stopped a week at the White Sulphur on the way, but without using the water. After remaining three days at the Salt Sulphur and partaking of the waters there, she proceeded to the Red Sulphur and staid there six days, returning on the 29th of July to the Salt, having, while at the Red, used two or three tumblers of the water per diem—remained at the Salt Sulphur until the 9th day of August. When Mrs. ——— arrived first at the Salt Sulphur, she weighed 91, and was unable to walk any distance, or use any degree of exercise, without suffering greatly.

In thirteen days after her arrival at the Salt Sulphur, was again weighed in the same scales, and had increased to 95 pounds and a half, making a gain of four pounds and a half in weight, while the circumference of her waist had been reduced nearly five inches. In the interim, her countenance and eyes had undergone an essential change for the better, her spirits and strength restored, so as to take any ordinary exercise of riding or walking without inconvenience. The quantity of water which she ordinarily took, was from three to four glasses per diem, and she was careful in her diet, always avoiding all warm bread, and principally using bran bread, hominy, mutton, &c., &c.

THE SALT SULPHUR IODINE SPRING has attracted increased attention the last few years, and a recent analysis of its waters by Dr. David Stuart, of Baltimore, gives a sanction to medical anticipations as to its peculiar virtues and appropriate applicability. The following are the results of Dr. S.'s chemical investigations:

IODINE SPRING.

One wine gallon of the water contains :

Sulphuretted hydrogen,	-	-	19.19	cubic inches.
Carbonic acid,	-	-	34.60	" "
Oxygen,	-	-	00.62	" "
Nitrogen,	-	-	04.73	" "

Total gaseous contents,			59.14	
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Solid contents of one gallon :

Sulphate of magnesia,	-	-	20.00	grains.
Sulphate of soda,	-	-	24.00	"
Carbonate of lime,	-	-	33.00	"
Carbonate of magnesia,	-	-	07.00	"
Chloride of magnesium,	-	-	00.28	"
Chloride of sodium,	-	-	01.28	"
Chloride of calcium,	-	-	00.56	"
Silicic acid,	-	-	01.76	"
Carbonate of potash,	-	-	02.33	"
Carbonate of soda,	-	-	10.80	"
Sulphate of lime,	-	-	68.00	"
Iodine,	-	-	00.93	"
Bromine,	-	-	00.65	"
Sesqui-oxide of iron,	-	-	01.06	"
Alumina,	-	-	00.18	"
Phosphate of soda and lithia,	-	-	00.73	"

Total solid contents,			172.48	
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Specific gravity, 1002.7—reaction alkaline. Temperature 64.75 to 65.50 Fahrenheit.

This analysis presents this water as an interesting and somewhat peculiar medical agent, differing in some respects from any of the sulphur springs in this region.

The discovery of *iodine* in this water, some twelve years ago, by Professor Rodgers, has led to its successful use in various disorders for which that article is known to be a reliable remedy. In addition to the diseases already mentioned for which the *Salt Sulphur proper* is advised, the *Iodine Spring* will be found especially serviceable in the various *glandular affections*, mercurial rheumatisms, secondary syphilis, enlargements of the spleen, hepatic disease, mesenteric obstructions, and chronic exanthemata.

The following interesting certificate illustrates the value of this water in an obstinate affection of the skin :

UNION, MONROE COUNTY, VA., }
15th December, 1845. }

During the summer of 1845 I was induced to try the Iodine Spring, at the Salt Sulphur Springs, in Monroe, for an obstinate and (as I then supposed) incurable eruption on the skin of one of my children. The disease first appeared, at the age of three weeks, in the shape of small red spots upon the cheeks, succeeded very soon by little watery pimples, which rose and broke continually, but without healing. In a short time the affected parts increased in size as well as quantity, until they extended from the face to the head and neck, and thence over the entire body—presenting one uniform and consolidated appearance of disease over the whole surface. The neck, head, and

face discharged matter from the scabs, and the legs from the knee down. For fourteen months I kept the child constantly under medical treatment, but without any permanent benefit, or any prospect of recovery, until, at the instance of Dr. M.— (who at the time was residing at the Salt,) I was induced to make a trial of its waters. He represented the disease as a constitutional affection of the blood, which could not be relieved, and which ought not to be arrested very suddenly, but assured me, very confidently that it would yield to nothing with so much certainty and success as to the external application of the Iodine water at the Salt. The child was bathed twice a day in the water made gently tepid, of which it drank pretty copiously during the ceremony. About the fourth day there was an evident change for the better, and the child from that time continued to improve daily, until, at the expiration of six weeks, the sores had healed, the scabs had disappeared, the pimples and splotches had subsided, and the skin, for the first time for more than fourteen months, assumed a natural and healthy appearance. I have no doubt by remaining a few weeks longer every vestige of the eruption would have been removed. But I consider the disease at this time as effectually conquered, and as having changed its type completely. Indeed, the only indications ever visible are an occasional roughness on the skin. As we used no medicine, except occasionally some mild cathartic, I feel no hesitation in ascribing all the results that I have stated to the effects of the Iodine water.

WILLIAM G. CAPERTON.

CHAPTER VII.

RED SULPHUR SPRINGS.

THE Red Sulphur Springs are in the southern portion of the county of Monroe, 42 miles south from the White Sulphur. They are distant 17 miles from the Salt, 39 miles from the Sweet, and 32 miles from the Blue Sulphur. *The approach to the Springs is beautifully romantic and picturesque. Wending his way around a high mountain, the weary traveller is for a moment charmed out of his fatigue by the sudden view of his resting-place, some hundreds of feet immediately beneath him. Continuing the circuitous descent, he at length reaches a ravine, which conducts him, after a few rugged steps, to the entrance of a verdant glen, surrounded on all sides by lofty mountains. The south end of this enchanting vale, which is the widest portion of it, is about two hundred feet in width. Its course is nearly north for about one hundred and fifty yards, when it begins gradually to contract and changes its direction to the north-west and west, until it terminates in a narrow point. This beautifully secluded Tempe is the chosen site of the village. The north-west portion is occupied by stables,

*Huntt.

carriage houses, and shops of various sorts; the southern portion, just at the base of the east and west mountains, is that upon which stand the various edifices for the accommodation of visitors. These buildings are spacious and conveniently arranged, while the promenades, which are neatly enclosed by a white railing, are beautifully embellished, and shaded from the mid-day sun by indigenous of the forest, the large, umbrageous sugar maple. The spring is situated at the south-west point of the valley, and the water is collected into two white marble fountains, over which is thrown a substantial cover.

These springs have been known and distinguished as a watering place for near fifty years. The improvements at the place are extensive and well-designed, combining elegance with comfort, and are sufficient for the accommodation of 350 persons.

The water of the spring is clear and cool, its temperature being 54° Fahrenheit.

The following is Professor Rodgers' analysis of the water of this spring :

“ *Gaseous contents* in an imperial gallon :

Sulphuretted hydrogen,	4.54	cubic inches.
Carbonic acid, - - -	8.75	“
Nitrogen, - - -	4.25	“

Solid contents of 32 cubic inches of water, gr. 1.25, consisting of sulphate of soda, lime and magnesia, carbonate of lime and muriate of soda.

Besides these ingredients, the water contains, in considerable quantity, a peculiar organic substance, which

mingled with sulphur, is deposited on the sides of the spring, and seems to increase by a species of organic growth."

Mr. Augustus A. Hayes, of Roxbury, Massachusetts, has also analyzed this water, and apparently with great care and scientific skill. The following are the results of his chemical examinations :

HAYES' ANALYSIS.

"This water is perfectly colorless and transparent; when agitated it has an agreeable sparkling appearance. Its odor is that of hydro-sulphuric acid, mixed with that from earth or clay; the latter being retained, after the hydro-sulphuric acid is dissipated, or destroyed. Its taste is hepatic and slightly bitter. By ebullition, it does not immediately become turbid, gases escape, and when reduced in volume by evaporation, deposition takes place.

The specific gravity of this water, compared with pure water at the same temperature, and pressure equal, is 100029. Subjected to the influence of chemical re-agents, it presents the following characters :

With a solution of chromate of potash, the yellow color becomes greenish yellow.

" solution of nitrate of mercury, a grayish-brown precipitate is formed.

" acetate of lead; the first drops give a brown colored precipitate; an additional quantity of a yellowish white precipitate.

With a bisulphate of copper; at first brown, succeeded by a bulky greenish-gray precipitate.

“ sulphate of silver, a brown, succeeded by a yellowish white and flocculent precipitate.

“ muriate of baryta, a white precipitate, insoluble in acids.

“ oxalate of ammonia, a white precipitate.

“ nitrate of silver and ammonia, white precipitate, which becomes brown and purple in sunlight.

“ nitrate of copper and ammonia, a pale bluish-green precipitate is formed; after the first few drops of the re-agent have separated, a brown precipitate.

“ tincture of iodine, added to a large bulk of the water, containing starch dissolved in it, instantly gives a blue color to the starch.

Indications above described afford evidence of hydro-sulphuric acid in the water, while the iodine solution shows that it exists in a relatively small proportion. A bottle of the water was mixed, at the moment of taking it from the spring, with a small quantity of oxide of bismuth, and closely sealed. After the agitation due to carriage, and rest for several weeks, it was found that the particles of oxide of bismuth were rendered brown superficially, and no traces of hydro-sulphuric acid remained in the water. The oxide contained carbonic acid, and less than one-third of a grain of the oxide had absorbed and combined with all the hydro-sulphuric acid, contained in

about fourteen thousand grains of the recently drawn water. By careful experiments, in which the hydro-sulphuric acid was measured by its action on iodine, and the latter weighed in its silver compound, the bulk of the hydro-sulphuric acid was ascertained.

50,000 grains (about seven pints) of the water, from which the hydro-sulphuric acid had been removed, afforded by the usual processes 2698 grain measures of gases, or one volume of gases from $18\frac{1}{2}$ volumes of water.

1000 parts of the mixed gases are made up of—

Carbonic acid gas, - - 4.19

Nitrogen gas, - - - 4.77

Oxygen gas, - - - 1.04

— 1.000

The two latter gases form the bulk of our atmosphere, in the proportion of 79 nitrogen to 21 oxygen—477 of nitrogen requires 126 oxygen, while the analysis gives 1.04, showing that oxygen is abstracted by the constituents of the water. All the well-corked bottles had rarefied atmospheres over the water, and when they were pierced, even at 32° F., air would enter.

A well-sealed bottle, containing the hydro-sulphuric acid gas in the water, afforded for 50,000 parts of water 3088 of mixed gases, or one volume of gases from less than 17 volumes of water, consisting of—

Carbonic acid gas, - - 1245

Nitrogen gas, - - - 1497

Oxygen gas, - - - 260

Hydro-sulphuric acid gas, - 86

— 3008

Gaseous contents of a gallon, or 231 cubic inches of the Red sulphur spring water :

Carbonic acid,	-	-	-	5.750
Nitrogen,	-	-	-	6.916
Oxygen,	-	-	-	1.201
Hydro-sulphuric acid,	-	-	-	0.397
				14.264

In this analysis, the proportion of oxygen gas to the nitrogen is still smaller—a result which accords with other observations made at the same time. The hydro-sulphuric acid gas is the most active of the gases found; while the carbonic acid gas acts the part of an acid, in rendering earthy salts soluble in the water.

50,000 grains (about seven pints) of this water afforded by slow evaporation in air at 200° F., a light yellowish-brown matter, which, after it had been carefully dried, weighed 20 56-100 grs. At the temperature of 240° F., this residue becomes changed, and suffers a loss of weight, being reduced to 17.55 grs.

This residue contains the saline part of the water, and is composed of—

Silicious earthy matter, containing traces of oxide of iron and alumina, probably suspended merely,	-	-	-	0.70
Sulphate of soda in a dry state,	-	-	-	3.55
which forms with the water 802 grs. Glauber's salts.				
Sulphate of lime,	-	-	-	0.47
Carbonate of lime,	-	-	-	4.50
dissolved in carbonic acid.				

Carbonate of magnesia,	-	-	-	4.13
dissolved in carbonic acid, and forming the				
"fluid magnesia."				

A peculiar substance, containing sulphur com-				
bined with organic matter,	-	-	-	7.20

20.55

There are traces of chlorine, or muriatic acid, in some specimens, but at most only 0.03 of chloride of silver could be separated from 10,000 grs. of water. This substance is rarely absent from natural waters, which have penetrated the earth.

The peculiar sulphur compound which forms a part of the saline contents of this water, has never been described, if it has ever before been met with. While in the natural state, and out of contact with atmospheric air, it is dissolved in the water, and forms a permanent solution. Air, acids, and other agents, separate it from the water, in the form of a jelly, and alkaline carbonates, alkalies, water, and other agents re-dissolve it. It has no acid action on test fluids, but bears that character with bases, and forms compounds analogous to salts. In its decomposition, ammonia is formed, and hydro-sulphuric acid is liberated; or if heat be employed in the experiment, sulphur is separated. It combines with the oxide of silver, and forms a salt of a reddish purple color, in the form of a flocculent precipitate, which dissolves in pure water; with the oxide of lead, a yellowish white powder; and with the oxyde of copper, a pale blue salt in fine powder. In these compounds it remains unal-

tered, and may be separated from them and transferred to other bases.

Mixed with a small quantity of water, and exposed to the temperature of 80° F., it decomposes, and emits a most offensive odor of putrefying animal matter, with hydro-sulphuric acid gas. It is to this property that the hydro-sulphuric acid in the water is due, and to the oxidation of a part of this compound most of the sulphuric acid found in the water may be referred.

I have endeavored to ascertain how its elements are arranged, but so small a quantity has been separated, that I could not insure the purity of any salt formed with it. 144-100 grs. gave with oxide of copper 342-100 grs. of a dry, bluish-green compound.

With the specimens of water, I received a small quantity of a "red deposit," which invests the surfaces of the marble slabs forming the basin of the spring. It had become changed, although the cork was tightly sealed. When opened for examination, a soft, clay-colored mass, composed of films having a greasy appearance, mixed with some filamentous parts, was found. The odor it exhaled was insupportable; it blackened metals, and when agitated with water, rendered it viscid. With a solution of carbonate of soda it formed a frothy solution, which, while cold, had the appearance of a solution of soap, and when heated disengaged some ammoniacal vapors, and formed a solution of all excepting some earthy and filamentous parts. This substance contains the same compound of sulphur and organic matter as that found dissolved in the water of the spring. I separated from

the water the peculiar matter it contains, in the form of films, and compared these with those obtained from a soda solution of the altered "red deposit," by the aid of re-agents, and they proved to be identical. From the examination of this altered matter, I have formed the conclusion, that the red color of the matter which covers the slabs is that of a moss or lichen, which finds its habitat in the viscid covering produced by the deposition of the sulphur compound.

My early attempts to illustrate this point failed. The substance separated from the water, by uniting it to oxide of copper, and afterwards destroying the union by hydro-sulp. acid, would become, after a few days, covered with vegetation of mosses, unlike those described as occurring at the spring, I was led to the conclusion that the spores or seeds of the peculiar "red moss" did not exist in the atmosphere of this place and must be found in the products of warmer climates. After several trials, I succeeded by treating rice, with a hot dilute solution of carbonate of soda, in obtaining a red colored moss vegetation, which could be transferred to the decomposing compound on which it flourished. In its union with oxide of copper, no tendency to decay, or the production of vegetation was observed, under the most favorable circumstances; but when, after separation, decomposition and decay had progressed, vegetation appeared. I need not ask, if a substance possessing vitality, can be combined with oxide of copper and afterwards eliminated by hydro-sulp. acid and retain its vital powers?

A small specimen of the mud and slime, which appears where the water from the spring flows, was received. It was a black, tenacious mud, exhaling an odor of hydro-sulphuric acid, mixed with that from earth. The color is due to the sulphuret of iron, formed by the action of the hydro-sulphuric acid on the ferruginous matters contained in the soil, which is a product of a further decomposition of the sulphur compound contained in the water. It forms brown colored solutions and imperfect salts; its sulphur element is retained; in other respects, it resembles the brown extracts from soils, or the humus and apocrenic acids of Berzelius.

Having studied the chemical characters of the sulphur compound imperfectly, I give only those re-actions in the following description, which will serve to show its want of identity with any of the various substances which have been found in thermal waters, and in some European hepatic waters.

Chemical character of the Sulphur Compound.

I. When separated from a solution by evaporation, or by drying from a gelatinous state, it forms greasy films, which do not darken solutions of lead or copper.

II. In pure water they slowly dissolve, and the solution gives salts of the compound, with the bases.

III. Solution of carbonate of soda dissolves them, and a fluid results which froths by agitation.

IV. In caustic solutions of alkalies, the films dissolve, and the solutions are slightly yellow colored. These so-

lutions have the peculiar odor of soap-leys. They do not blacken metals, nor color metallic solutions. Acids decompose the solutions, and the sulphur compound separates in the form of a bulky jelly generally; some oxy-acids giving flocks.

V. Nitric acid dissolves the films, and the salts of baryta and lead do not indicate the presence of sulphuric acid. On heating the acid solution, a yellow matter separates, which resembles that produced by acting on azotized bodies by this agent; sulphuric acid is thus produced, and the yellow precipitate requires a large proportion of nitric acid for its complete oxidation. The result of this action is an acid which gives a deep yellow color, with ammonia in excess.

VI. Chlorine in muriatic acid separates from the sulphur compound some white flakes, which are finally oxidized, and a colorless solution formed, in which sulphuric acid exists.

VII. Alcohol did not dissolve the compound.

Chemical experiments do not show the medicinal properties of the substances operated on. But when a substance, the result of delicately balanced affinities, gives in its decomposition an agent of powerful action on the animal system, we may conclude that it is an active ingredient, if found in a water possessed of high curative powers. I am disposed, therefore, to consider the sulphur compound in this water as the principal medicinal agent contained in it; although its action in combination with the other constituents may be necessary to produce the effects for which this water is so justly celebrated.

The following results give in one view the composition of this water :

Gaseous contents of a gallon, or 231 cubic inches of the Red sulphur spring water—

Carbonic acid,	-	-	-	5.750
Nitrogen,	-	-	-	6.916
Oxygen,	-	-	-	1.201
Hydro-sulphuric acid,	-	-	-	0.397
				<hr/>
				14.264

50,000 grs. (nearly seven pints) of this water contain dissolved as gases, (grain measure,)—

Carbonic acid,	-	-	1245	water
Nitrogen,	-	-	1497	
Oxygen,	-	-	260	
Hydro-sulp. acid,	-	-	86	
			<hr/>	
			3088	

grain measures of gases.

50,000 grs. of this water afford of—

Silicious and earthy matter,	-	-	0.70
Sulphate of soda,	-	-	3.55
Sulphate of lime,	-	-	47
Carbonate of lime,	-	-	4.50
Carbonate of magnesia,	-	-	4.13
Sulphur compound,	-	-	7.20
Carbonic acid,	-	-	2.71
			<hr/>
			23.26

Note.—The carbonic acid which is given with the saline matter, being all which the water contains, includes that which is given off as gas by ebullition.

AUGUSTUS A. HAYES.

Roxbury Laboratory, Jan. 14, 1842."

The peculiar and distinguishing reputation of this water, as a medicinal agent, is for diseases of the thoracic viscera, and by some it has been considered remedial in confirmed tubercular consumption. Without affirming or controverting this high claim for the water as a remedy in *confirmed consumption*, our observations for many years enable us to award to it decided efficacy in many cases of irritation of the pulmonary organs. In sympathetic or translated affections of the lungs, whether that state be occasioned from disease of the digestive or chylopoiëtic viscera, or be dependent upon the retrocession of some habitual discharge, the water deserves to be regarded as a valuable remedy.

"A distinguished physician of South Carolina, who passed the summers of 1822-'3, and part of '24, at the Red Sulphur Spring," after giving a detailed report of three cases of pulmonary irritation connected with hæmopotÿsis that were cured by the use of this water, under his own observation, makes the following judicious and sensible observations in reference to its powers in such cases: "I do not wish to be understood as stating that the water of the Red Sulphur will cure confirmed phthisis, or tuberculous consumption; but I believe we are very often mistaken in supposing a case of pulmonary irritation

more desperate and hopeless than it really is, and I believe that in most cases, if this Spring is resorted to early, and the clothing and diet and exercise duly attended to, its waters will be found a most powerful adjunct, and assistant in the management of these hitherto unmanageable cases."

The late Dr. R. H. Bradford, who practiced medicine for many years at the Red Sulphur, remarks:* "The in effect of this water reducing the frequency of the pulse, is one of the numerous singular and powerful properties belonging to it. It lessens arterial action to such a degree that it seldom fails to remove fever, difficulty of breathing, and pain in the chest. When the patient is restricted to a proper regimen, this water may be taken with greater advantage in all pulmonary cases than any other remedy I have ever seen employed for that purpose."

The late Dr. Huntt, of Washington City, spent a portion of the summer of 1837 at the Red Sulphur, for the relief of a pulmonary affection, with which he was attacked early in the spring of the same year. He published a pamphlet on the nature and use of the Red sulphur water, in which he gives the following report of his own case:—

"In March, 1837, I was attacked with a slight hæmorrhage from the lungs, attended with other symptoms indicating a diseased state of those important organs. For a time I neglected to resort to medical treatment,

*Dr. Huntt's pamphlet.

and continued to pursue my professional labors until warned by my failing strength that the disease was gaining ground. By the application of the usual remedies the violence of the symptoms was soon subdued, and in a short time I felt myself sufficiently restored to resume my usual labors; but, with the exercise my wonted strength did not return; the cough continued, with occasional pain in the chest, and an uneasy sensation of fullness about the liver, stomach, and spleen. These symptoms, after a time, were attended with increased cough, copious, morbid expectoration, hectic chills, fever and night sweats; my weight was reduced from 135 to 115 pounds.

“Such was my situation, when, about the middle of July, I left home for the Red Sulphur Spring, in Virginia.

“On the evening of my arrival at the Spring, I commenced the use of its water. The next day, during a violent paroxysm of coughing, a coagulum of blood was discharged from the lungs, which was followed by considerable hæmorrhage. After this, the cough became less troublesome, but the evening exacerbations of fever, and the night sweats continued, my pulse beating a hundred and fifteen strokes in a minute. I confined myself to a low diet, and drank six glasses of the water during the day, namely, two before breakfast, one at 11, A. M., one at 5, P. M., and two at bed time. The water acted freely on the bowels, and particularly on the secretions of the liver. In ten days, the abdominal viscera were entirely relieved, the pulse reduced to seventy-eight, and

the fever and night sweats had ceased. The quantity of water was now increased to twelve glasses during the day, taken at the same hours, but in double doses. It acted very gently on the bowels and skin, but most powerfully as a diuretic. Thus it appears that in small quantities the water acted freely on the bowels, and but little on the kidneys, while in larger quantities it acted freely on the latter and scarcely affected the former. In fact, I could direct its action to the one or the other, at pleasure, by increasing or diminishing the quantity. My cough became better, but my strength still continued feeble, owing to my extremely low diet, and the copious action of the water. Unfortunately, I took but little exercise, which I deem all-important while using the waters.

“After a residence of three weeks at the Spring, and the constant use of the water during that time, to the manifest alleviation of the most pressing symptoms of my complaint, I was unexpectedly called home, in consequence of the illness of a member of my family. In the commencement of my homeward journey, my weak state compelled me to make very short stages; but as soon as I had crossed the mountains, and resumed my usual mode of diet, my appetite and strength returned rapidly, and I completed the distance of three hundred and six miles in five days, without feeling the slightest inconvenience. The water seemed to produce its good effects in the improvement of my health for months after I had left the Spring.”

Dr. Huntt remarks, that "On examining the visiters laboring under pulmonary disease, I observed that all those patients who drank the water so as to act freely on the bowels, for any length of time, did not improve in their health, because active purging is not proper for the lungs in this disease. The water must be drunk in such quantities as to act freely on the kidneys. There seems to be an intimate association between the lungs and the kidneys, and the kidneys seem to be the great emunctories by which the lungs are relieved in all pulmonary diseases. This idea has been repeatedly suggested to me in my attendance on patients laboring under this disease. On inquiring into their condition, they have frequently said, 'I feel much better to-day; I have had a most copious flow of urine, which has afforded me great relief.' This view of the connexion between the lungs and kidneys has been confirmed by witnessing the diuretic effects of the Red sulphur water in pulmonary diseases. I have a friend, who is a physician, and who has labored, more or less, under pulmonary disease for twenty years. He informed me that, whenever his lungs were disturbed by irritation, he always resorted to 'cooling diuretic medicines for relief.'

"There were but few persons laboring under the third or last stage of tuberculous disease, who visited the Red Sulphur this season, and among those few, there was scarcely a case that derived any advantage from the use of the water. When tuberculous disease arrives at this stage, and the constitution is broken down, it is not only *useless* but *cruel* to send the patient to the Red Sulphur.

I am sorry to say, that several of my patients in this condition, by my advice, visited the Red Sulphur this season, and I witnessed the bad effects of the water in their cases, as well as in the cases of others of a similar character. They were laboring under that peculiar irritation, and perhaps ulceration of the bowels, so common in this stage of the disease. They were unable to drink but a small quantity of the water, and the consequence was, that the bowels were purged and griped, the secretion of the kidneys was not increased, and the patient grew worse daily."

"The Red Sulphur has been considered peculiarly adapted to the cure of pulmonary diseases, and it is true that it has a most beneficial influence in most cases of this disease; but its good effects equally extend to all cases of sub-acute inflammation, whether seated in the stomach, liver, spleen, intestines, kidneys, bladder, and most particularly in the mucous membrane."

It is also used with good effects in chronic bowel complaints, leucorrhœa, gleet, catarrh of the bladder, and in some forms of uterine derangement.

"Many persons arrive at the Red Sulphur, who are not prepared to use the water, in consequence of high inflammation, or congestion of the lungs, or other organs, attended with pain in the side, constriction at the breast, or hot and restless nights, with a quick, sharp pulse; all such cases must have the vascular excitement subdued before the water can be taken with any advantage."

Dr. Huntt gives the following directions for the use of the water :

“If the system should be too plethoric, or too much excited, the use of the water should be postponed until the excitement shall be reduced to a proper state. Commence by taking one glass of water at bed-time, and one before breakfast; after a few days, take two glasses at bed-time, and two before breakfast, one at 11 o'clock, A. M., and one at 5, P. M.; this quantity will generally operate freely on the bowels; if it should fail to produce this effect, a little common salt, magnesia, or cream of tartar may be added. If it is desired to act on the kidneys, increase the quantity of water to three or four glasses between a light supper and bed-time, and the same quantity between day-light in the morning and breakfast-time, two glasses at noon, and one or two glasses about 5 o'clock, P. M., taking care to exercise freely after drinking. The most proper periods for using the water are, at night before bed-time, and in the morning before breakfast time.”

CHAPTER VIII.

BLUE SULPHUR SPRING.

THIS Spring is situated in Greenbrier County, thirteen miles from Lewisburg, twenty-three from the White Sulphur Springs, and thirty-two from the Red Sulphur, on the great thoroughfare leading to Guyandotte.

The knowledge of this Spring dates far back into the early history of Western Virginia. It was first known as a *lick*, and being in the vicinity of the Sewel Mountains, attracted vast herds of buffalo and deer. It was soon, however, discovered to possess powerful sanative influences, producing the most extraordinary results in the cure of indolent ulcers and chronic diseases of the skin. It soon became a popular neighborhood resort for many of the sick and afflicted. The notoriety thus excited led to a scientific examination of its qualities, which resulted in a confirmation of its sanative power; and now it deservedly ranks high among the sulphuretted waters of our country.

The locality of the Blue Sulphur is within the geographical limits of the mineral fountains—both sulphu-

retted and thermal—of the mountains of Virginia, and enjoys to a full extent their balmy influence and the striking grandeur of their sublime scenery.

This watering place has been improved by an enterprising company, living in this and the adjoining counties, with great attention to the comfort and convenience of their guests. The buildings consist of a large brick Hotel, 180 feet long and three stories high. From each side of this centre building are wings two stories high and 109 feet long, with piazzas running their entire length, and so constructed that the invalid need in no wise suffer from any inclemency of the weather.

The fountain rises in the centre of an extensive and beautiful lawn, and is covered by a massive and well-devised temple. The Spring, which is directly in front of the hotel, is enclosed in a handsome white marble box, five feet in diameter, the sides of which are coated with a pink deposite, imparting to its cool, crystalline water a peculiar opalescent tinge. Nothing of the kind can be more beautiful or more inviting than this elegant pool of water. It flows off in a bold stream, and is soon received into pipes, and conducted away for bathing purposes.

The following is the quantitative analysis of this water, as made by Prof. Rodgers, of the University of Virginia:

Temperature variable, from 45° to 46° .

Solid matter procured by evaporation from 100 cubic inches, weighed, after being dried at 212° , 44.22 grains.

Quantity of each solid ingredient in 100 cubic inches, estimated as free from water:

	In 100 cub. inches.	In 231 cub. inches.
Sulph. lime, -	20.152 grains.	46.551 grains.
Sulph. magnesia,	2.760 “	6.375 “
Sulph. soda, -	7.020 “	16.218 “
Carb. lime, -	2.185 “	5.047 “
Carb. magnesia, -	0.407 “	0.940 “
Chl. sodium, -	1.868 “	4.215 “
Chl. calcium, -	0.005 “	0.011 “
Protoxide iron, received from prot. sulph.	0.015 “	0.034 “
An azotized organic mat- ter, blended with sul- phur, -	3.000 “	6.930 “
	<u>37.413</u>	<u>86.321</u>

Earthy phosphates, a trace—iodine, a trace.

Volume of each of the gases in a free state :

	In 100 cub. inches.	In 231 cub. inches.
Sulph. hydrogen,	0.45 to 46 gr.	1.03 gr.
Nitrogen, -	3.25 “	7.49 “
Oxygen, -	0.56 “	1.29 “
Carb. acid, -	2.75 “	6.35 “
Total cubic inches,	<u>7.01</u>	<u>16.16</u>

THERAPEUTICAL AGENCY, &c., &c.

* “*In Chronic Diseases*, I have found no agent so potent as mineral water, and none from which relief may be more confidently expected.

Nervous Diseases—under which head may be classed hypochondria, hysteria, catalepsy, choria, &c., originating from disordered digestion—are successfully treated by this water.

Chronic Hepatitis.—In whatever form this disease presents itself, either in tissue or secretion, this water is a valuable remedy. Its power as an emulgent and as an alterative upon the liver, in some instances, is astonishing; the icterode appearance of the skin rapidly fading, the secretions changing, and the digestion strengthening. In connection with chronic hepatitis, I may class jaundice and splenitis.

Amenorrhœa and Irregular Menstruation.—In these types of uterine disease, I have had the best results from the use of the water; nay, the frequent cures that have come directly under my observation, warrant me in re-

*I am indebted to my friend, Dr. John A. Hunter, who has been the resident physician at the Blue Sulphur for a number of years, for this account of the therapeutical agency of this mineral water. Dr. H. is a very intelligent and discriminating physician, with an amount of experience in the use of these waters that entitles his opinion to great confidence.

commending the use of the water in such cases with confidence.

Chronic Diseases of the Urinary Organs.—In calculous affections, I doubt its utility, as all acid calculous affections require a greater amount of alkalinity than this spring possesses. Consequently, the remedial effect is equivocal. But in all cases of chronic irritation of the mucous membrane of the kidneys, bladder, or prostate gland, its value is unquestionable.

In *Chronic Diseases of the Skin*, the water is used successfully, and particularly in that class of scaly disease (order, *squamæ*,) where the opaque and thickened laminæ of the cuticle are a product of inflammation in the true skin; and not unfrequently is it found valuable in the slighter forms of psoriasis, when the cuticle alone, or the rete mucosum, appears to be in a morbid condition. In that variety of disease, including lepra, psoriasis and ichthyosis, I have witnessed results from the use of the water, conjoined with the baths, rare and unexpected."

It may be added, that the Spring has attached to it an excellent *Bathing Establishment*, consisting of shower, warm and tepid baths, medicated and vapour, under the control of Dr. Martin, whose long experience with them well qualifies him to judge of their medical applicability.

CHAPTER IX.

SWEET SPRINGS.

THE Sweet Springs are situated in a charming valley in the eastern extremity of Monroe county. They are 17 miles south-east from the White Sulphur, and 22 east from the Salt Sulphur.

These springs were discovered in 1764, before any of the other mineral waters in this section of the State were known. In 1774, they had attracted so much attention, as to be analyzed by Bishop Madison, then President of William and Mary College.

The beautiful valley in which the spring is situated, is about five miles in length, and from one-half to three-fourths of a mile in width, and is bounded on the south by the lofty Sweet Spring mountain, and on the north by the Alleghany. The spring and bath are situated in the lower end of a small hollow or valley, that makes out from the base of the Sweet Spring mountain, from which the ground gradually swells on either side. Contiguous to the spring is a grove of a few old natives of the forest, that have fortunately escaped the axe of the spoiler, which, together with a fine sodding of grass, give the means of a pleasant promenade in good weather.

The hotel accommodations at the "Sweet" are now extensive and comfortable, being sufficient for 300 persons. The property is owned by three enterprising gentlemen, Messrs. Caperton, Echols and Bierne, who are now making preparations for enlarging the capacity of the place for accommodating visitors, and also for adorning and beautifying the grounds. The energy and enterprise of these gentlemen, with the ample means at their command, give a guarantee for the speedy accomplishment of every improvement at this place, which the public convenience or a correct taste can demand.

"The water of the spring (Bell) rises into a large cylindrical reservoir, from opposite sides of which it flows out by small pipes, one conveying water to the bath for the men, the other to that for the ladies. The men's bath is of a quadrangular form, surrounded by a wall, and open at top. It is of tolerable extent and clear—the bottom being of gravel, and the water constantly flowing in and as constantly passing out, after it reaches a certain height.

"The temperature of the Sweet Spring is 73° Fah., the same as that which, in England, by a strange blunder, is called Bristol Hot Well. There is considerable resemblance between the two in other respects, as well in the evolution of carbonic acid, as in the earthy and saline matters held in solution. In the Virginia Spring, however, iron has been detected; whereas the Bristol Hot Well has none in its composition.

"By the analysis of Rowelle, one quart of the Sweet Spring water contains—

Saline substances in general,	12 to 15 grains.
Earthy substances,	- 18 to 24 "
Iron,	- - - $\frac{1}{2}$ to 1 grain.

"The saline substances are sulphate of magnesia, muriate of soda, and muriate of lime, with a little sulphate of lime. The earthy matters consist of sulphate of lime, a small portion of carbonate of magnesia and lime, with a small portion of silicious earth."

Professor Wm. B. Rodgers, late of the University of Virginia, in the course of his geological survey of the State, analyzed the waters of the Sweet Spring, with the following results :

1st. Solid matter procured by evaporation from 100 cubic inches, - - - - - 32.67

A portion of this is combined with water.

2d. Quantity of each solid ingredient, estimated as perfectly free from water, in 100 cubic inches :

Sulphate of lime,	- - -	5.703
Sulphate of magnesia,	- - -	4.067
Sulphate of soda,	- - -	2.746
Carbonate of lime,	- - -	13.013
Chloride of sodium,	- - -	0.060
Chloride of magnesium,	- - -	0.136
Chloride of calcium,	- - -	0.065
Peroxide of iron, (Sesqui oxide,)	- - -	0.061
Silica,	- - -	0.075
Earthy phosphate,	- - -	a trace.

3d. Volume of each of the gases contained in a free state in 100 cubic inches of the water :

Carbonic acid,	-	-	-	37.17
Nitrogen,	-	-	-	1.86
Oxygen,	-	-	-	a trace.

Sulphuretted hydrogen, a trace too small to be measured.

4th. Composition of 100 cubic inches of the mixed gases rising in bubbles in the spring :

Nitrogen,	-	-	-	71.7
Carbonic acid,	-	-	-	28.3

The chief distinguishing feature of this water is the predominance of the carbonic acid (fixed air) which it contains, and it is properly regarded as the best example of the acidulous waters that is found in our country.

*Few mineral waters have acquired such fashionable and well merited celebrity as the Sweet Springs. The name is calculated to convey erroneous impressions of their taste, which is like a solution of a small quantity of a calcareous or magnesian carbonate. The excess of carbonic acid gives, however, the water a briskness, productive of a very different effect on the palate from what an imperfect mixture of the earths would produce.

The first effects of this water, due to its temperature and gaseous contents, when drunk, are a feeling of warmth at the stomach, with a sensation of fullness of the head, and some giddiness. Taken at stated intervals in mode-

*Bell on Baths and Mineral Waters.

rate quantity, it will produce a moisture on the skin, and increase the flow of urine. If the stomach be in a good state, it gives additional appetite, and imparts fresh vigor to the system. Its operations on the bowels vary at first, but after a more protracted use, it will generally be found to increase a costive habit.

The Sweet Spring water is serviceable in the varieties of dyspepsia accompanied by gastrodynia or spasm, with pains occurring at irregular intervals, and heart burn—where the extremities are cold and the skin torpid. In secondary debility of the digestive canal, from the exhausting heats of summer, or in chronic diarrhoea and dysentery, without fever, or not sustained by hepatic inflammation, much good will be produced by the internal use of these waters.

If much gastric irritation, or evident phlogosis of the liver be present, with a parched skin and other phenomena of fever, it will be better to premise one or two small bleedings, followed by the use of a blue pill at night, and a tumbler-full or two of the water, to which has been added a tea-spoonful of Epsom salts, or twice the quantity of calcined magnesia, early in the morning.

The harrassing cough to which young persons are occasionally subject, and which often has its origin in an enfeebled state of the stomach, or in scrofulous habits from the enlargement of the bronchial glands—as also the *tussis humoralis* of old people—will all be materially benefited by the use of these waters. The relief afforded in such cases as these has usually given Bristol Hot

Well its reputation in the cure of pulmonary consumption.”

Females who have become enervated by long confinement, or from nursing their children, and whose constitutions have suffered for want of exercise and fresh air, will be greatly benefited by the use of these waters, internally and as a bath.

In sub-acute rheumatism, and in neuralgic attacks, the Sweet Spring bath is often eminently useful. In the closing stages of acute rheumatism, the patient is often harrassed with a lingering irritability of his system, with tenderness, pain and inability in the diseased joints, sometimes attended with slight feverishness, especially toward the close of the day.

In such cases, while hot or warm bathing would be injurious, the baths of the Sweet or Red Sweet Springs may be resorted to with the best effects. The use of the *spout*, in such cases, is valuable, by placing the diseased part under the falling water, and allowing it to receive the dash for a short time.

A very efficacious way of applying this water to the surface is by *douche*—the stream being directed to the part in which the disease is situated, wherever there is “augmented heat and fixed pain, as over the stomach, or liver, or abdomen generally, above the pubis, or on the loins and sacrum; also to the joints, when the violence of inflammation has not yet subsided, nor passed entirely into the chronic state. If the irritation of the stomach forbids the drinking of the water, *douching* the epigastrium would form a good preparative for its use in

this way. Lumbago, with some evening fever, *chlorosis*, or fluor albus, with heat and pain at the loins, would be benefited by douching this part.

“As we should have inferred from the excess of carbonic acid, and the presence of earthy carbonates in the water, it is useful in calculous and nephritic complaints.”

The Sweet Spring waters, internally and externally employed, are adapted to a large circle of cases. As a tonic, in cases of pure debility, they may be used with great confidence—always, however, regarding this as an aphorism, that *they are contra-indicated, and should be withheld in all cases in which there is positive congestion in any of the vital organs.*

The first sensation on immersion in the Sweet Spring bath is a slight shock, which speedily passes off, leaving the bather with the most agreeable sensations while he disports himself in the sparkling pool.

The freedom and advantage with which this bath has been used by aged persons, is evidence of its general safety.

In using the bath, “the chief points to be attended to are, that the skin should not be moist or cold with perspiration, nor that there shall be general chill, nor the languor that follows excessive muscular action. The stomach also should be nearly empty, or at least not actively engaged in its work of digestion.” Many persons are injudicious in remaining too long in the bath. From two to ten minutes will embrace periods adapted to every condition, and only the most robust should remain in the last mentioned time. In a large majority of cases,

indeed in all cases in which there is much general debility, from *two* to *five* minutes, according to circumstances, will embrace the proper periods for remaining in the bath. It is often advantageous to bathe twice or thrice a day, and this can be done safely in all cases, provided the patient does not remain too long in the water at any one time.

CHAPTER X.

RED SWEET, OR SWEET CHALYBEATE SPRING.

ONE mile North of the Sweet Springs, on the road leading to the White Sulphur, and just within the Southern border of Alleghany County, are the *Red Sweet Springs*.

This property was originally owned and improved by Mr. Philip Rogers, who for many years kept the old Sweet Springs. About the year 1845, it became the property of John R. Sampson, Esq., who occupied it for several years and still further improved it. It is now owned by Mr. C. Bias, formerly of Memphis, Tennessee, who occupies it and is devoting a large amount of energy to its further improvement.

This property, embracing about 1700 acres of land, affords one of the most productive farms in the State—a very great convenience to a spring establishment in reference to its supplies.

The improvements subservient to the Springs are spacious, well-designed and comfortable, and are sufficient

for the accommodation of about two hundred visitors. In the course of another year, they will be considerably enlarged, with the view of meeting the demands of a constantly increasing patronage.

There are two medical springs at this establishment, the one a few paces below the hotel, essentially the same, both in quality and temperature, with the old Sweet Springs; indeed, it may be regarded as identically the same water. The other, some forty rods, perhaps, above the hotel, is in many respects like it, but containing a much larger quantity of *iron*, which, being abundantly deposited in the form of a red precipitate, has given it the name of *Red Spring*.

The water of the Red Spring, which is the characteristic water of the place, and most relied upon both for drinking and bathing, issues from beneath heavy and irregular limestone arches, just at the head of a narrow cove formed by a projecting hill on one side, and on the other by large masses of porous stone, probably deposited there from the Sweet Spring water, which once flowed in this direction.

There are here three fountains, separated by narrow stone petitions, but all running into one common sluice. The upper and boldest of these fountains is about two degrees colder than the two lower ones, and evidently contains less of ferruginous matter. The water issuing from all of them, is probably two hundred and fifty gallons in a minute.

The water of the *Red Spring* has been twice analyzed, first by Rowelle, and then by Professor Rodgers.

According to Rowelle, *one quart* of this water contains :

Carbonate of lime,	-	-	4 grains.
Carbonate of magnesia,	-	-	3 “
Carbonate of iron,	-	-	2 “
Silex.	-	-	1 “
Sulphate of magnesia,	-	-	1 “
Muriate of soda,	-	-	$\frac{1}{2}$ “
Iron combined,	-	-	1 “
Carbonic acid.			

The following is the result of an analysis by Professor Rodgers of this water :

1st. Solid matter procured by evaporation from 100 cubic inches, weighed after being greatly dried at 112° 40.76.

A portion of this is combined water.

2d. Quantity of each solid ingredient estimated as perfectly free from water. In 100 cubic inches :

Sulphate of lime,	-	-	14.233
Sulphate of magnesia,	-	-	3.107
Sulphate of soda,	-	-	1.400
Carbonate of lime,	-	-	1.166
Chloride of sodium,	-	-	0.037
Chloride of magnesium,	-	-	0.680
Chloride of calcium,	-	.	0.010
Sesquioxide of iron,	-	-	0.320

Organic matter in small quantities.

Iodine, a mere trace.

The iron is no doubt dissolved in the water as a carbonate.

3d. Volume of each of the gases contained in a free state, in 100 cubic inches of the water.

Carbonic acid, - - 46.10 cubic inches.

Nitrogen, - - 2.57 "

Oxygen, - - .20 "

Sulphuretted hydrogen, a trace, too small to be measured.

4th. Composition of 100 cubic inches of the mixed gases rising in bubbles in the spring :

Nitrogen, - - - - - 62.5

Carbonic acid, - - - - - 37.5

The temperature of the Red Spring water, as it issues from three different heads, is from 75° to 79°. Frequent examinations of this Spring with a thermometer induces me to believe that its temperature is slightly variable, never exceeding, however, one or two degrees of variation.

The analysis of the Red Sweet and Sweet Spring waters, by the same chemist, show that they contain essentially the same ingredients, but in different proportions, both the *salts* and the *gases* being more abundant in the former. The chief difference in the medical effect of the two waters is probably owing to the larger quantity of *iron* held in solution by the Red Sweet. While the Sweet Spring contains of iron 0.061 in 100 cubic inches of its water, the Red Sweet in the same amount of water

contains 0.320, or about four-fifths in excess. This goes, so far as analysis can be satisfactory, to prove its higher tonic power. The iron in this water exists in the form of a carbonate, held in solution by carbonic acid gas, constituting the mildest, and at the same time the most efficient preparation of our ferruginous waters.

While the carbonic acid gas in the Red Sweet is 41.10, against 37.17 in the Sweet, the carbonates as a whole largely prevail in the latter. Again, while the sulphate of lime is much the largest in the Red Sweet, the sulphates of magnesia and soda, both aperient in their character, decidedly predominate in the Sweet Spring waters. It may be noted that *iodine*, in small quantity, is found in the Red Sweet, and not in the Sweet; but its quantity is doubtless very small, and I am not aware of any peculiar effects of the water that can with certainty be attributed to this agent. It may possibly exert some beneficial influence as a tonic in combination with the other ingredients. From a review of the analysis of these two interesting waters, as well as from observation of their effects on disease, it would not be very inaccurate to say that the Red is the Sweet Spring water with a strong iron base. But medical men, who should look closely into the peculiarities of remedial agents, will find upon careful scrutiny of these, that the difference in the amount and combination of their materials must modify, to some extent, their therapeutical agency upon the human system, and that, according to the practical object they wish to effect, they should select one or the other of them.

As a general rule, it is fallacious to adopt the analysis of a mineral water as a guide in its administration. Although an analysis as correct as can be obtained in the present state of chemical science, is an important assistant in understanding the general nature of remedial waters, and in aiding in the formation of general conclusions in relation to them; still, actual observation of the peculiar effects of these agents is greatly more satisfactory, and far more to be relied upon. Mineral waters often produce effects upon the animal economy that are not indicated by their analysis, and in some cases they produce results that are directly contra-indicated. But, in reference to these particular waters, there seems to be quite a concurrence between the indications afforded by their analysis and actual observation as to their effects.

With both these lights before us, we are forced to regard the Red Spring water as being more decidedly tonic in its influences upon the system than the water of the Sweet Spring, and somewhat more exciting, too; hence, all the cautions that have been urged in reference to the contra-indications of the use of the Sweet Spring water apply even with more force-as to the use of this.

From the same lights, we also learn that, as a very gentle aperient, and a mild and somewhat *less exciting tonic*, the Sweet Springs have the preference, and especially in such cases as do not admit or require the use of chalybeates. The *diuretic* effect is about the same from the use of either water.

These general principles may, to some extent, I hope, indicate the class of cases that will be most benefited by

one or the other of these springs. But it must be confessed that the subject is sometimes an intricate one, requiring a full knowledge of the case, with a careful comparative estimate of the powers of the two waters, to decide with certainty under the use of which the patient will be most benefited. There is, however, a large class of cases that will be essentially, if not equally benefited by the use of either of these waters. To such cases as require the use of the *iron tonics*, the Red Sweet water is peculiarly well adapted, and may be prescribed with great confidence.

In *neuralgic affections*, unattended with organic lesion or obstructions, this water is used with very general success, and rarely fails to ameliorate or cure such cases. The writer has great cause to speak favorably of this water in neuralgia, not only from its success in a large number of patients for whom he has advised its use, but especially in his own case. In the summer of 1842, he spent several weeks here, using the water externally and internally, for a sciatic *neuralgia*, under the painful effects of which he had been entirely prostrated for several months. To describe the great relief which he derived, would demand the language of enthusiasm. For more than two months he had been unable to turn in his bed, and during all this time suffering untold misery. Before using this water, he underwent a three week's course of the White Sulphur, which, although it did not relieve the pain, brought his general system into a good condition for the use of tonics. Unable to sit up, he was conveyed, lying

upon a bed in a carriage, to this place, and immediately entered upon the use of the water and bath. The effects were as remarkable as they were prompt and happy. In a word, he here found a speedy and effectual remedy for this Protean and painful disease, after all other remedies had failed.

In speaking of the waters of the Red Sweet and Sweet Springs, I wish to be understood as alluding to the baths, as well as to the internal use of the waters. In a large majority of cases, the bath is doubtless the most prominent agent in effecting a cure. Merely as a bath, there is probably little difference in the effects of the two Springs. The temperature of the Red Sweet bath is two or three degrees warmer than the bath at the Sweet. This in some cases would be a difference of importance, and not to be overlooked by the physician or the invalid.

The effects experienced after coming out of these baths, provided the patient has not indulged himself in them too long, are as remarkable as they are agreeable. They differ widely from the effects of an ordinary cold bath. There is an elasticity and buoyancy of body and spirit that makes one feel like leaping walls or clearing ditches at a single bound. It cannot be from the absorption of any of the materials of the water by the cutaneous vessels. The few minutes that we remain in the water, especially the very short time after the stricture of the skin from the first plunge has passed off, forbids such an idea. May it not be owing to a stimulant impression imparted by the carbonic acid gas to the nerves of the

skin, and by sympathy extended rapidly over the whole body?

Immediately on the bank of the creek, and about two hundred yards from the Red Sweet, a *Sulphur Spring* exists, which copiously deposits its salts in large white flakes. This Spring has not been improved, nor have its virtues been tested. Its sensible qualities, however, afford favorable indications of its value as a medicinal water.

CHAPTER XI.

HOT SPRINGS.

THIS celebrated bathing establishment is situated in the county of Bath, thirty-five miles north-east from the White Sulphur, and immediately on the great thoroughfare from the capital of the State to the Ohio river. It is owned by Dr. Goode, who resides on the premises, and personally directs in its management. Comfortable bathing houses have been erected for the accommodation both of male and female patients. In each of these houses suitable arrangements are made for taking the *sweat* or *plunge* bath, as may be desired; or for receiving the *douche* when it may be required.

“There are six baths at this place,” (Dr. Goode,) “each supplied with water from a separate spring; they range in temperature from 100° to 106° of heat. The effects of these waters in disease prove that they are highly medicated, though they are considered by many as simple hot water. They are known to contain sulphate and carbonate of lime, sulphate of soda and magnesia, a minute portion of muriate of iron, carbonic acid gas, nitrogen gas, and a trace of sulphuretted hydrogen

gas; and when used internally some of the consequences are such as we might expect from our knowledge of their constituent parts.

“But the chemical composition of a mineral water can lead to no safe conclusions as to its medical powers. Its most potent part may be incapable of analysis, or destroyed by the process, and its mere properties cannot be developed by analysis; our only sure test is experience of the actual result when applied to the *diseased* human system. I have been at the Hot Springs for six entire seasons, and have watched their effects on several thousand invalids with all the interest which ownership could excite, and the result of my experience is as follows:—these waters, taken internally, are anti-acid, mildly aperient, and freely diuretic and diaphoretic. But when used as a general bath their effects are great and excel all expectation. They equalize an unbalanced circulation, and thereby restore the different important parts of the system when torpid—that natural and peculiar sensibility, upon the existence of which their capacity to perform their several functions, and the beneficial action of all remedies depend. They relax contracted tendons; excite the action of absorbent vessels; promote glandular secretion; exert a marked and salutary influence over the biliary and urinary systems, and often relieve, in a short time, excruciating pain, caused by palpable and long standing disease in some vital organ.”

These waters are suited *only* to chronic conditions of the system. Dr. JAMES JOHNSON, of London, after

enumerating the diseases in which Thermal Waters are *inadmissible*, adds, "But there is a long catalogue of chronic disorders, to which *thermal medicinal waters*, both internally and externally applied, prove extremely useful. Thermal waters act in three principal ways on the human machine: 1st, through the medium of *sensation*, on the nervous system; 2d, through the agency of their *temperature*, on the vascular system; and 3d, by means of their chemical contents, on the secretory and excretory organs. In *most* chronic complaints, and especially in rheumatism, gout, cutaneous defecations, neuralgia, dyspepsia, glandular swellings, and visceral obstructions, there is pain, uneasiness or discomfort of some kind, which, indeed, constitutes the chief grievance of the individual. It is no unimportant matter to soothe those sufferings during the process employed for the cure. The warm bath effects this purpose in an eminent degree, through its agency on the sentient extremities of the nerves distributed over the surface of the body. There is an extensive chain of sympathies established between the skin and the internal viscera, and through the medium of this channel, agreeable sensations excited on the *exterior*, are very often communicated to the *central organs* and *structures* themselves. Even in this way, torpid secretions are frequently roused into activity and improved in quality, while the secretory apparatus itself is relieved from a *host of painful feelings*."

These waters have been critically analyzed by Prof. WILLIAM B. RODGERS, of the University of Virginia.

The saline ingredients in 100 cubic inches of water are—

Carbonate of lime,	-	-	-	7.013
Carbonate magnesia,	-	-	-	1.324
Sulphate of lime,	-	-	-	1.302
Sulphate magnesia,	-	-	-	1.530
Sulphate soda,	-	-	-	1.363
Chloride of sodium and magnesium, with a trace of chloride of calcium,				0.105
Proto-carbonate of iron,	-	-		0.096
Silica,	-	-	-	0.045
				<hr/>
				12.778

The free gas consists of nitrogen, oxygen and carbonic acid gas. It also contains a mere trace of sulph. hydrogen.

The heat of the human body, as ascertained by inserting the bulb of a thermometer under the tongue, is about 96° —sometimes as high as 98° ; and these degrees seem to be the same, with little variation, in all parts of the world, neither affected, in the healthy body, by the heat of the torrid nor the cold of the frigid zones. But this, however, relates only to the internal temperature of the body; the heat of the skin is very variable, and generally considerably below the degree of animal heat. This arises from the great cooling process of evaporation, constantly going on over the whole surface; its sensibility to all external impressions, and its exposure to the atmosphere, which seldom rises so high as 98° , even in the highest heats of summer.

From a view of these causes, we will easily be led to perceive why a bath heated to 98° gives a strong and decided sense of warmth to the skin; and a sensation of slight warmth, rather than of chilliness, is felt, even several degrees below this point.

Whenever a bath is raised above the degree of animal heat, it then becomes a *direct stimulus* to the whole system, rapidly accelerates the pulse, increases the force of the circulation, renders the skin red and susceptible, and the vessels full and turgid.

The temperature of the Hot Spring baths, ranging from 100° to 106° , must be decidedly *stimulant*, and the more or less so according to the particular bath employed. It is probably to their stimulant power that we are mainly indebted for their curative virtue. The soothing and tranquilizing effects which often follow their use, is the result of their sanative influence in bringing the organism into a normal condition.

Hot baths are potent and positive agents. When applied to the human body they are never negative in their influences, but will do either much good or much harm, according to the judgment and skill with which they are employed.

Their stimulant influences forbid their use in all acute diseases, and they are contra-indicated in such chronic cases as are attended with high vascular excitement, or exalted nervous susceptibility. There are nevertheless a large number of *chronic* diseases in which hot bathing constitutes the most rational and the chief reliance of the invalid. But these potent agents should never be pre-

scribed merely for the *name* of a disease, however carefully its nomenclature has been selected. The precise *existing state of the system*, whatever may be the pathology of the disease, ought always to be carefully looked to before a course of hot bathing is directed.

These baths are found eminently useful in most cases of *chronic rheumatism*, in the various forms of *gout*. In local *paralysis*, occasioned by the use of any of the mineral poisons, or in metastasis of gout, rheumatism or other diseases, these baths may be used with good effect. *Chronic bronchitis*, especially if connected with a gouty diathesis; *deafness*, connected with defective or vitiated secretions of the membrane of the ear; old *sprains*, or other painful injuries of the joints, are often much benefited by the use of the baths.

Diseases of the Uterine System, such as amenorrhœa, painful dysmenorrhœa, &c., are often greatly relieved here.

In some of the more obstinate forms of *biliary* derangements these baths are used with the most happy effects; particularly the *hot douche*, when applied over the region of the liver to relieve the torpor of that organ.

There has already been so much written on the medical applicability of *thermal waters*, that I have not thought it necessary here to do more than to lay down a few general principles to guide the invalid in their use, and to allude to some particular diseases, for the cure of which the Hot Springs are known to be well adapted.

The cause of the high temperature of thermal springs has long been a matter of curious speculation. Some have attributed it to the agency of electricity; but this must be regarded in the light of an ingenious speculation, rather than the result of observation and facts. It is very common now to regard phenomena as the result of electrical influences, principally, perhaps, because we know the agent to be very potent and pervading, but partly because of our ignorance of the general laws by which electricity is governed. But whatever the facts may be, there seems to be no proof approximating to a reasonable probability, that electricity is in any way concerned in producing the high temperature of thermal waters.

Another theory, and one which elicits the largest amount of credence, perhaps, by scientific men, alleges, that "the heat of thermal springs is owing to the central heat of the globe, and that it increases in proportion to the depth from which they proceed. The philosopher Laplace embraced this theory, and it is, we believe, held by many geologists. It is urged,* and to some extent is well maintained, that the "temperature of the earth increases, as we descend into it, about one degree for every hundred feet; and if the increase continues in this proportion, we should arrive at boiling water at the depth of less than three miles." In proof of this fact, the regular increase of temperature as workmen have descended into the earth in boring the *artesian* well at Paris, now

* See Prof. Daubeny's essay in the Sixth Report of the British Association for the Advancement of Science.

1800 feet deep, and throwing out by a subterranean power an immense volume of warm water, might be cited. But what are we to do with the obviously refuting fact exhibited in the salt wells at Kanawha in our own State? Several of these wells have been bored to the depth of *sixteen or seventeen hundred feet*, and, as we are informed, without any appreciable increase of temperature.

Other theorists suppose that thermal springs owe their temperature to circumscribed volcanoes, and that such springs are a sort of safety valve to those subterraneous conflagrations. "It is well known that an earthquake, or an eruption of a volcano, has often produced a change in the temperature of thermal springs that were even at some distance from the place where these phenomena occurred.

There is still another theory, "that supposes that the heat of these springs is produced by certain processes going on in the interior of the earth, and that these processes are attended with an absorption of oxygen and a consequent extrication of caloric." In the absence of any positive knowledge on the subject, this theory would seem to be sustained by as much probability as any of the others that have been alluded to. But this is a subject that falls strictly within the province of geology, and the zeal and success with which that science is now being prosecuted, afford us reasonable grounds to look to its votaries for some elucidation of this curious topic.

CHAPTER XII.

WARM SPRINGS.

THE Warm Springs are situated in a narrow vale, at the Western base of the Warm Spring Mountain, in the County of Bath, fifty miles West of Staunton, and five miles N. E. from the Hot Springs. They are among the oldest of our watering places, having been resorted to on account of their medicinal virtues for more than seventy years. The property was patented by Governor Fauquier to the *Lewis* family in 1760. For many years it was owned by the late Dr. John Brockenbrough, of Richmond, who devised it to his two interesting grand-daughters, also the grand-daughters of the distinguished Dr. Chapman, of Philadelphia.

Several of our medicinal fountains claim to have been known and appreciated by the aborigines of the country. In reference to this particular one, there are many tales related by that venerable class, the *oldest inhabitants*, of the discovery and use of its waters by the Indians. One of the most interesting of these stories, and which purports to be derived through the old bath-keeper at the

Warm, is thus related by the eloquent pen of Mr. Otis, of Boston :*

“A young Indian, more than two centuries ago, was coming from the Western valley of the great Appalachian mountains, towards the waters of the East that opened into the beautiful bay, whose branches touched the strands of some of the mightiest marts of a nation that was not then in existence. He had never trodden that path before, and nothing but the pride of youth, which would not brook that his brethren of other tribes should triumph over him as their inferior in adventure, had sustained his manly heart so far, for he had come, since the rising sun first touched that day the mighty peaks of the Alleghanies, from the vales that lay at their feet on the West. He was going to carry the voice and vote of a powerful nation to the council-fire that was kindling on the banks of the great water, and he felt shame at the recurrence of the idea that the place of the young Appalachian Leopard could be vacant. But the night winds beat coldly around him, and the way was dark. There had been rains, and the earth was damp and swampy; and no grass, or fern, or heather was at hand with which to make a bed in the bosom of the valley where he stood. He had not strength to climb the near range of mountains that drew up their summits before, as if to shut out all hopes that he could accomplish his ardent desire. Weary, dispirited, and ready to despair, he came suddenly upon an open space among the low under-wood that

*Literary Messenger of March, 1838.

covered the valley where he was wandering, and upon looking narrowly he observed that it was filled with water. He could see the clear reflection of the bright evening star that was just declining to her rest, and that was peeping into the fountain—

‘Like a bride full of blushes, just lingering to take
A last look in her mirror, at night, ere she goes.’

“By this translucent reflection, he could perceive that the water was clear, and its depth he could discern by the pebbles that glistened in the star-light from the bottom. He saw, too, that the water was continually flowing off, and supplying a stream that ran rippling away among the roots of the oaks that surrounded the spot; and as he stopped to taste the liquid element, he found it warm, as if inviting him to relax his chilled limbs by bathing in its tepid bosom.

“He laid aside his bow and quiver, unstrung his pouch from his brawny shoulder, took off his moccasins, and plunged in. A new life invigorated his wearied spirit, new strength seemed given to his almost rigid nerves; he swam, he dived, he lay prostrate upon the genial waves in a sort of dreaming ecstasy of delight; and when the first dawn of day broke over the rock-crowned hill, at the foot of which the Spring of Strength lay enshrined, the young Leopard came forth from his watery couch, and strode proudly up the mountain ‘where path there was none.’

“He was a ‘young giant rejoicing to run his course.’ Full of new fire and vigor, he manfully sped his way;

and upon the eve of that day, when the chiefs and the sons of chiefs were seated around the solemn council-fire, no one of them all was found more graceful in address, more commanding in manner, more pleasing in look, and sagacious in policy, than the young *Appalachian Leopard*, who bathed in the 'Spring of Strength.'"

Of course, we do not vouch for the truth of this legend, but it is a matter of sober history, that very soon after the discovery of the Warm Springs by civilized man, they became celebrated for their curative qualities, in various diseases, as well as for the mere luxury of bathing; and that they were frequented at much labor and fatigue by great multitudes, before any other (save the Sweet Springs) of the valuable watering places in Virginia were known.

The waters of the Warm Springs have been analyzed by two distinguished chemists, and with such discrepancy in results as to afford indubitable evidence that an analysis is not to be implicitly relied on in the administration of mineral waters.

The following is the analysis made by Professor WM. B. RODGERS, of the University of Virginia:

"The large bath is an octagon 38 feet in diameter; its arena is 1163.77 feet. The ordinary depth being five feet, (it can be increased to six,) the cubic capacity is 5818.86 feet, or 43,533.32 gallons; notwithstanding the *leaks*, this quantity of water will flow into the reservoir in one hour. The average temperature of the bath is 98° Fah. The gas which rises in the bath consists of

nitrogen, with minute quantities of sulphuretted hydrogen and carbonic acid.

“Besides this gas, each gallon of water contains 4.5 cubic inches of gas, consisting of—

Nitrogen, - - -	3.25 cubic inches.
Sulphuretted hydrogen,	0.25 “
Carbonic acid, - - -	1.00 “

The saline contents of one gallon of the water are as follows :

Muriate of lime, - - - -	3.968
Sulphate of magnesia, (Epsom salts,)	9.984
Carbonate of lime, - - -	4.288
Sulphate of lime, - - -	5.466
And a trace of soda, - - -	0.000
	<hr/>
	23.706

The following is the analysis of the Warm Spring water by Mr. HAYES, of Roxbury, Massachusetts :*

“In physical characters, this water resembles ordinary chalybeate waters. Recently drawn, it is clear, colorless, and in some degree sparkling, when agitated. Its taste is styptic or ferruginous, leaving the impression of a large amount of mineral matter being present. Agitated in the atmosphere, it becomes turbid, and deposits in filaments an ochry matter, consisting of oxide of iron and organic matter.

*Mineral Springs of Virginia.

“The dissolved gaseous matter is carbonic acid, with nitrogen; no oxygen is present. By heat it is rapidly changed, the deposit of ochry matter increasing in density, while gas is disengaged.

A standard gallon of this water, weighed at 60° Fah., afforded the following proximate constituents:

1st.	Sulphuric acid, - -	9.443	grains.
	Carbonic acid, - -	9.210	“
	Silicic acid, - -	0.990	“
	Organic acid, - -	1.525	“
2d. bases.	Potash, - - -	0.741	“
	Ammonia, - - -	0.110	“
	Lime, - - -	8.906	“
	Magnesia, - - -	0.444	“
	Protoxide of iron, - -	0.973	“
	Alumina, - - -	0.290	“
		<hr/>	
		32.632	grains.

“The change produced in this water by exposure to the air, or by heating it, indicates that the protoxide of iron exists in the water, united with organic acid. When silver salts are mixed with the freshly drawn water, the decomposition which follows is not attended by the coloration which humic and apocrenic acids produce. The deposition, too, is largely mixed with oxide of iron. These, with other considerations, induce me to state that the protoxide of iron is united with crenic acid. In the further apportioning of the bases, by which we theoretically make up the salts supposed to exist formed in this water, the magnesia and alumina are combined with hydrous

silicic acid, to form a compound soluble in carbonic acid and water. The remaining bases, then, constitute salts, which, through the influence of chemical affinities, are—

Sulphate of potash, - - -	1.371	grains.
Sulphate of ammonia, - -	0.369	“
Sulphate of lime, - - -	14.531	“
Carbonate of lime, - - -	5.220	“
Crenate of iron, - - -	2.498	“
Silicate of magnesia and alumina,	1.724	“
Carbonic acid, - - -	6.919	“
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	32.632	grains.

“In the preliminary examination of this water, it was deemed remarkable that so small a weight of iron salt should impart so sensibly a chalybeate taste to so large a volume of water. Neither the carbonate nor sulphate of iron has this effect, and the only explanation is that alluded to above: the existence of a crenate dissolved in carbonic acid so as to form an acidulous water. This compound with the lime salts may be considered as the active medicinal parts of the water.”

The virtues of this water are probably owing to its temperature, rather than to any medicinal agents combined with it. The supply of water is very abundant—estimated at 6000 gallons a minute. For the gentlemen’s bath, it is received into a room thirty-eight feet in diameter, and may be raised to the depth of six feet. After it has been used, the water is drawn off and the bath fills again in fifteen or twenty minutes. The ladies’

bath is comfortably furnished, and when required the water may be raised to the depth of five feet. Adjoining the gentlemen's bath, a room has been constructed for a cold *plunge* bath, which is plentifully supplied with common spring water, piped from the neighboring hills, of a temperature of from 60° to 65°.

The common practice in the use of the Warm Spring bath is, to bathe twice or even three times a day, and remain in the water from twelve to twenty minutes each time. In some cases, especially when the bath is used for cutaneous diseases, the patient may profitably remain in for a much longer period, even from half an hour to one hour. As a general rule, and especially for delicate persons, active exercise should be avoided while in the bath, and always, on coming out, the bather should be well rubbed over the whole body with a coarse cloth.

The best times for bathing are, in the morning before breakfast, and on an empty stomach an hour before dinner. Where perspiration is required, the bath should be taken in the evening, the patient retiring to bed immediately after.

The diseases for which these baths have been profitably employed are numerous; among them are atonic gout, chronic rheumatism, indolent swellings of the joints or lymphatic glands, paralysis, obstructions of the liver and spleen, old syphilitic and syphiloid diseases, chronic cutaneous diseases, nephritic and calculous disorders, amenorrhœa and dysmenorrhœa. Occasionally *chronic diarrhœa* is relieved. The same may be said of *neuralgia*; but, most generally, we find baths of somewhat lower

temperature more beneficial in this disease. In connection with the internal use of the alum waters, these baths will be found very serviceable in the various and distressing forms of *scrofula*. In painful affections of the limbs, following a mercurial course, these baths are efficacious, and the more so if employed in connection with the internal use of the sulphur waters.

Some precautions should be observed in entering upon the use of these baths, even by those to whose diseases they may be well adapted. The bowels should be open, or in a solvent condition; the state of the tongue should indicate a good condition of the stomach; the patient should be free from febrile excitement, and from the weariness and exhaustion generally the result of traveling in the public conveyances in hot weather. Many commit a great error, and occasionally make themselves quite ill by imprudently plunging into the bath immediately after arriving at the Springs, and before they have in any degree become relieved from the fatigue and excitation of the travel necessary to reach them. From such an imprudent course, the bather has little rational grounds to hope for benefit, and is fortunate if he escape without injury.

CHAPTER XIII.

HEALING SPRINGS.*

THIS medicinal fountain is in Bath county, Va., and is one of the thermal springs that give name to that county, and for which the chain of valleys that lie at the western base of the Warm Spring Mountain is so remarkable. The most southern of the group is the "Falling Spring Valley," and embosoms the water under notice. This is a narrow, but fertile and well cultivated valley, of eight or ten miles in length, and is bounded on the East by the Warm Spring Mountain, and on the West by one of its parallel spurs, known as the "Valley Mountain." On the South it is entered by the magnificent waterfall from which it derives its name, and on the North near the Healing Springs. Its general elevation above the bed of the Jackson river is from 300 to 400 feet, and about 1800 feet above the level of the sea.

The waters of the Healing Springs and those of Cedar Creek, a spring of great boldness and beauty, in its neighborhood, escape from the valley through deep parallel clefts in the Valley Mountain, and, uniting at its

* "A Notice of the Healing Springs of Bath County, Virginia, by Wm. N. Patton, M. D."

western base, are discharged, at the distance of six or eight miles, into Jackson River, near the point where that stream is crossed by the great thoroughfare from Richmond to the White Sulphur Springs.

Finding outlets through deep chasms in the mountain, these streams leave a narrow transverse section of it wholly unique and wildly grand, while the corresponding facings from which it has been torn are almost mural, and afford a fit haunt for "the eagle and the stork."

In its descent to a valley bearing its name, the Cedar Creek passes through a wild mountain gorge, and forms a series of beautiful cascades and rapids, as its crystal waters are impetuously hurried on to meet the silvery stream from the Healing Springs, that comes leaping and dancing through its own rugged channel. Uniting at this point, these waters flow through a beautiful valley, still clad in its native forests, and afford for several miles the finest trout fishing in the mountains.

Situated in the midst of a confined but fruitful valley, and surrounded by wild and romantic scenery, the Healing Springs afford a sequestered retreat for the invalid, and a pleasing resort for those who seek respite from the cares of business, or desire the refreshing influences of mountain scenery and climate. It is easy of access by several good country roads, and is approachable within three miles, at several points, by the main western thoroughfare. The approach from Lowry's is up the Cedar Creek valley, and over a delightfully shaded road of three miles length.

There is now in progress of construction a well graded turnpike road, that passes through the whole length of the Falling Spring Valley, and immediately by the Healing Springs; and it is proposed so to change the present location of the great thoroughfare westward, that it will also lead directly to this place.

“The improvements at the Healing Springs are planned after the best modern style, and will accommodate, when completed, two hundred boarders. Two commodious and elegant bathing houses enter into the plan of improvements, and from the air of neatness and comfort apparent in the whole establishment, the amplest proof is given of the full purpose of the gentlemanly and enterprising proprietors to make this watering place a home for the invalid, and an elegant and sumptuous residence for the temporary visitor.

This water, and something of its curative powers were known at an early day; but owing to the want of means, and the existence of a bitter feud between the parties to whom it belonged, no improvement whatever was made; yet such has been its reputation that every year a greater or less number of visitors, composed chiefly of extreme cases that had failed to be relieved elsewhere, or were too ill or too poor to go abroad, have resorted to it. Of late years, since it has become more the practice, in obstinate and long standing complaints, to seek relief by the use of mineral waters, this Spring has been steadily advancing in reputation, and, without improvements or other advantages, has now forced itself into public notice, and created the demand for elegant and expensive buildings.

It is not *five* years since this property was sold for only a *few hundred* dollars, and now it could not be bought for *fifty thousand*.

Whilst a great number of cures, as remarkable as they are gratifying, are known to have been effected by this water, yet no record of the character of the cases, nor history of their course and termination, has been made; nor do we know of any attempt to define the character of the water, to determine its mode of action, nor to designate the diseases which it is known to control.

To determine these points, a variety and number of facts have been gleaned from reliable sources, and furnish the data upon which the following conclusions are based.

The absence of any systematic account whatever of these Springs and the diseases to which they are applicable, is our only apology for the present notice; nor can we doubt its acceptability to the public, since this water is known to be a positive agent, adapted to a wide range of morbid conditions, and exercising almost specific control over many affections of formidable character.

The statements in reference to the remedial powers of this agent do not rest upon theoretical or speculative grounds, but upon actual cases and actual cures. Nor are the facts from which they are drawn exclusively of recent or remote date; they have occurred in every period of its history, and in such numbers as to preclude the idea that the results are due to accident or coincidence, but establish the relation of cause and effect.

Indeed, quite as much certainty attaches to the use of these waters as to any agent whatever; and we are proud

to enrol it upon the list of known curative means, and welcome it to a chief place amongst the medicinal fountains for which our region is already so distinguished.

The Healing Springs comprise three separate Springs. Two of these are quite near each other, and the third at a distance of perhaps two hundred yards, in the same ravine. These Springs are beautifully bright and crystalline; and the ever bursting bubbles of gas that escape with the water and float in myriads of vesicles upon its surface, impart to it a peculiar sparkling appearance.

The temperature of these Springs is uniformly 84° Fah., nor are they subject to any variation of quantity or quality. Singly, these Springs afford a considerable volume of water, and, together, they would form quite a bold fountain. Each, it is thought by some, possesses properties and virtues peculiar to itself, and hence they have received distinctive titles; but, as the same sensible properties are common to them, perhaps no essential difference will be found in their qualities. The waters have not been analysed. Lime and sandstone are the prevailing formations, and black slate, containing bisulphuret of iron, and other traces of minerals, are met with about the Springs. From the superficial formations, however, it would hardly be legitimate to infer the character of this water, as it most probably has a very remote source, and derives chiefly its mineral elements from strata in the depths of the earth. The deposit along the stream is much more worthy of trust, and would seem to indicate the presence of lime, alumina, iron, and other salts; but, in the absence of any analysis, we forbear to

determine, with even an approximation to certainty, the chemical character of the water; nor do we know that it is greatly to be regretted that we are left in ignorance of its exact constitution, since we must ultimately rely upon experimental results to guide us in the discriminate use of a mineral water, rather than the known absence or presence of any given constituent. A species of algæ springs up most luxuriantly in these waters. It is of a dark green color, and exceedingly delicate and beautiful in its structure. Its chemical nature has not been defined, though its therapeutical effects have been abundantly tested. Whether it acts by virtue of some inherent property of its own, or in consequence of principles imbibed from the water, or simply upon the principle of a poultice, or by combining all these, we will not attempt to decide. Charged with saline and gaseous matter, the baths at these Springs are exceedingly buoyant and grateful, and perhaps unsurpassed for the delightful and refreshing sensation it communicates to the system. For drinking purposes, the water is too warm to be altogether palatable at first, but its cordial effects upon the stomach soon make it an agreeable and even delightful beverage. This water, when drank, acts in three principal ways upon the system, to wit: upon the kidneys, the bowels, and skin; and perhaps the relative affinity for each particular organ is correctly indicated by the order of their enumeration. The direction to either viscus, is influenced somewhat by the condition of the system and to the manner of using the water. Whilst it is capable of being directed to either organ specifically, it may be so

employed as to exert a quiet and less marked, but not less salutary, effect over the whole at once. Its simultaneous action upon three great emunctories of the body, with its capacity to be directed specifically to either, constitutes this water a safe and gentle, but at the same time a certain and efficient depurating agent of the human body.

Acting upon the whole of the external surface, with its countless pores and innumerable sebaceous glands—stimulating to new action the entire track of the alimentary canal, with its numerous and important organs—and urging the kidneys to throw off the multiform materials designed to be separated from the circulating fluids, and producing, when retained or imperfectly eliminated, such dangerous disturbance to the constitution, it is not wonderful that this water should exercise immense control over diseased action, and prove a remedy for a widespread range of human maladies.

The water is remarkably light, and does not oppress the stomach, however freely it is drunk. It is a great promoter of digestion; and it is a common remark of those under its use, that they can eat with impunity what would otherwise be intolerable.

This fact, however, does not confer a license upon *the patient* to drink *ad libitum*, nor to eat indiscriminately.

The effects upon the system are greatly increased, and the most desirable results obtained, by combining the internal and external use of the water.

Bathing, both general and topical, is a most valuable and important mode of employing the water, and should

by no means be neglected when demanded by the circumstances of a given case.

The water of the Healing Springs, so far as it is capable of classification, may be regarded, in its general action upon the system, as decidedly *alterative and tonic*, both directly and indirectly; but inasmuch as it is an agent *sui generis* in its character, we doubt the correctness of limiting its action by restrictive definitions.

The first employment of these medicinal springs, and their earliest manifestation of curative powers, was in *ill-conditioned ulcers* and *intractable affections of the skin*; and hence the significant name they bear. In these diseases, as classes, often as annoying and unsightly as they are painful and intractable, perhaps this agent stands without a rival in nature or in art. From whatever cause it may arise, it is proverbial that physicians and surgeons deprecate the charge of such cases, and turn them too often to seek ill-judged means of relief at the merciless hands of empiricism, or leave them the victims to disease that renders the subject alike an object of disgust and a prey to suffering.

For such as labor under *inveterate* ULCERS, this water is indeed a boon, and promises, by a painless process, to achieve what the surgeon's knife had been powerless to effect, or the more dreaded cautery had failed to accomplish. In *cutaneous diseases*, so frequently persisting for years, and even for life remaining unsubdued, this water is not less remarkable for its benign effects. In many of the graver forms of skin diseases, as well as in those of

milder character, the best results may be confidently expected.

It is worthy of remark, that the grave consequences that sometimes result from healing long standing ulcers and diseases of the skin by the ordinary methods, are not to be apprehended in the cases of cure by this water.

Scrofula is known to be amenable to this agent. Of very recent date several remarkable cures of this terrible malady have occurred under its use, and we believe it is destined to become a standard remedy, to which we may look with the highest certainty for its relief.

In *chronic ophthalmic affections*, whether dependant upon a scorbutic habit or other dyscrasy of the body, and in all degenerate and morbid conditions of the eye, resulting from neglected or improper treatment, the most gratifying results may be anticipated from the judicious use of these Springs. Again and again have those who came blind returned seeing.

Here, as in all the varieties of ulcers and local inflammations treated by this water, a new and powerful agent is employed: it is the topical application of the moss that grows luxuriantly in the baths and streams that flow from them. This has a peculiar effect. When applied to a diseased surface it becomes painful, sometimes exceedingly so, and yet, upon inspection of the part, its redness has been dispelled, and a new and more healthy action established. When the application has been long continued the surface becomes blanched and corrugated.

The second great class of diseases in which the efficacy of these Springs was proved, is *rheumatism*.

In affections of this character they have acquired a deservedly high reputation, and are second in rank, perhaps, to no waters of this region. There are cases, it is true, with such rigidity of parts and loss of vitality, or with the diathesis or habit of body so fixed, as to doom the victim to remediless torture; but in all cases in which agencies may be expected to accomplish any good, either by relieving suffering or correcting the morbid condition upon which it depends, we know of no means more useful, or that may be employed with greater confidence of success. In numerous instances, we could cite those who came to these "pools" with flexed and rigid limbs, and a prey to ever gnawing pains, have speedily found their suffering dispelled as an illusion, and the long contracted muscles restored to their wonted functions. In many cases, this water has acted as a charm indeed, and we are aware of none that have not been sensibly ameliorated, if not ultimately cured. Its application has mainly been made to the more strictly chronic forms of the complaint, but it also has its triumphs in the sub-acute varieties. In the latter grade of this intractable and painful malady, we believe the baths not only perfectly safe, but entirely applicable. The temperature of the water is not so high as to stimulate this form into the *acute*, nor so low as to endanger the patient by sudden *metastasis*; while both effects are guarded against by its powerful diuretic action, and its tendency to the bowels and skin. In the present instance, as in

other cases, where it is desirable to give the water a decided direction to the bowels or skin, appropriate adjuvants should be employed.

In *Neuralgia*, a congener of the disease just considered, this water is frequently found a specific, and from its alleviation of the thrilling, piercing pain attendant upon this affection, one of the Springs received, long since, the homely but expressive title of "Tooth-ache Spring." It is to those cases, dependent upon general derangement of the system—resulting from a residence in unhealthy districts of country, or those that have their origin in nervous irritability, or spring from a gouty or rheumatic diathesis—that the water is so happily adapted. In tooth-ache, which is frequently a form of neuralgia, there are numerous individuals, now living in the neighborhood of this fountain, who would testify to its efficacy as a speedy and certain remedy.

The evidence of the powers of these waters in rheumatic affections, is by no means slender; but is based upon years of observation and upon multiplied cases.

To many nervous affections these Springs are exactly suited, and in some paralytic cases act most favorably. Perhaps in *chorea*, and some forms of *epilepsy*, they would be found valuable; but we have not learned whether any example of either has been furnished. From the history of two remarkable cases, relieved by the use of these waters, after resisting other means, we suppose them to have been rickets. They occurred years

ago, and it is now difficult to determine their exact nature.

Dyspepsia, that inveterate scourge of the sedentary and thoughtful, which has so long mocked all the rational as well as foolish means that have been invoked by turns for its relief, here finds an almost infallible antidote. The dejected and apprehensive spirit that finds no joy in the present, and looks only for evil in the future—the hesitating will that can mature no purpose, and desponds even in success—the emaciation of frame and haggardness of visage—the ever present endurance, and all the real and fantastic ills that torture the hapless sufferer, are made to yield to the renewing and invigorating influences that a few weeks' use of these waters uniformly send in healthful and rejoicing currents through his languid system.

It is true, that alone, and in every condition of body, the effect may not be so marked; but, in most instances, the water is sufficient. Where great torpor of the abdominal viscera exists, additional means may be used with profit, and, indeed, may be found indispensable; but all that could reasonably be expected of any single remedy, in a disease so Protean in its character, and so intractable in its nature, will be more than realized under the alterant and corroborant effects of the baths and spring.

For *chronic thrush* or *apthæ*, the Healing Springs have been employed with entire success, after a fruitless, but persevering use of the best directed means.

We are not aware that these waters have been tried in chronic affections of the lining coat of the bowels; but from its soothing effects upon other mucous surfaces, and its power to modify secretion, we should anticipate most favorable results.

Leucorrhœa, and other kindred disorders of the female, when independent of malignant action or actual displacement of organs, will generally yield to the free internal and external use of this water. It is also of great value in chlorotic conditions, and when irregularities of the female habit exist. From the general invigorating effects of the water, the appreciable quantity of iron it contains, and its affinity for the pelvic organs, it is by no means surprising that it should be found so valuable an agent in this class of human infirmities.

Many diseases of the urinary organs are greatly controlled by these waters; among which are enumerated calculous disorders, chronic inflammation of the bladder, enlargement of the prostate gland, and irritation of the urethra. Gleet and stricture have yielded to this agent, after resisting other agents, however judiciously applied. From the decided affinity of the water for this class of organs, we should anticipate just such results as experience has determined to follow their use.

From the powerful action of the water as a diuretic, some discretion should be observed in its application to this class of affections, and its internal use suspended, if unpleasant symptoms should arise.

Chronic Bronchitis is an affection that is frequently cured by this remedy. Whilst it soothes the cough and improves the character of expectorated matter, it imparts a corroborant influence to the general system, and establishes a sure basis for recovery. For enfeebled states of the system, without serious lesion or structural change of any important organ, and springing from exhaustion of vital energy, and attended by an insupportable sense of weariness and lassitude, a panacea is found in the delightful and refreshing baths of the Healing Springs. The elasticity of frame and buoyancy of spirit experienced by the exhausted and sighing invalid is no less gratifying to him than it is wonderful to his friends. Just suited by its equable and agreeable temperature to the enervated and enfeebled, this water is adapted above all others to the real valetudinarian. Neither inordinately stimulating him by excess of heat, nor unduly depressing his feeble energies of life by too great a degree of cold, the invalid can enjoy all the advantages of a delightful bath without sustaining a shock or incurring the risk of other injurious consequences.

In shattered conditions of the system, so often following severe and protracted illness—exhausting discharges—inordinate attention to business—long residence in unhealthy districts of country—excessive mental anxiety—and from whatever cause it may result, this water, conjoined with the advantages of scenery and climate, promises, with much certainty, the recovery of the lost boon of health.

When the great value of systematic bathing, in the cure of many chronic affections, and its almost indispensable importance in the removal of that nameless, but wide-spread tribe of infirmities embraced in the general term *debility*, is considered, a water of the character here presented cannot be too highly appreciated."

CHAPTER XIV.

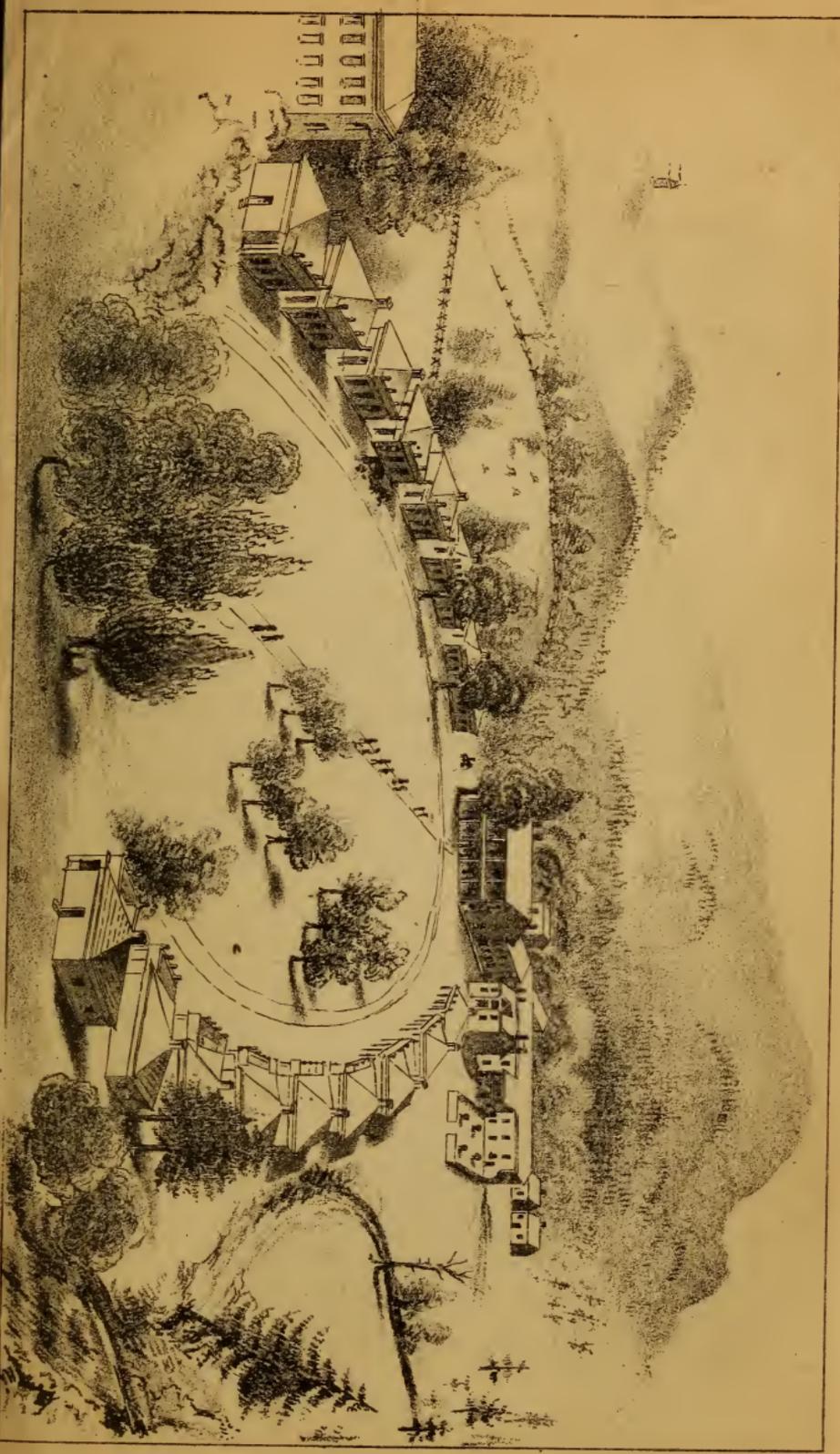
ROCKBRIDGE ALUM SPRINGS.

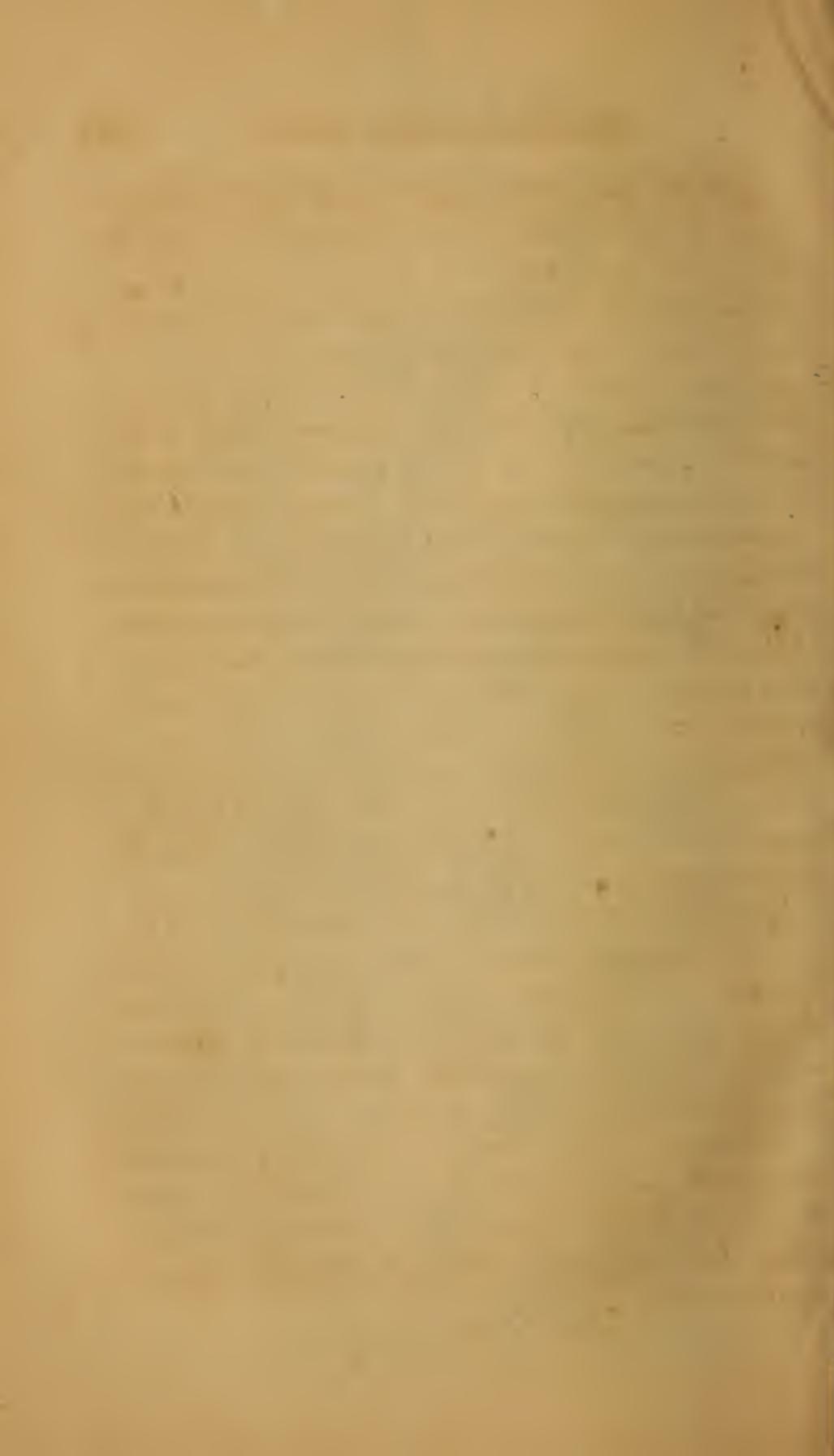
THESE Springs are situated in the northern part of the County of Rockbridge, on the main turnpike road leading from the town of Lexington to the Warm Springs, seventeen miles from the former and about twenty-one from the latter. They were originally the property of the Campbell family, by whom the land on which they are situated was *located* about fifty years ago.

The existence of an alum spring at this place was known at the time of the *entry* of the land, and its peculiarities soon led the people of the neighborhood to test its virtues, first as an external and then as an internal remedy, especially for diseases of the skin. The success of these experiments established a local reputation for the water to such an extent that the proprietor of the Springs found it to his interest to open a house of entertainment for the accommodation of those who might desire to use them.

But the isolated character of the place, the limited accommodations, and especially the fact that it was then out of the great "Spring circle," and withal inconvenient

Lith of Ritchies Barracks and Richmond, Va.





to approach, prevented for several years any large visitation to the place. But the reputation of the water, resulting from actual experience in its use, continued to increase and extend, until the public demand for accommodation forced an enterprise into the economy of the establishment that has resulted in the erection of appropriate buildings sufficient for the accommodation of five or six hundred visitors, and in greatly improving and beautifying the grounds adjacent to the Springs. Still the increasing reputation of the waters, and a consequent increasing patronage, so urgently demand further accommodations that the proprietors are now actively engaged in the erection of new buildings, to be finished by the next season, and which will greatly increase their capacity to accommodate.

The property is now owned by Messrs. FRAZIER & RANDOLPH, whose industry and enterprise give ample guarantee that the extent of their accommodations will hereafter be commensurate with the public demands.

Small reservoirs cut in the rock receive the alum water as it percolates through a heavy cliff of slate-stone. There are five of these reservoirs or springs, all differing slightly from each other, and also differing from themselves at different times, being stronger and the water also more abundant in rainy weather.

At the base of the same hill from which the alum water issues, and a few hundred yards above, is a good *Chalybeate Spring*, which in many cases may be used either alone or in connection with the alum water, to great advantage.

These waters were analyzed by Dr. AUG. A. HAYES, of Boston, in 1852, with the following results :*

“Description and Analysis of three Samples of Rockbridge Alum Water from Virginia.

The samples presented perfectly clear, colorless, and odorless water; the taste was very stringent, with the more lasting impression produced by iron salts. In closed vessels the water may be heated without becoming turbid, but boiling causes ochry matter to fall. In the composition of Rockbridge waters much more of the salts of alumina is found than in the Bath Alum water.

Rockbridge, No. 1.

A standard gallon at 60° F. contains—

Of bases :	Sodium and soda,	-	-	0.250
	Potash, traces.			
	Ammonia,	-	-	0.471
	Lime,	-	-	0.594
	Magnesia,	-	-	0.368
	Alumina,	-	-	4.420
	Protoxide of iron,	-	-	1.748
Of acids :	Sulphuric acid,	-	-	32.626
	Carbonic “	-	-	2.623
	Organic “	-	-	0.930
	Silicic “	-	-	2.460
	Chlorine “	-	-	0.257 grs.

*Mineral Springs of Virginia.

The changes which take place in these waters by boiling, the action of sulphydric acid and salts of silver, indicate that these proximate constituents are combined to form the following salts :

Sulphate of lime, - - -	1.439
Sulphate of magnesia, - - -	1.081
Protoxide of iron, - - -	3.683
Alumina, - - -	14.764
Chloride of sodium, - - -	0.423
Silicate of soda, - - -	2.544
Crenate of ammonia, - - -	1.401
Free sulphuric acid, - - -	18.789
“ carbonic acid, - - -	2.623
	46.747
Pure water, - - -	58325.253
	58372.000

Sample of Rockbridge Alum, No. 2.

One gallon of this sample measured at 60° F. contains the following substances :

As bases : Potash, - - -	0.954
Sodium, - - -	0.401
Ammonia, - - -	0.300
Lime, - - -	1.346
Magnesia, - - -	0.600
Protoxide of iron, - - -	2.304
Alumina, - - -	5.360

As acids :	Sulphuric acid,	-	-	-	34.219
	Carbonic	"	-	-	7.356
	Crenic	"	-	-	0.400
	Silicic	"	-	-	2.840
	Chlorine	"	-	-	0.607

The acids unite to the bases, forming salts of the following weights :

Sulphate of potash,	-	-	-	1.765
" lime,	-	-	-	3.263
" magnesia,	-	-	-	1.763
Protoxide of iron,	-	-	-	4.863
Alumina,	-	-	-	17.905
Crenate of ammonia,	-	-	-	0.700
Chloride of sodium,	-	-	-	1.008
Silicic acid,	-	-	-	2.840
Free sulphuric acid,	-	-	-	15.224
Carbonic	"	-	-	7.356
				<hr/>
				56.687
Pure water,	-	-	-	58315.313
				<hr/>
				58372.000

Sample of Rockbridge Alum, No. 4.

One gallon of this sample afforded—

As bases :	Potash,	traces.
	Sodium,	- - - - 0.173
	Ammonia,	- - - - 0.360
	Lime,	- - - - 1.346
	Magnesia,	- - - - 1.503

Protoxide of iron,	-	-	2.223
Alumina,	-	-	7.210
Organic matter,	-	-	1.020
Of acids : Sulphuric acid,	-	-	29.686
Carbonic “	-	-	4.203
Chlorine “	-	-	0.266
Silicic “	-	-	1.710
Crenic “	-	-	860

Those substances combined as salts give the following constituents :

Chloride of sodium,	-	-	0.439
Sulphate of lime,	-	-	3.261
Sulphate of magnesia,	-	-	4.418
Protoxide of iron,	-	-	4.693
Alumina,	-	-	24.085
Crenate of ammonia,	-	-	1.220
Free sulphuric acid,	-	-	5.511
“ carbonic “	-	-	4.203
“ silicic “	-	-	1.710
Organic matter,	-	-	1.020

50.560

58321.440

58372.000

In comparing these samples with those of the Bath Alum Springs, it will be seen that they are more highly acid in composition, and contain besides more of the tri-sulphate of alumina in a given volume. This salt gives

character and activity to these waters, and renders them subjects of great interest when used as remedial agents.

Of the waters hitherto described, those from the Oak Orchard Acid Mineral Springs, of Alabama, Genessee county, New York, approach most nearly to this composition.

The results of an analysis by Dr. JAMES R. CHILTON, of Spring No. 1, is given for comparison :

Spring No. 1.

One gallon contains, of

Free sulphuric acid,	-	-	-	82.96
Sulphate of lime,	-	-	-	39.60
Protoxide of iron,	-	-	-	14.32
Alumina,	-	-	-	9.68
Magnesia,	-	-	-	8.28
Silica,	-	-	-	1.04
Organic matter,	-	-	-	3.28
				159.16

grs.

Containing nearly three times the weight of solid matter in the gallon, this water does not afford more than half the amount of tri-sulphate of alumina which is found in the average of the Rockbridge Alum Springs.

The supposed presence of arsenious acid, and the expectation that more active bodies than those named would be found, led to a careful examination of the black, decomposed shale from which the Bath Alum water takes

its rise. The shale gave sulphates of iron, lime and alumina to pure water, and contained an abundance of iron pyrites. When two pounds of the clay were decomposed, the resulting fluid contained no arsenious acid or copper. The earthy part afforded a trace merely of the phosphate of lime. The same negative results followed an analysis of the dry mass from four gallons of the mixed waters.

The general conclusions following from the results of these analyses are, that the Bath Alum Springs, containing more ferruginous salts, and having the sulphuric acid more equally neutralized, approach more nearly in composition to chalybeate waters. While the proportions of the salts to the pure water may vary, the relation in *kind* will be preserved.

The Rockbridge Alum waters, on the other hand, have their iron salts almost masked in their action by the predominance of free sulphuric acid and tri-sulphate of alumina. In these, too, we may expect the same general relation of *kind* to prevail, although more or less of the salts is present in the water. Both contain a portion of iron oxide, united to organic compounds, which, independently of the other salts and acids, would constitute them chalybeate waters. In their origin they are quite pure surface waters, which percolating strata undergoing decomposition, take from their soluble mineral and organic matters.

Respectfully,

AUG. A. HAYES, M. D.,

Assayer to the State of Mass.

1, Pine St., Boston, 9th March, 1852."

Such is the analysis of this interesting mineral water, by the same distinguished chemist that analyzed the waters of the Bath Alum Springs.

The analyses of these two waters, so essentially resembling each other, are laid before the public in this volume, and by comparing them, an opportunity is afforded the medical man of hypothetically determining the character of each, and to see at one view in what they agree, and in what they differ from each other; and hence, so far as analysis can settle the question, to determine their relative powers and medical applicability. Candor will have to admit, however, that it is not analysis alone, nor principally, that can satisfactorily determine the therapeutical character or medical adaptations of mineral waters.

Dr. Huntt, in his pamphlet on the Red Sulphur, in alluding to Professor Rodgers' analysis of that Spring, observes that "it certainly does not satisfactorily account for the wonderful effects of the water." The same remark may be made in reference to the analysis of all our mineral waters, in connection with the well known and peculiar operations of those waters, with the exception, perhaps, of the simple chalybeates; and this, it is fair to presume, will continue to be true of any analysis that can be made in the present state of chemical science. "It is well known to every one at all acquainted with chemical science, that compounds of a very dissimilar character are produced by the combination of the same elements in different proportions, producing substances, in some instances, of far greater activity than either of

the articles of which they are composed. There is, perhaps, no better illustration of this than that offered by the union of *oxygen* and *nitrogen*, producing, when combined in one proportion, *atmospheric* air, nitrous oxide in another, and *nitric acid* in a third. Nor are we sure that the chemist is able to detect all the ingredients which mineral waters contain. The very *tests* which reveal some of them to us, may have the power of destroying others, and these, too, may be those in which the medicinal properties reside. The remedial properties, then, of mineral waters *cannot be determined with any certainty by analysis*, however nicely conducted, but must be ascertained by experience.* One dozen well "*watched*" cases, under the use of a mineral water, will do more to determine the medical powers and applicability of such water than any analysis that can be made by the ablest chemist.

An analysis of a mineral water satisfies curiosity as to the materials the water is supposed to contain, while it enables the medical man to form some general conclusions as to the most prominent characteristics of the water as a remedial agent. Thus far, they are valuable, but singly and alone, without the aid of observation and experience, they never can be safely relied upon to guide in the administration of a remedial water in individual cases.

This position finds a pertinent illustration in the Rock-bridge Alum water. Who would not say, looking at the

*Professor Haywood.

analysis of this water alone, that its operation would be that of an *astringent* upon the system? while the fact is, that it *purges* seven out of ten that use it. Again, who would have judged, from a mere analysis of the water, that it was calculated to remove a great reproach from the healing art, by constituting a reliable remedy for scrofula, a disease hitherto so entirely unmanageable? Yet, experience has established this fact beyond controversy.

Alum waters are of very recent introduction as remedial agents, and close practical observation is yet a *desideratum* as to their peculiar therapeutical agency and most appropriate medical applicability. These waters certainly possess unequivocal medicinal powers, and although their reputation is now high, they are destined to advance still further in public confidence. Experience has fully shown that they are very efficaciously used in many diseases of the skin and glandular system; and that in *scrofulous* affections they offer new hopes to the afflicted.

DR. CHRISTIAN, the intelligent and well-informed resident physician at the place, makes the following summary of the applicability of these waters to diseases, which, from the high source whence it emanates, is entitled to confidence:

“They are an invaluable remedy in the cure of all scrofulous and cutaneous diseases, lupus and other malignant ulcerations of the mouth and throat, chronic diseases of the digestive organs, dyspepsia, diseases of the

liver, chronic diarrhœa, scrofulous affections of the mesentery and peritoneum, diseases of the urinary organs, diabetes, chronic inflammation and irritation of the kidneys, bladder and urethra, diseases peculiar to females, amenorrhœa, dysmenorrhœa, leucorrhœa, menorrhagia, chronic inflammation and ulceration of the uterus, hemorrhoids, all hemorrhagic affections of a passive character, and all anemic conditions of the system and broken down states of the constitution, whether resulting from the imprudent use of medicine or the errors of youth. In all diseases of the glandular system, whether of inflammation, induration, or deficient secretion, it has no superior, if an equal, as a curative agent: restoring the secretions generally to a healthy condition, particularly those of the liver, skin and kidneys, whether deficient, excessive, or of bad quality. Its purgative action is characterized by copious bilious discharges, very similar to those produced by mercurials.

As a remedy in all depraved conditions of the constitution, involving as such diseases necessarily do, an unhealthy condition of the blood, we know of no agent that has performed such astonishing cures; thus it is that it has cured *scrofula* in all its stages and worst forms, with its kindred affections.

Acting as a purgative or astringent, according to the quantity taken, it cures with equal facility diseases of the alimentary canal, whether attended with constipation or diarrhœa.

Unlike most other mineral waters, it retains its curative properties at all seasons of the year, and when sent

away in barrels or bottles, possesses most or all of its medicinal virtues."

Desirous to avail myself of every source of information in reference to the peculiar characteristics of these waters, I requested my friend Dr. MCPHEETERS, of Natchez, who spent a portion of the season of 1844 here, than whom there was no physician more capable or reliable, to furnish me with the results of his observation and experience with the waters. The following is his communication to me on the subject :

“ALUM SPRINGS, VA., Sept. 26th, 1844.

Dear Sir:—It is with considerable reluctance that I comply with your request, that I should give you a *written* account of my experience of the medical virtues of the waters of this place. First, because my opportunities of observation have been very limited. Secondly, on account of a great natural disinclination I have to appear before the public. On the other hand, so very little has been published of the very important therapeutical qualities of the Virginia Springs, that it is perhaps the duty of every observer to contribute his mite, however small.

In order that you, and the public may know what degree of importance to attach to my remarks, I will observe that I have been here but two seasons. I spent about three weeks here in September, 1840, and about five weeks in August and September of this year. As I have had no opportunity of ascertaining their chemical composition, I will confine my remarks to their therapeutical

effects, as manifested under my own observation. In their general effects on the system, they are a febrifuge tonic. In their effects on the pulse and skin, they more closely resemble the action of the sulphate of quinine than any other article of the *materia medica* that I have met with; producing a full slow pulse and warm moist skin. By their astringent and tonic qualities, they diminish internal congestions, and give a centrifugal tendency to the fluids, thereby filling the superficial veins and capillaries. They are more uniformly and powerfully diuretic than any waters I have met with. They act as moderately purgative on one-half, or perhaps two-thirds of the visitors. In what may be termed neuralgic dyspepsia, they change the action of the mucous membrane—relieve it of the sub-acute inflammation under which it labours, and powerfully promote the appetite and the powers of digestion—and at the same time relieve those intermittent pains, and distressing nervous sensations, that so generally accompany that form of dyspepsia.

They very promptly relieve uterine hemorrhage of the passive description. They speedily cure leucorrhœa even when it has been a complaint of years' standing. They relieve some cases of hemorrhoids very promptly. They cause the absorption of scrofulous tumors, and promote the healing of indolent ulcers. The powders prepared by evaporating the water, given in doses of 3 or 4 grains three times a day, in half a drachm of the aromatic syrup of rhubarb, promptly relieves the summer complaint of children (produced by hot weather and teething) when unattended by fever. In doses of from 5 to 15 grains, three

times a day, they relieve weak digestion and strengthen the system in children and adults.

The common opinion (which I believe is correct) is, that the upper spring is most purgative and alterative—the middle one most astringent, and the lower one most tonic—and that the strength of all of them is materially increased by wet weather.

With these hasty remarks,

I remain, very respectfully,

Your obedient servant,

H. M'PHEETERS, M. D.

To J. J. MOORMAN, M. D.”

I have already strongly intimated my opinion of the great value of this water in scrofula. But the frequent occurrence, and intractable character of that disease under the ordinary treatment invests with so much interest any new remedy that may be looked to with hope, that I shall be pardoned for again referring to the subject. For more than fifteen years my attention has been directed to this water as a remedy in scrofulous disease, and as the result of this long observation I can bear an unequivocal testimony to its value in such cases. In the various forms of scrofula, and especially in the incipient stages of the affection, it may be looked to with great hope, and I verily believe will be found greatly superior to any of the remedies hitherto used by the profession.

The following letter from Dr. G. A. ROSE, formerly much distinguished in his profession in Virginia, and now not less so in Indiana, where he has resided for

many years, presents the curative powers of the Alum waters in a very favorable point of view. To a mind naturally energetic and discriminating, Dr. Rose adds high scientific cultivation and the experience of long and laborious investigation into the nature of diseases and their remedies. The opinions of such a physician, based upon his own personal observations, are well worthy of the confidence of the public.

“LA PORTE, IND., DEC. 18, 1853.

“*Dear Sir:*—Your card as you passed this place last season, induced a hope you would visit us on your return, but in this we were sadly disappointed. The ill-health of my son Garland, whom you once saw sick in his cradle some thirty-three years since, induced me to take him to the Virginia Springs in the hope of curing him of *Coloni-tis*, and of meeting with you, as I expected you were still resident physician at the White Sulphur Springs. But I was again disappointed in seeing you. Finding neither the White Sulphur, nor the Hot, nor the Warm Springs to impart any permanent benefit, I repaired to Rockbridge Alum Spring. As before remarked we had used the upper springs without permanent benefit, and faithless as I was, with regard to the Rockbridge Alum waters, I determined to visit them. The night before we left the hot for the Rockbridge Bath Alum, my son was very ill, and although it was raining in the morning, we embarked for the Alum as the last resort. The truth was, I had heard so much said in its praise, I classed it among the quack remedies; but in the

language of the Queen of Sheba, with regard to Solomon, I found, the half its merits had never been told. No water in the mountains is used more injudiciously by visitors, yet all who had a right to expect benefit, received it, despite their imprudence. The difference between that water and all others is this: an intelligent physician can before hand tell precisely what the water can do, and what it cannot do. A case in point occurred to me in a pair of fair damsels, daughters of an old acquaintance near Lynchburg. I saw them packing up for a move, and inquired what they were after. "Oh, we are not mending, and we think of going to the White Sulphur, if you think best." I replied you are not mending, because there is not iron enough in this water. Go to the Bath Alum. If you are not better in three days, proceed to the Hot Spring. If you improve there, stay as long as you do improve. If you do not improve, return to the Bath Alum. I heard no more of them for 10 or 12 days, when they cast up with red cheeks and lips, having gone no farther than the Bath Alum, where the increased quantity of iron was precisely adapted to their anemic condition. I now return to my son's case. In three days after he began the use of the water, he said there was a salutary change in his feelings, and in three weeks he was well, is now well and fat. He brought home with him two demijohns, of the water which he used on the route, but since he got home, he has not indeed given his "physic to the dogs," but he has had no need for its use.

I hope in your treatise on the mineral waters of Virginia you will *attempt* to do *justice* to this invaluable water. In conversation with intelligent men, at the various springs, I obtained statistics enough to fill a small volume, relative to its curative power, and most assuredly your information must be much more extensive and critical.

I pray you to receive the homage

Of my great esteem,

G. A. ROSE.

DR. J. J. MOORMAN.

CHAPTER XV.

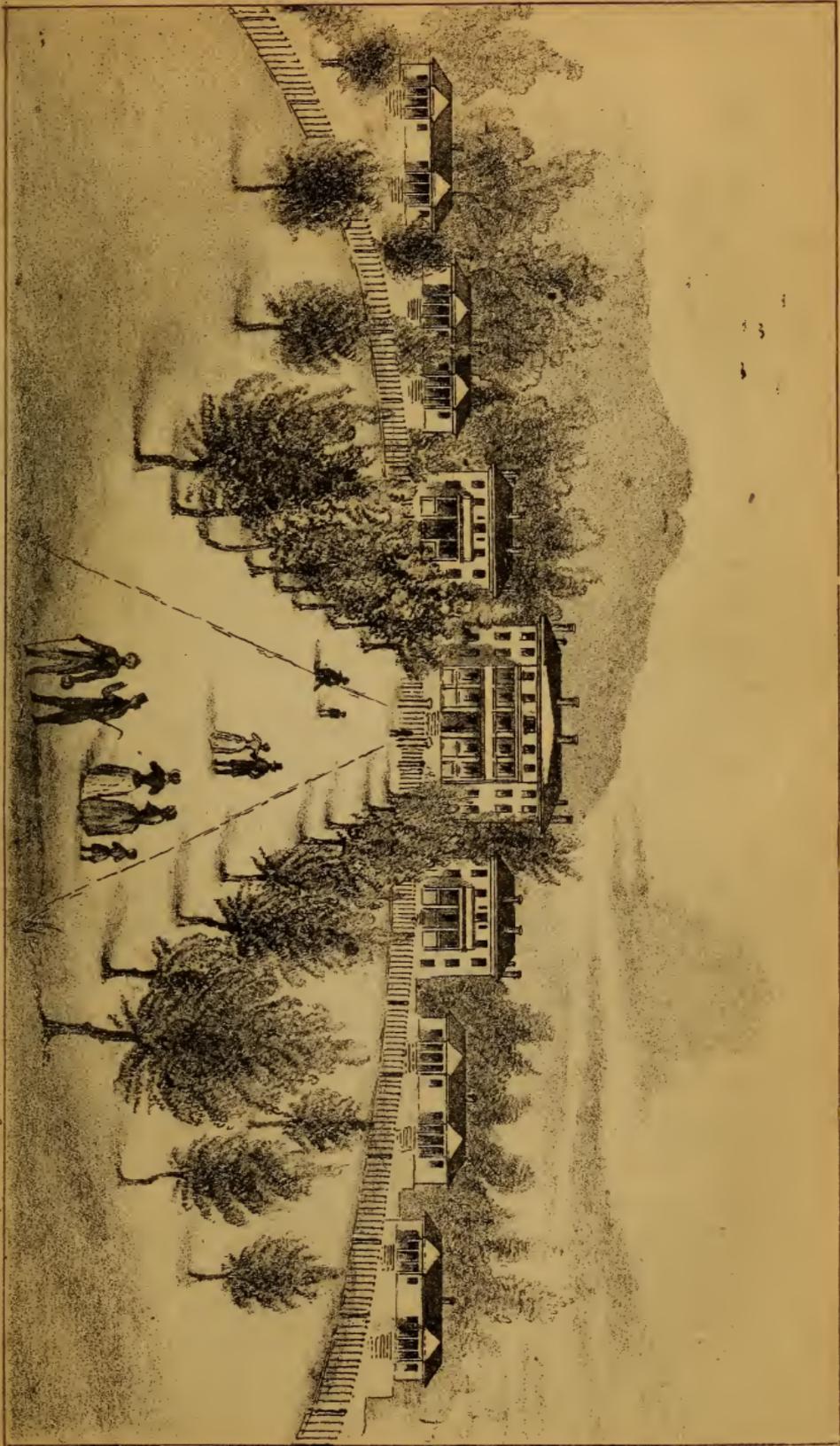
BATH ALUM SPRINGS.

THE Bath Alum Springs are situated near the eastern base of the Warm Spring mountain, on the main stage road leading from Staunton to the Warm Springs, 45 miles west from the former, and 5 miles east from the latter place.

The valley in which they arise, is an extensive cove, irregularly encircled by mountains, with an unproductive sandy soil, and affords indications of salubrity and healthfulness.

It is only within the last two years that these Springs began to attract public attention as a mineral water; and it does not exceed four years since the grounds near the Springs, now so elegantly and tastefully improved, were a wild and primitive forest. This great change, by which the "desert was made to blossom as the rose," was brought about by the energy of the late lamented John W. Frazier, Esq., whose family still own a large interest in the property.

The improvements here are extensive, substantial, and convenient, affording comfortable and elegant accommodations for a large company.



BATH ALIUM - BATH VA

Lith. of Richess & Dunnavant 1855

The Alum waters issue from a slate-stone cliff of twelve or fifteen feet high, and are received into small reservoirs that have been excavated near each other in the rock. These different springs, or reservoirs, differ essentially from each other. One of them is a very strong chalybeate, with but little alum; another is a milder chalybeate, with more alumina; while the others are alum of different degrees of strength, but all containing an appreciable quantity of iron.

Dr. Hayes, of Boston, the same gentleman to whom we are indebted for the analysis of several of our Mineral Springs, has analyzed the waters of the Bath Alum, and renders the following report of his chemical investigations :*

“Description and Analysis of the Bath Alum Spring Waters of Virginia.”

“The sample of these waters were received in excellent order and abundant in quantity. On carefully opening the vessels at 60° F., the external air entered, to restore in volume a portion which had been absorbed by the water from the small space below the sealed aperture. With the samples was some of the nearly black clay of the Bath Alum Spring location, which had apparently been derived from the breaking down of shale or slate and shales. On exposure to the air, these samples of water lost their brilliant, sparkling appearance, becoming

* Mineral Springs of Virginia.

cloudy and slowly depositing in flocks an ochry matter. They were perfectly colorless before exposure, and when tasted left an acid impression and strongly astringent taste.

“When the temperature of these waters is raised, they become turbid at about 120° F., and before any considerable escape of air or gas takes place. Nearly the same effect is produced, if the water to be heated is excluded from air, the partial decomposition being in no wise connected with the escape of carbonic acid. No sulphurous or hepatic odor is exhibited, nor can any fermenting action or change be produced by exposure in warm places.

Analysis.

“A standard gallon (58.372 grs.) was the measure of each water used in the determination of the quantities of the substances found. The experiments necessary for ascertaining the presence or absence of other substances than those named, were made on much larger quantities, so as to render the chemical history more exact.

“The first sample, Bath Alum No. 1,* at the temperature of 60° F. one standard gallon of this water, contains of the bases :

Soda,	-	-	-	-	-	0.720
Potash,	-	-	-	-	-	traces.
Ammonia,	-	-	-	-	-	0.830

* Referring to the lowest Spring.

Lime, - - - - -	1.570
Magnesia, - - - - -	0.960
Protoxide of iron, - - - - -	6.876
Alumina, - - - - -	3.080

Of the acids :

Sulphuric acid, - - - - -	24.750
Carbonic, - - - - -	4.140
Silicic, - - - - -	1.390
Organic, - - - - -	1.020
Chlorine, - - - - -	0.107 grs.

“When their proximate constituents are arranged, so as to represent as nearly as it is possible, the compounds which experiments prove to exist in the water, the composition of the whole may be expressed as—

Pure water, - - - - -	58326.557
Free sulph. acid, - - - - -	5.806
Carbonic acid, - - - - -	4.140
Sulphate of lime, - - - - -	3.805
Sulphate of magnesia, - - - - -	2.821
Protoxide iron, - - - - -	14.516
Alumina, - - - - -	10.288
Chloride of sodium, - - - - -	0.176
Silicate of soda, - - - - -	2.024
Crenate of ammonia, - - - - -	1.850
Oxygen added to sodium, - - - - -	.017

45.443

SAMPLE NO. 2, BATH ALUM NO. 3.

In one gallon of this sample there were contained as bases :

Potash,	-	-	-	-	-	0.140
Soda,	-	-	-	-	-	0.350
Ammonia,	-	-	-	-	-	0.462
Magnesia,	-	-	-	-	-	0.486
Lime,	-	-	-	-	-	1.049
Protoxide of iron,	-	-	-	-	-	10.314
Alumina,	-	-	-	-	-	3.680

As acids :

Sulphuric acid,	-	-	-	-	-	30.359
Carbonic,	-	-	-	-	-	3.846
Organic,	-	-	-	-	-	1.310
Silicic,	-	-	-	-	-	2.800
Chlorine, a trace.						

These substances united in the form of salts as existing in the water, give the matter foreign to pure water.

The composition of the gallon in grains is—

Pure water,	-	-	-	58317.206
Free sulphuric acid,	-	-	-	7.878
Carbonic acid,	-	-	-	3.846
Sulphate of potash,	-	-	-	.258
Magnesia,	-	-	-	1.282
Lime,	-	-	-	2.539
Protoxide of iron,	-	-	-	21.776

Alumina,	-	-	-	12.293
Crenate of ammonia,	-	-	-	1.776
Silicate of soda,	-	-	-	3.150
				<hr/>
				54.798
Pure water,	-	-	-	58317.202
				<hr/>
				58.372.000

“This sample differs from the first in acting much more strongly on the organs of taste, and the quantity of free sulphuric acid is larger than in that water. Both these waters are highly acid in their action, although the acid is united to bases, which in part neutralize its power. When by boiling a deposit takes place, if the heat is continued, the deposited matter re-dissolves as the water evaporates.

“When much reduced in volume by evaporation, the excess of acid chars the organic acid present, and alters the composition of the salts.

“In considering the composition of these waters, the protoxide of iron is assumed to be united to the sulphuric acid. The change produced by heating is referred to the action of the crenate of ammonia, and is the same as ordinarily where crenates, free from apocrenates, are naturally contained in a water. When mixed with the soluble salts of silver and exposed to light, the gray color is entirely distinct from that produced by either apocrenates, humates or any decomposing matter. When the metallic silver and oxide of iron resulting from the first action are

removed, the mixture by evaporation continues to afford brilliant scales of metallic silver, until reduced to a small volume.

“The gaseous matter in these waters is a mixture of carbonic acid, nitrogen, and a small proportion of oxygen, and the measure is about 1 volume of the mixed gases to 40 volumes of the water. The carbonic acid is given by weight, so that an uniform expression of acid relation is adopted, and no misconception can arise, if the reader bears in mind the fact that carbonic acid has more than twice the acid or neutralizing power possessed by the strongest fluid sulphuric acid.”

Dr. STROTHER, an intelligent and discriminating physician, who resides in the neighborhood, and has enjoyed a better opportunity than any other medical man for understanding the nature and value of the Bath Alum waters, thinks very favorably of them in *scrofulous, eruptive and dyspeptic affections*. He also bears testimony to their good effects, in *old hepatic derangements, chronic diarrhœa, chronic thrush, nervous debility*, and in various *uterine diseases*, especially in the worst forms of menorrhagia, and in fluor albus, both uterine and vaginal.

In *chlorotic* females, and in a broken down condition of the nervous system, often in males, the result of youthful improprieties, as well as when the system is *anemic*, but free from obstinate visceral obstructions, this water promises to be very beneficial.

The following communication from a highly respectable gentleman of Massachusetts, shows the prompt and happy

effects of this water in an obstinate disease of the skin, of long standing :

BATH ALUM, April 21st, 1853.

B. K. Spangler, Esq.:

Intending soon to leave Bath Alum, I wish to leave in your hands a statement of the effects which I have experienced from the use of the alum water at this place, hoping it may be of service to others who are similarly afflicted. I had in my system a disease which began to appear when I was about two years old, in eruptions on the skin, which gradually extended over a great part of the body. At the same time it affected my eyes, causing much inflammation and soreness. The eruptions were healed for a time by the application of mineral waters in Massachusetts, in which State my parents resided. In a few years afterward they re-appeared, and for the last twenty years my disease has continued at intervals of about one and four years to show itself on the surface. Several eminent physicians tried their skill, but only in one instance was there even the shadow of success. In that instance, the disease was healed externally, still remaining in the system and gathering strength from year to year. It is about *five* years since this external cure was effected by a physician in Massachusetts, who denominated my complaint as the *Salt Rheum*. It invariably attacks me in cold weather, and when hot weather returns heals up. For the last five years it has given me no trouble until the past winter. The excessive cold of the northern climate caused a number of eruptions to appear on the skin, which were accompanied with much soreness and lameness. They were confined principally to my right leg. Having occasion to come to the northern part of this State, I determined while at Harper's Ferry to make trial of some of the springs of Virginia. I had not heard of the Bath Alum, and on my way to the springs west of this, it was almost by accident

that I stopped here. My leg was extremely painful—it was with great difficulty that I could walk, and the effects of the disease for some nights previous had been such as to make me entirely restless and sleepless. After using the alum water moderately for *two* days, I could enjoy “tired Nature’s sweet restorer, balmy sleep,” as well as any body. Soon afterwards the sore on my leg began to discharge freely, which it continued to do for about three weeks, though less and less each succeeding day. By this time all the itching and inflammation which always accompany these eruptions had been removed. But they were not yet in a state to heal up. I gradually increased the quantity of water I drank, which caused it to act more powerfully in throwing my disease out. A new sore came on my right arm, which, after discharging freely, healed up. Immediately another sore came in the same place, which disappeared in a similar manner. After using the alum water copiously for about five weeks, I had partially lost my relish for it. My relish for the water was restored by an intermission of its use for two weeks, which I spent among the mountains west of this. I have now used the water *freely* for about one week since my return. All the eruptions on the skin are healed up, and I think the disease is effectually conquered. Heretofore this disease has left me in an enfeebled condition, but now I am in *better health* than I have ever enjoyed. While the alum water has been rapidly removing my disease, its effect has been highly salutary on my whole system.

CHARLES BLISS.

CHAPTER XVI.

Daggers

DIBRELL'S SPRING.

DIBRELL'S SPRING is in the extreme north-western portion of Botetourt County, thirty miles east of the great Alleghany chain of mountains, and just at the western base of the Garden Mountain, on the main road from Lynchburg to the White Sulphur, by way of the James River Canal. It is nineteen miles west, by a direct road, from the Natural Bridge, and twenty-eight miles from that place by the way of Buchanan, the route usually traveled.

The Spring was first opened as a watering place some thirty years ago, by a gentleman by the name of *Daggar*, and hence it is often called by his name. Subsequently, it was owned by the late James W. Dibrell, Esq., of Richmond. The present proprietor and landlord is Mr. — Hatcher, a gentleman whose good cheer and kindly attentions to his guests, make him very favorably known to the public.

The improvements here are neat, appropriate and comfortable, and calculated for 150 persons.

The company that assembles at this place has heretofore been largely composed of persons from the towns

and villages of the surrounding country, and from Eastern Virginia, constituting a most agreeable and social circle. Indeed, the place has long been remarkable for sociability, and there are few, if any, situations in our mountains where a period of relaxation from the cares and business of life can be more agreeably spent. Free and easy social intercourse, sanctioned and sustained by the polite courtesies of life, while it is delightful in itself, powerfully contributes to the relief of many ills that flesh is heir to. It well deserves to be taken into the account of the advantages accruing to the invalid at watering places, and cannot for a moment be overlooked by those who resort to such places for happiness merely.

The Spring, which arises at the termination of a pretty lawn in front of the Hotel, and about two hundred yards distant from it, is a very bland and agreeable sulphur water, acting kindly as a *diuretic*, *aperient*, and gentle *alterative*. Holding in solution essentially the same medical ingredients, though probably not in as large an amount, that distinguish our best sulphur waters, it may be used advantageously in the various diseases for which sulphur waters generally are employed. Being less exciting than many of our sulphur waters, and acting at the same time kindly on the various emunctories, it would seem to be better adapted to some cases than the more potent waters.

It is a valuable dyspeptic water, rarely failing to produce beneficial effects in the simple forms of that disease. In derangements of the biliary organs, unattended with obstinate obstructions, it may be used to great advantage.

In all cases in which a gentle diuretic is demanded, it will be found serviceable.

It is a mineral water upon the use of which the invalid, who desires to induce gentle alterative effects upon his system, may enter with much hope, and without that fear of over-stimulating the organs which demands a prompt and decided caution in the use of our stronger sulphur waters.

Professor Wm. B. Rodgers, in the course of his geological survey of the State, chemically examined this water, but failing to make his analysis quantitative, it affords but little satisfaction.

The following is a list of the ingredients in the water, as ascertained by Professor Rodgers :

Solid ingredients: Carbonate of soda.
 Sulphate of soda.
 Chloride of sodium.
 Carbonate of magnesia.
 Peroxide of iron.
 Silica dissolved.

Organic matter, containing chloride of potassium, nitrogen, carbonate of iron, and carbonate of ammonia.

Gaseous ingredients: Carbonic acid.
 Oxygen.
 Sulphuretted hydrogen.
 Nitrogen.

CHAPTER XVII.

RAWLEY'S SPRING.

RAWLEY'S SPRING is situated on the southern slope of the North Mountain, in the County of Rockingham, twelve miles north-west from Harrisonburg, and about one hundred and twenty miles north-east from the White Sulphur.

The Rawley water is a strong and pure *chalybeate*, and well adapted to cases requiring such a tonic.

The writer has had some personal experience in the use of this water, and for many years has been in the habit of occasionally directing its use in cases to which it is applicable. As a pure iron tonic, it deserves to stand at the very head of that class of remedies.

In that class of female affections *dependent upon debility, or want of tone in the uterine system*, the water is an exceedingly valuable remedy. Its salutary effects in cases of this description are often as remarkable as they are gratifying, restoring the functions of the debilitated organ, and imparting vigor and health to the whole system.

The Rawley waters are the strongest *chalybeate* known to us; and if their great tonic virtues were more gen-

erally known, and especially their very superior efficacy in the class of *female derangements* just alluded to, they would be much and beneficially resorted to by those who frequent watering places.

In some forms of dyspepsia, and in nervous diseases with general debility and unattended with organic obstructions, these waters are used with great success. The same may be said of their employment in many cases of leucorrhœa and gleet, and especially in that peculiar form of nervous and mental debility, the frequent result of improper youthful improprieties.

The water of this Spring has never been analyzed, but it is evident that the iron is held in solution in the form of a carbonate, which is the least irritating and the most efficient form in which it exists in mineral waters

The accommodations at Rawley's are not extensive—sufficient, perhaps, for one hundred and fifty persons, and about that number may often be found there in the course of the season.

CHAPTER XVIII.

FAUQUIER WHITE SULPHUR SPRINGS.*

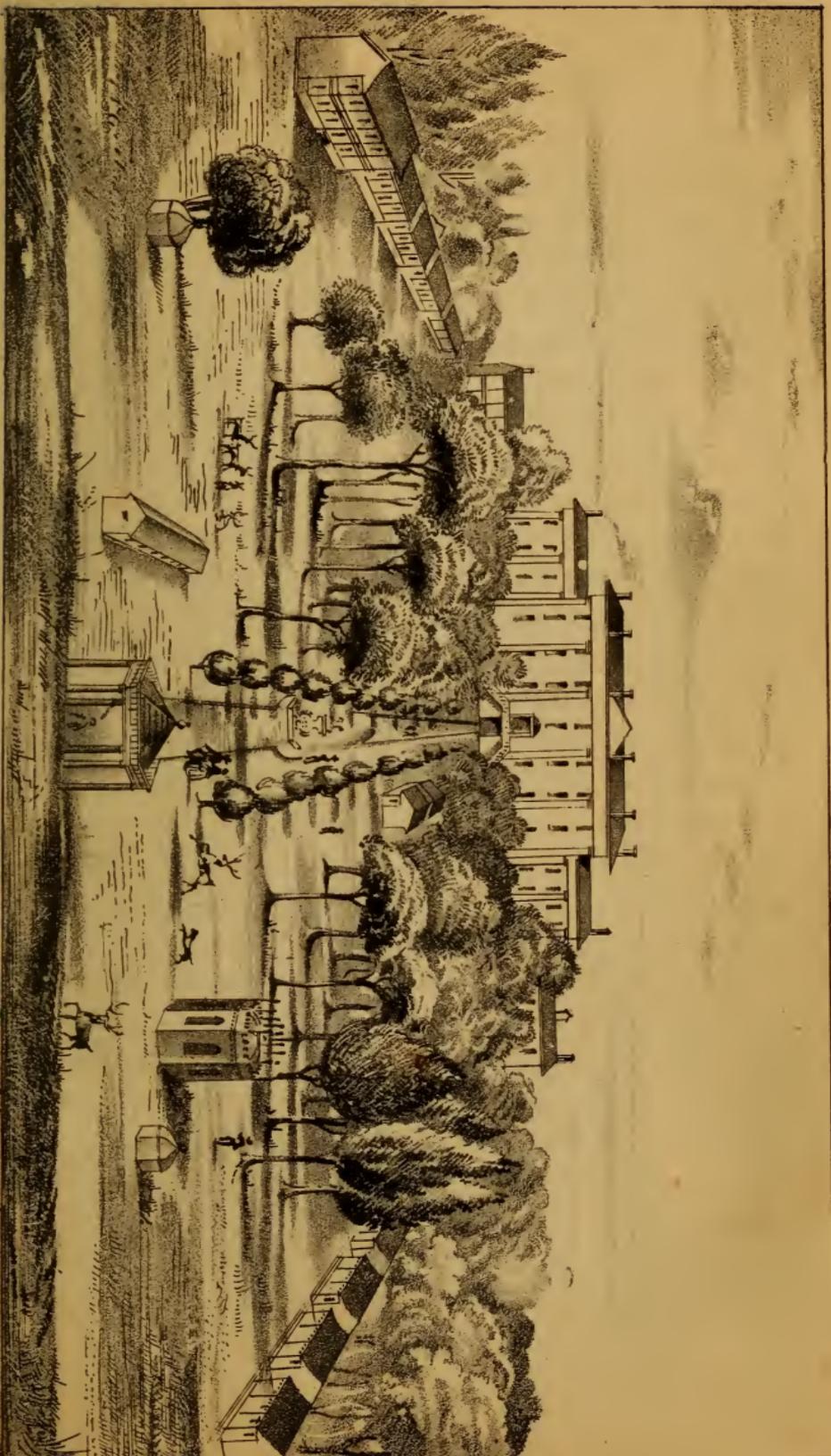
THE Fauquier White Sulphur Springs are situated in the county of Fauquier, Virginia, 56 miles from Washington, and about 40 from Fredericksburg.

The medical quality of the sulphur springs at this place, were known and highly appreciated, long before they were opened to the public. While the virtues of the waters remained in comparative obscurity, the resort of those living in the neighborhood caused such an interruption to the farming operations of the proprietor, as induced him, after every other endeavor to keep out crowds of visiters had failed, to *fill up the spring*.

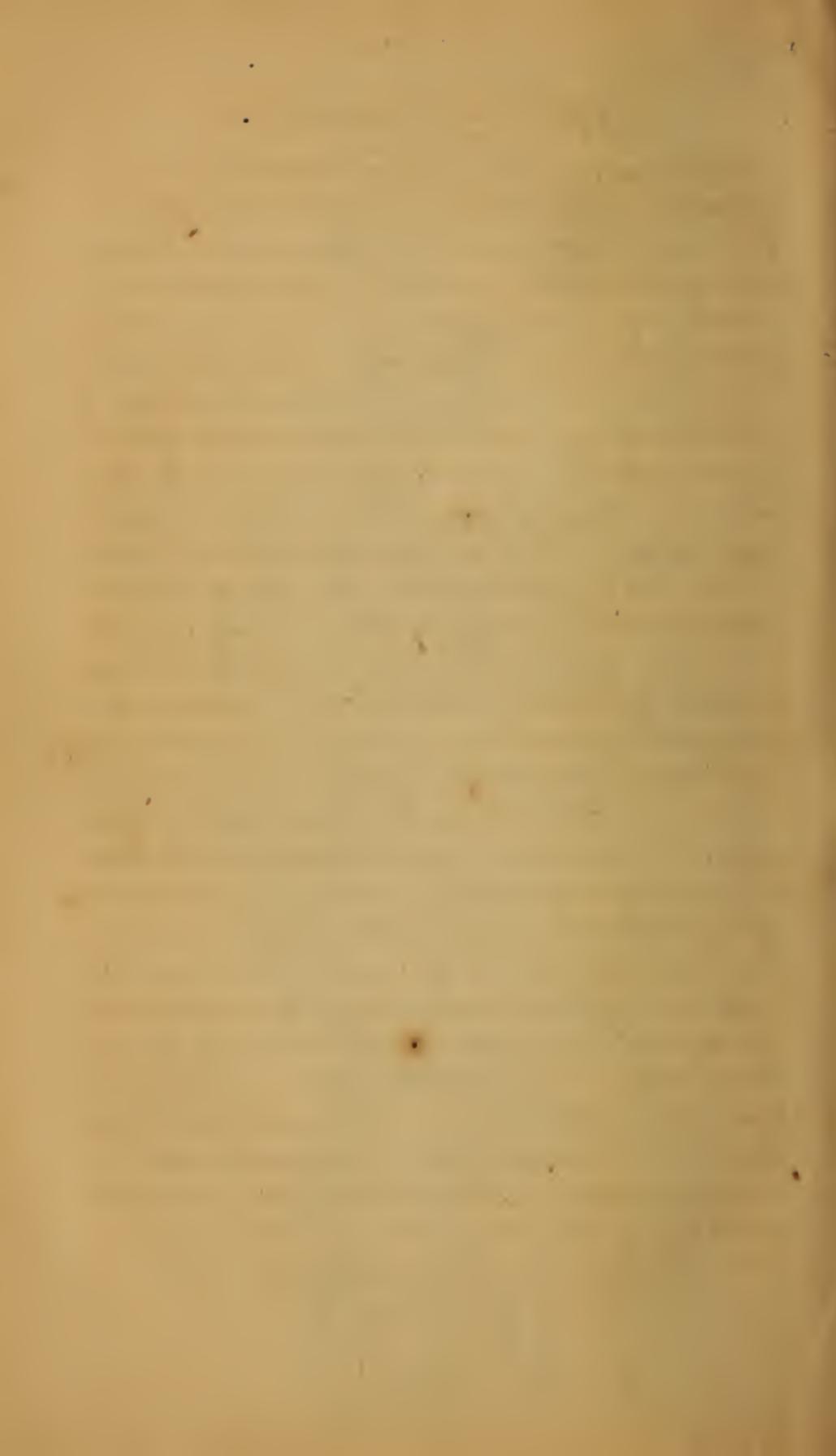
But so clearly had its virtues been established by the comparatively partial trial of its virtues, that the estate was purchased by Hancock Lee, Esq., one of the present stockholders, with the view of making it a place of public resort.

These valuable waters and grounds are now owned by an incorporated company, under the title of the "Fauquier White Sulphur Springs." The real estate, which,

* "Six Weeks in Fauquier, by a Visiter."



View of Bazaar & Bazaar & Bazaar & Bazaar



with the improvements and personal property, constitute the principal stock of the company, consists of about two thousand nine hundred and thirty-four acres of land, lying upon and on both sides of the Rappahannock river.

The Springs establishment consists of an elegant brick pavilion, which, including the wings, is one hundred and eighty-eight feet in length, by forty-four in width. It is four stories high, and capable of accommodating four hundred persons. Across the street, and directly opposite the pavilion, stands what is called the "new building," which is also of brick and four stories high, one hundred and five feet long, and thirty wide. There are also ninety cabins or rooms, separate and distinct from the pavilion and new building. Those visitors, who from ill health or other causes, desire the quiet and comfort of their own homes, added to the healthy and balmy breezes that steal through the valley, obtain one of these cabins, which, being arranged on the northern and southern sides of the square, and amid the serpentine and shady walks and playing fountains, contribute much towards making a somewhat distant south-east view of the premises picturesque and beautiful.

There is here an elegant and commodious bathing establishment, complete in all its arrangements and constantly supplied with the sulphur water, of any desired temperature. The architecture of this building is Gothic and forms an additional ornament to the springs.

The first impression of the stranger on arriving here, especially if it be his first visit to a watering place in Virginia, cannot be otherwise than agreeable. The

friendly shake of the hand, the true Virginia welcome, "right hearty" and sincere, which he receives from the principal managers, will cause him to feel that he is not a stranger in a strange land, but among those who are ready to participate and enjoy, in common with himself, all the comforts, pleasures and recreations of the valley of Fauquier.

The sulphur springs, surrounded by a tasteful octagonal pavilion, and supplied with seats, is situated in a verdant valley, about one hundred and fifty yards from the dining hall. It is most frequently visited at morning and evening, when it not unfrequently presents a scene of beauty, cheerfulness and rational mirth, mingled with entertainment and instruction.

According to analysis, which however is regarded as very imperfect, the water is impregnated with *sulphate of magnesia*, *phosphate of soda*, and *sulphuretted hydrogen*. Its temperature is 56° Fahrenheit, $10\frac{1}{2}^{\circ}$ Raumer. It has a strong sulphuric smell, and the taste being not unlike the odor arising from the yolk of a hard-boiled egg, is not, perhaps, at first very agreeable to the palate of a *gourmand*. With some reluctance, and possibly a few wry faces, two or three glasses may be drank during the first day. This disagreeable taste, however, is soon changed to impatient longings, and even a strong *appetite* for the water, till anon, five or six tumblers full before breakfast, or twenty glasses during the day, are not considered an immoderate dose. The water operates *purgatively* and *diuretically*; the cuticular pores being opened

and perspiration, especially if the weather be warm, flows easily and copiously.

The waters of Fauquier are not as strong as the sulphur waters of Greenbrier and Monroe, and consequently will not act so soon or so powerfully on the system as the latter. But they are in deservedly high repute as an *alterative*, and the very gradual way in which they affect the system, gives them a preference to stronger waters in some cases!

They are thought to be very valuable, particularly in certain dyspeptic depravities, and in dropsical affections.

The Hon. B. Watkins Leigh, late U. S. Senator from Virginia, was cured of a dropsy by the use of these waters in 1838, after having undergone the operation of *Paracentesis* for the disease.

CHAPTER XIX.

JORDON'S WHITE SULPHUR SPRINGS.

THESE Springs are in Frederick County, Virginia, five miles from the town of Winchester, and one and a half from Stephenson's Depot, a point on the Winchester and Harper's Ferry Railroad. They are situated in a small valley, surrounded by hills of no great altitude. The earth in the vicinity of the Springs is blended with slate, very porous, and readily absorbs all the water that falls upon it. Hence, it is as remarkable for its dryness, as is the neighborhood for its exemption from vapors and fogs. The grounds about the Springs are well covered with grass; are sufficiently extensive for pleasant promenades; and, withal, are shaded by a variety of ornamental trees, among which are found the aspen, willow, sycamore, ash, cedar, &c.

From several of the surrounding hills, pleasant views may be had of the Blue Ridge and Alleghany mountains and the immense gap at Harper's Ferry. One mile from the Springs is a small and unique mountain, covered with stunted pine, and known by the somewhat unpleasant cognomen of the "Devil's Back Bone." It is quite a "lion" in its way, and is often visited by the sojourn-

ers at "Jordon's." On the eastern side of this small and narrow mountain, and just at its base, flows the Opaquon Creek, affording good fishing privileges, while along its western base runs a small stream that winds its way through the Spring lawn midway between the hotels.

The buildings for the entertainment of the public are very comfortable, and consist of two large brick hotels and a number of cabins, and are said to be sufficient for the accommodation of 300 persons.

This property was owned and occupied for seventeen years by Mr. Branch Jordon, who is favorably remembered by many for the excellent fare with which he supplied his guests, and especially for the admirable character of his bread, the great staff of life, which equalled in quality the famous French rolls. Recently the property was purchased by two of Mr. Jordon's nephews, of the same name, and who are applying a commendable amount of energy and taste to the adornment and solid improvement of the place.

The *Spring*, although not one of great boldness, affords in abundance a mild, pleasant sulphur water, of the temperature of 57° Fah., which is said not to be influenced either in quantity or temperature by wet or dry, hot or cold weather. Like all other sulphur waters, it is unpleasant at first to the palate of the uninitiated, but very soon it is not only tolerated, but actually preferred to common water.

The fountain is enclosed by marble slabs, and shaded by an octagon structure, supported by large pillars. Its

situation is midway between the hotels, and very convenient to all the boarders.

These waters have never been analyzed, though it will probably be found, judging from the geological position of the fountain, as well as from the sensible properties of the water itself, to contain less *lime* than many of our sulphur waters, and, therefore, more free from the harsh ingredients imparted by the sulphate and carbonate of that mineral; while it holds in solution the other components usually found in our sulphur waters. If this suggestion be correct, it points it out as peculiarly valuable in gravel and the various chronic diseases of the kidneys, bladder and urethra.

Medicinally, the water acts as a diuretic and slight aperient. As an *alterative*, it is found to be valuable in the various forms of chronic disease in which sulphur waters are commonly beneficial. Among other diseases, dyspepsia and the various gastric derangements have derived much benefit from its use. The same may be said of liver disease, hæmorrhoids, diseases of the skin, and rheumatism, especially when it proceeds from the use of mercury. Several gentlemen have borne very decided testimony to the superior efficacy of these waters in *gout*, and their unirritating quality would seem to point them out as a valuable remedy in that disease.

The bland but sure effect of these waters upon the system points them out as a valuable agent in a large class of diseases, and inspires belief as to their successful attainment to still greater public favor and confidence.

The following testimony as to the use and efficacy of these waters by an old and distinguished physician of Frederick County, Md., is every way worthy of attention :

“ I have been a visiter, at different times, for the last forty years, at the White Sulphur Springs of Frederick County, Va. My opinion of the medicinal effects of the water is conclusively in its favor. In all cases where there exists *functional* derangement of any of the abdominal viscera, with proper mangement, it seldom fails to effect relief, if not a cure. I have seen many cases of jaundice, depending upon the above cause, most effectually removed and robust health restored. Diseases of the stomach, bowels, kidneys, &c., &c., yield *most readily*. When produced by suspended perspiration, the water will restore the functions of the skin, and thereby give the blood a free circulation through the capillaries, and thus restore the equilibrium of circulation. In diseases of the skin, it is an active agent, especially when aided by the external application of the sediment or mud. *I have seen cases cured* which had *resisted the most scientific treatment*; indeed, when they were so *offensive* that it was extremely unpleasant to be near them.

“ The situation of the Spring and country around it, with the many facilities of approach, &c., its nearness to the seaboard, and the daily *cars* and *mails*, make it a most desirable place of resort for health or retirement during the heat of summer. The surrounding country is healthy, and the soil well calculated for invalids, as it never remains long wet after rains.

“The accommodations, as far as relates to the table, lodging and servants, are in good keeping. The table affords all that is necessary for all classes of visitors, even the most fastidious. Indeed, injury is often done to the invalid by over-feeding, the temptations being irresistible. Cases are often made worse by the want of proper care to this part. The water, the company, the bracing effects of mountain air, all conspire to induce an unusual appetite, and this is indulged in before the system is prepared for it.

“I have been afflicted with the gout for many years, functional derangement of the liver being the great cause. By a gentle alterative course of treatment, and then washing out with the sulphur water, has INVARIABLY afforded me the most decided relief. So with nearly all the cases that have come under my notice.

“If you had a *doctor* during the season of the Springs to give *full* directions for using the water, he understanding the use of them, it would add much to its celebrity. There is one other matter I will mention. *Frequently*, after persons have derived all the benefits from the water that they had a right to expect, they return home and relapse. This, in many cases, can be satisfactorily accounted for. Whilst at the Springs, they indulge freely in the good things afforded at the table; if even repletion occurs, the water aids in affording relief by the operation on the bowels, and thus prevents mischief. When they get home, however, they treat their appetite, produce repletion, headache, &c., &c.—they not having the benefit of the *cathartic operation* of the

water, cheerful company, mountain air, &c., and retiring to a sedative course of life.

“In conclusion: Every case depending upon functional derangement of the viscera and skin, with diseases of the skin, may calculate upon relief, if not a cure, with proper management and care of the water, table and exercise.

Yours, &c.,

J. B.”

The following letter in reference to the virtues of the water is from a physician who resides in the neighborhood of the Spring, and who is familiar with its use:

“*Dr. R. M. Jordan:*

“In reply to your interrogatory, ‘In what diseases have you found the water of Jordon’s White Sulphur Springs most beneficial?’ I reply, that I have practiced at and near said Springs for about twelve years.

“In *dropsy*, and diseases connected with the kidneys, except peculiar kinds of calculi, they are highly beneficial. No remedy in our pharmacopia will produce half the urinary discharge in either ascites, hydrothorax or general dropsy.

“In rheumatism, its effects are very serviceable, particularly bathing in the water; consequently in gout, the near relative of rheumatism, it proves highly beneficial.

“In torpid liver, with the usual accompaniments of indigestion or dyspepsia, it is inferior to no water in Virginia. With blue pill, the liver acts freely and without debilitating the patient.

“In suppressed menstruation, its effects are remarkable. Females who use the water freely in a natural con-

dition, are surprised to find this monthly visiter returning semi-monthly; but such is the fact. Therefore, when suppression exists, no remedy is better.

“In gleet, this water has no rival.

“But in chronic cutaneous diseases it is peculiarly curative. I have seen instances of the most ungovernable herpes cured by the application of the mud from the Spring, together with the use of the water.

“The greatest misfortune connected with Jordon’s Springs has always been, that the salubrious air, the good fare, and the general alterative and invigorating effects of the water, make gourmands of its visiters. I would respectfully say to all visiters who would be benefited by a visit thereto, to practice abstinence, and benefit will certainly result.

“Respectfully yours,

J. J. J., *MD.*

“*April 3d, 1854.*”

CHAPTER XX.

Shenandoah

SHANNONDALE SPRINGS.

THE *Shannondale Springs* are in the County of Jefferson, and arise in a peninsula of the Shenandoah River known as the "Horse Shoe." They are five and a half miles from Charlestown, the seat of justice for Jefferson County.

The Springs are three in number, but one only is principally used. The temperature of the water is 55° Fah. as reported by Dr. De Butts.

The Shannondale water seems to have some approximation in its nature and effects to the celebrated Bedford water. It may properly be classed as a *saline chalybeate*, and may be used with good effects as a mild alterative tonic, in some forms of dyspepsia, nervous diseases, general debility unattended with severe organic derangements, chronic diseases of the mucus surfaces, such as gleet, leucorrhœa, &c., and to that class of female diseases requiring the aid of mineral tonics.

The water acts generally as a *diuretic*, and very commonly has a mild aperient effect.

The late Dr. DE BUTTS, of Baltimore, analyzed the Shannondale water in 1821.

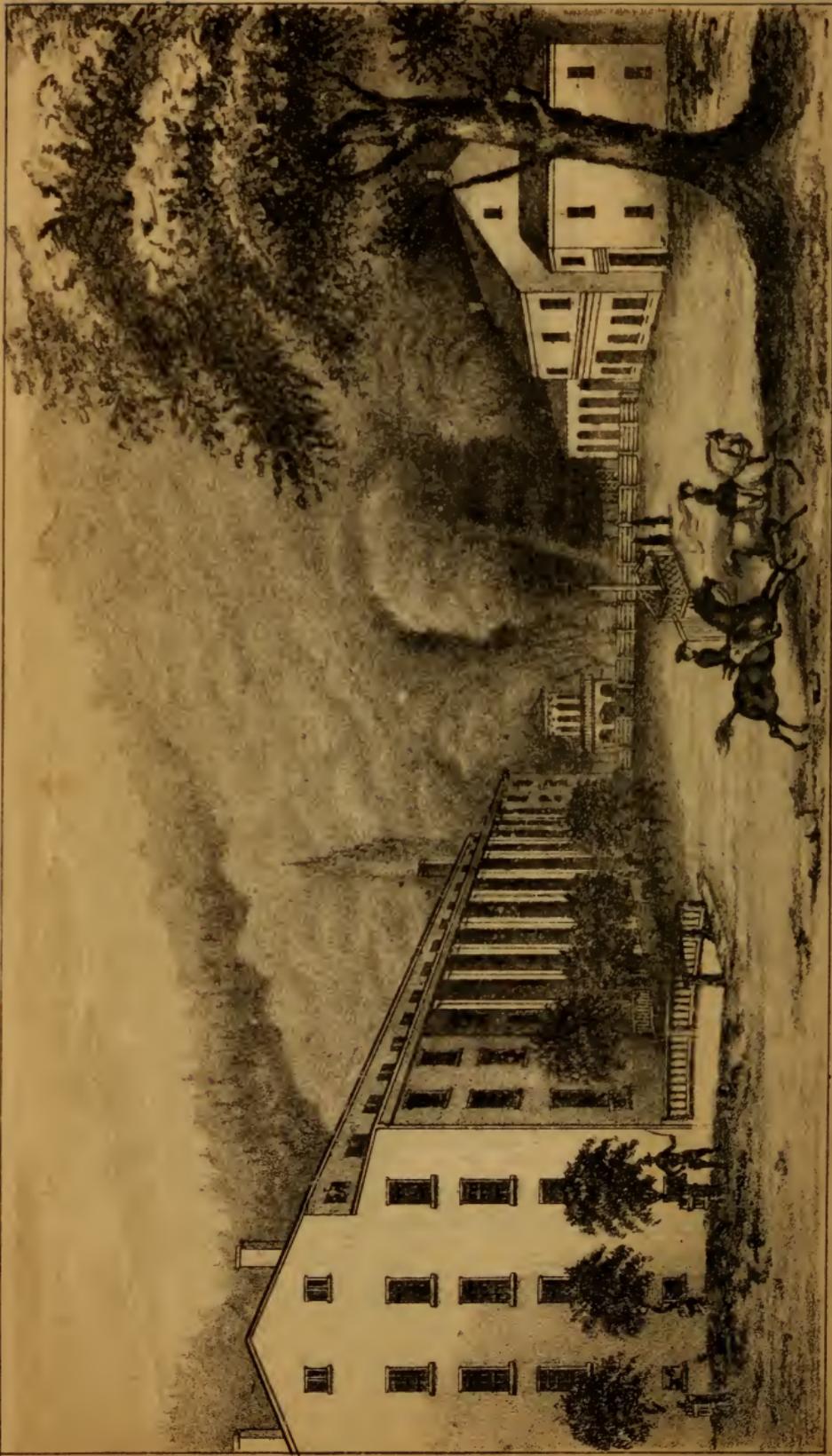
One hundred grains of the solid contents of the water of the principal fountain afforded the following results :

Sulphate of lime, - - -	63	grs.
Carbonate of lime, - - -	10.5	
Sulphate of magnesia, - - -	23.5	
Muriate of magnesia, - - -	1	
Muriate of soda, - - -	1	
Sulphate of iron, - - -	0.3	
Carbonate of iron, - - -	0.7	

Gaseous contents: Sulph. hydrogen, quantity not ascertained.

Carbonic acid, quantity not ascertained.

The accommodations at Shannondale are not extensive, perhaps adapted to 140 or 150 persons, but it is admittedly a very delightful place, and the scenery is unsurpassed for its varied beauty and grandeur, eliciting the admiration of all who behold it.



Lith. of Nitchies & Dunnivant Richmond Va

BERKLEY SPRINGS - MORGAN VA.

CHAPTER XXI.

BATH OR BERKELEY SPRINGS.*

THE Berkeley Springs are situated in the town of Bath, Morgan county, Virginia, two miles and a half from Sir John's Depot, a point on the Baltimore and Ohio Rail Road, 130 miles west of Baltimore, and 49 miles east of Cumberland.

These springs were resorted to by invalids at a very early period, and had great celebrity throughout the Colonies. Hundreds annually flocked thither from all quarters, and traditional accounts of the accommodations and amusements of those primitive times are calculated to excite both the mirth and envy of the present age. Rude log huts, board and canvass tents, and even covered wagons, served as lodging rooms, while every party brought its own substantial provisions of flour, meat and bacon, depending for lighter articles of diet on the "Hill folk," or the success of their own foragers. A large hollow scooped in the sand, surrounded by a screen of pine brush, was the only bathing-house; and this was

* I am indebted to D. H. Str ether, Esq. for much of my information in relation to the Berkeley Springs, and particularly for the historical sketch of the place.

used alternately by ladies and gentlemen. The time set apart for the ladies was announced by a blast on a long tin horn, at which signal all of the opposite sex retired to a prescribed distance, and woe to any unlucky wight who might be found within the magic circle.

The whole scene is said to have resembled a camp-meeting in appearance; but only in appearance. Here day and night passed in a round of eating and drinking, bathing, fiddling, dancing and revelling. Gaming was carried to a great excess, and horse-racing was a daily amusement.

Such were the primitive accommodations at the first watering-place that was opened in Virginia, and such the recreations and amusements of our forefathers, about the eventful period that ushered us as a nation into the world.

The importance of this property was appreciated by the country at a very early period, for in October, 1776, in the first year of the Commonwealth, we find the following in the statute book of Virginia:

“Whereas it hath been represented to the General
“Assembly, that the laying off of fifty acres of land in
“lots and streets, for a town at the Warm Springs in the
“county of Berkeley, will be of great utility, by encour-
“aging the purchasers thereof to build convenient houses
“for accommodating numbers of infirm persons who fre-
“quent those springs yearly for the recovery of their
“health—

“ Be it therefore enacted by the General Assembly of
 “ the Commonwealth of Virginia, that fifty acres of land
 “ adjoining the said springs, being part of a larger tract
 “ of land, the property of the Right Honourable Thomas
 “ Lord Fairfax, or other person or persons holding the
 “ same by a grant or conveyance from him, he, and the
 “ same is hereby invested in Bryan Fairfax, Thomas
 “ Bryan Mastin, Warner Washington, Rev. Charles M.
 “ Thruston, Robert Rutherford, Thomas Rutherford,
 “ Alexander White, Philip Pendleton, Samuel Washing-
 “ ton, William Ellzey, Van Swearingen, Thomas Hite,
 “ James Edmunson, James Nourse, gentlemen trustees,
 “ to be by them, or any seven of them, laid out into
 “ lots of one quarter of an acre each, with convenient
 “ streets, which shall be, and the same are hereby estab-
 “ lished a town by the name of Bath,” &c. &c.—*Hen-
 ing’s Statutes at Large.*

The town was consequently laid off into lots in August, 1777. Among the purchasers were Charles Carroll of Carrollton, Horatio Gates, Gen. George Washington, and many others of note and distinction.

In the schedule to Gen. Washington’s will, we find the following clause :

“ *Bath or Warm Springs.*

“ Two well-situated and handsome buildings, to the
 “ amount of £150.”

And this note of the property appended to the schedule :

“ Bath.

“The lots in Bath (two adjoining) cost me, to the best
“of my recollection, between fifty and sixty pounds,
“twenty years ago. Whether property there has in-
“creased or decreased in value, and in what condition
“the houses are, I am ignorant ; but suppose they are
“not, valued too high.”

The sites of these houses are still pointed out.

In the memoirs of the Baroness de Reidesil, (wife of the German general who was taken prisoner with Burgoyne at Saratoga,) she speaks of having passed part of the summer of 1779 at these springs with her invalid husband, and mentions having made the acquaintance of Gen. Washington's family. She devotes a page or two of her most interesting work to the narration of quaint and pleasant incidents illustrating their mode of life at the springs, and at the same time illustrating (though unintentionally) the excellent and amiable character of the authoress.

After the war of the Revolution, the accommodations at the springs were greatly improved and extended ; but as the State progressed in population and prosperity, a host of other bathing places and mineral springs were discovered and improved. Saratoga at the north, and the White Sulphur at the south, began to rival Berkeley in the race for public favor, and from the superior spirit

and enterprise shown in their improvement, soon distanced her. Her register of thousands was reduced to five or six hundred per annum, and her hotels and bath houses seemed destined to decay. In 1844 a fire accomplished in one night what time was doing gradually; fourteen buildings and half the hotel accommodations were destroyed. Col. John Strother, lessee of this property, made immediate preparations for the erection of a large hotel on his own ground, and by the next season, (1845,) had a portion of it ready for occupancy, and the entire elegant and extensive establishment completed in 1848. The erection of this building, and the completion of the Baltimore and Ohio Rail Road, have restored Berkeley to her former prosperity; and from 12 to 1500 annually register there and enjoy the great luxury of her waters.

BATHS, &c.

The water supplying the baths issues by three large springs and a number of smaller ones, from the foot of the Warm Spring ridge, all within seventy or eighty yards of each other, forming a bold and beautiful stream, which, in its course down the valley, supplies several mills and factories, and empties into the Potomac opposite to Hancock, Md., six miles distant. The water of all these fountains is of the same character, light, sparkling and tasteless, its temperature ranging from 72° to 74° Fah. and remaining the same at all seasons.

The accommodations for bathing are most convenient, extensive and elegant.

The *gentlemen's* bath house, a substantial brick building, contains ten large bathing rooms. The baths are of cement, 12 feet long, 5 feet wide, and $4\frac{1}{2}$ deep, filled from a reservoir by a four inch pipe, and containing about 1600 gallons each. In addition to this, and for the use of gentlemen, there is a *swimming* bath, 60 feet long by 20 wide, and 5 feet deep, containing 50,000 gallons. The superstructure is handsome and tasteful, 82 feet long, and contains 14 dressing rooms. The luxury of disporting in this ample and exhilarating pool can only be appreciated by those who have indulged in it.

The *ladies'* bath house is an elegant structure on the opposite side of the grove, 90 feet long, which contains, in addition to 9 private baths, a plunge bath 30 feet long by 16 feet wide, $4\frac{1}{2}$ feet deep, and floored with white marble. There is also an establishment for shower, spout and artificial warm baths. The bathing area is surrounded by a beautiful grove several acres in extent and handsomely improved.

The *Hotel accommodations* are extensive and well gotten up.

Strother's, the principal hotel at the place, is a large, elegant and well conducted establishment, adjoining the grove, and will comfortably accommodate about 400 persons. It is built upon three sides of a quadrangle 168 feet front by 198, the front building being four stories high, the wings respectively being two and three stories. The court-yard is tastefully ornamented with trees, flowers

and shrubbery. Altogether, it constitutes one of the most extensive and comfortable establishments to be found at any of our places of fashionable resort.

O'Ferrall's hotel is conveniently situated, well kept, and will accommodate 150 persons. Other accommodations for 150 persons may be found at the place.

MEDICAL PROPERTIES.

Although these waters possess considerable medical virtues when taken internally, they have been most celebrated as a *bath*; their pleasant thermal temperature, in connection with other properties, adapting them, as such, to a wide range of diseases. They have never been accurately analyzed, but the presence of purgative and diuretic salts have been ascertained, though the impregnation is not strong and the amount uncertain.

Internal Use.—This water is tasteless, insipid from its warmth, and so light in its character, that very large quantities may be taken on the stomach without producing oppression or uneasiness. Persons generally become fond of it after a time; and when cooled it is a delightful beverage. It is beneficial in several of the chronic and sub-acute disorders, such as derangements of the stomach, with impaired appetite and feeble digestion, unconnected with any considerable degree of organic disease. Its salutary effects in these cases would seem to depend upon the exceedingly light character of

the waters and their gentle alkaline properties, neutralizing acidity and invigorating and soothing the viscera.

In the early stages of *calculous* diseases, attended with irritable bladder, their free use internally and externally is frequently of benefit.

External Use.—Externally used, these waters are beneficial in the whole class of *nervous disorders* that are disconnected with a full plethoric habit, extreme debility, or severe organic derangements.

In cases of relaxed habit and debility, where sufficient power of re-action exists in the system, the tonic and bracing influences of plunges in this water will be very invigorating.

Persons suffering from a residence in a warm, low, and damp climate, and subject to nervous affections, will probably be much benefited by the use of the baths.

To the various chronic affections of the mucus membranes, especially leucorrhœa, gleet, &c., as well as to that peculiar form of bronchitis which depends upon a relaxed condition of the membranes, with general want of tone in the nervous system; the water and baths are said to be highly beneficial. The same may be said as to local paralytic affections, if unconnected with congestion of the brain, or cerebral tendencies.

In mildly *chronic*, or *sub-acute rheumatism*, the bath has long enjoyed a high reputation. Many intelligent persons who have long been familiar with its use, place the most entire reliance on it in this class of cases.

The salubrious climate in which the springs are located, the ease with which they are reached by the Baltimore and Ohio Rail Road, the well-tested value of their baths in all cases in which baths of their temperature ought to be employed, together with the excellent accommodations at the place, must continue to make "Berkeley" a favorite resort of the spring-going public.

There are in the immediate vicinity of Berkeley several unimproved sulphur and chalybeate springs, that will probably, at some day or other, be places of importance. Among these, and as most prominent, may be mentioned

ORRICK'S SULPHUR SPRING,

Situated $3\frac{1}{2}$ miles from Berkeley, on the Warm Spring Run, and near the road that leads to Hancock. It is a very pleasant water, of the temperature of about 58° Fah. It is now unimproved, but may, and some day probably will be made a place of interest, and an important auxiliary to the Berkeley Springs.

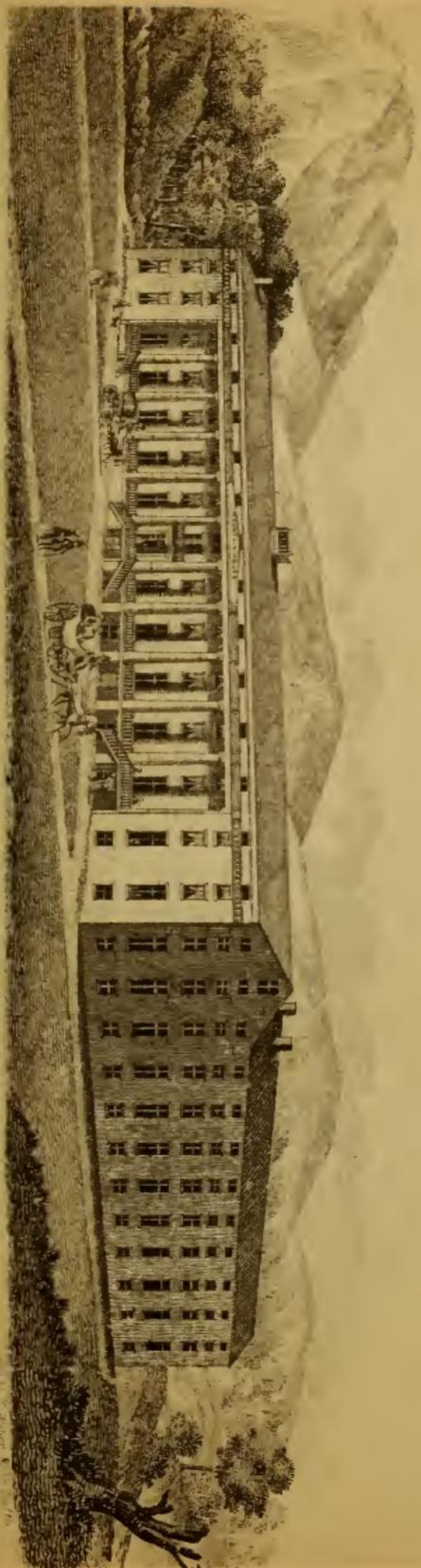
CHAPTER XXII.

CAPON SPRINGS.

At the western base of the North Mountain in the county of Hampshire, 17 miles east of Romney, and 22 north-west of Winchester, whence they may be reached by a well graded, but mountainous road, are the *Capon Springs*. They are situated in a narrow vale not far distant from the Capon river, and surrounded by a rugged and romantic mountain scenery, perhaps unsurpassed in *trossack* wildness by any in Virginia. The region is high and healthy, and the sources of amusement, (often of consequence to the invalid,) and especially those of trout and river fishing, together with the excitement of the mountain chase, are unsurpassed at any of our watering places.

The improvements at Capon are extensive, affording accommodation for about seven hundred and fifty persons.

The largest building to be found at any of our watering places is here. It is an immense structure fronting 236 feet by 40, and 5 stories high; with a portico 200 feet in length by 16 in width. To this main building a wing is attached of 196 feet in length by 40 in width and 5 stories high. The dining-room extends the



Mountain House, upon Springs.
Hampshire County, Va.

entire length of the front building, and will conveniently seat from 900 to 1,000 persons. The *lodging* capacity of the house is said to be 600. This building is known as the "*Mountain House.*" Besides this large establishment, there are other hotels at the place capable of accommodating 150 persons, perhaps.

The *Bathing Establishment* at Capon is well designed and handsome, affording 20 bathing-rooms for gentlemen, and 17 for ladies, with comfortable parlours for the use of the bathers. The baths are made of brick, coated with hydraulic cement. Shower and douche baths, and artificial warm baths are also supplied.

The spring affords about 100 gallons of water per minute. The temperature of the water as it flows from the fountain is 66° Fah: in the reservoir that supplies the baths, about 64°.

The water is essentially tasteless and inodorous.

Except in its thermal character it cannot be compared to any of the springs in our "great spring region." It more resembles the waters of the Berkeley than any of our other springs. As a bath and a beverage, it will, when properly directed, be found very useful in a wide range of diseases, especially in idiopathic affections of the nervous system, dyspeptic depravities, chronic derangement of the mucus surfaces, &c. It has acquired some reputation, and I believe justly, as a remedy in gravel and other derangements of the urinary organs. It is a valuable water, and like its neighbour Berkeley, is destined to increase in favor with the spring going public.

The Capon waters have been *analyzed* by Dr. CHARLES CARTER, of Philadelphia, and their principal medical ingredients ascertained to be

Silicic Acid,
Magnesia,
Soda,
Bromine,
Iodine,
Carbonic Acid gas.

Professor WM. GIBSON, of the University of Pennsylvania, in a letter to his son Prof. Charles Bell Gibson, gives the following interesting account of Capon Springs:

“I have just returned from an excursion of ten days to the Capon Springs, situated upon a lofty spur of the Blue Ridge, in Hampshire county, Va. Although very familiar, as you well know, with all the celebrated watering places in the United States, and believing many of them to possess undoubted sanative powers in certain affections of the stomach and liver, I was hardly prepared to suppose that one, comparatively unknown to fame, and of singular efficacy in many varieties of dyspeptic depravity so common in our country, should have escaped my observation. You will be surprised, therefore, when I tell you that, as far as I can judge from a short trial, I consider *Capon* equal, if not superior, to any mineral spring in America, as a remedy for dyspepsia and the debility and depression of spirits generally attendant upon that protei-form and eccentric ma-

lady. I had often heard my friends in Faquier and Loudoun counties extol the virtues of Capon in such glowing terms, as to induce me to believe that their prejudices as inhabitants of the Blue Ridge districts were at the bottom of their extravagant praises. To clear up my doubts upon the subject, I determined to explore the region in question. * * * * *

“The whole scenery, for miles around the Spring, in every direction, is eminently beautiful and picturesque. But to the Spring itself: Imagine a stream of liquid or molten silver issuing from the base of a pile of perpendicular blue rocks of immense height, bubbling up and forcing its way energetically to the surface; then dashing off with the speed of a race-horse and forming for itself, within a short distance, a small shining river, and you can estimate the quantity of water discharged each minute from the Capon Spring, and the exceeding brightness and beauty of that water. Then when you dip it from the Spring and observe its uncommon blueness and transparency—such as I have never observed in any other water—you are tempted to swallow without tasting, as if it were the nectar of the heathen gods. And you are not disappointed; for, soft and delicious and perfectly free from unpleasant taste, you can throw off the contents of tumbler upon tumbler, without even the inconvenience of stopping to take breath. In fact, no other water is used by man or beast about the establishment.

After drinking the water for a few hours, its *diuretic* properties become very evident; and from that moment

Capon early in the season, almost a skeleton from dyspepsia. He returned home in two or three weeks, completely metamorphosed. He paid a second visit during my stay, and rode 30 miles on horseback, and felt, as he expressed himself to me, like one risen from the dead. My friend, Mr. C. S., a most respectable and intelligent citizen of Fairfax, I found at Capon, very miserable and very dyspeptic. In a few days I found him chasing the deer and pheasants and fishing for trout like a boy, and before I left he was the most successful and energetic sportsman of the place. I could name many other instances within my observation. Upon myself the waters acted like magic. After ten days use of them, I felt as if I could "ride on the whirlwind and direct the storm." All this may seem exaggerated, or the effect of a heated imagination; but I assure you there is no poetry in the case, except what exists in the nature of the scenes which I have attempted to describe. If you have any poor, miserable, woe-begone patient, who has been broken down by hard work, mental or corporeal: any judge or lawyer who has been working like a slave at the bench or bar: any ill paid, conscientious, pains-taking doctor, who has been going night and day for the last twenty years: any pale student of divinity, who has been triturated by the wear and tear of soul and body: any miserable editor, who has been dunning subscribers from year to year, and been contending with black and blue devils, until he is nearly knocked into pi: if you have any or all of these as your patients, send them to *Capon*, and my word upon it,

they will all return *novo homines*, and be prepared, for years to come, to follow their specific vocations with more energy and effect than they ever 'dreamed of in their philosophy.' When we meet, I will give you in detail additional information touching this enchanting and salubrious region."

CHAPTER XXIII.

GRAYSON SULPHUR SPRINGS.

THE *Grayson Sulphur Springs* are located immediately on the west side of the Blue Ridge, in the County of Carroll, about twenty miles south of Wytheville. They rise on the bank of the New River, in the midst of scenery remarkable for its wildness and picturesque grandeur, in a region as healthy as any in our country, and abounding in fish and game of every variety that is found in our mountains.

The improvements here are recent and not extensive, but the waters have advanced within the last few years in popular favor, and quite a number of visitors assemble at the place during the watering season. To those who are fond of fishing and hunting, Grayson offers strong inducements.

The waters of these Springs are decidedly sulphurous, and have been found useful in the various dyspeptic depravities, rheumatism, and other diseases in which the sulphur waters are generally used.

These waters have been analyzed by Professor Rodgers, of the University of Virginia, and Dr. Aiken, of Balti-

more. The result of the analysis shows that in a given quantity of their solid contents there is found—

Soda,	-	-	-	-	4
Carbonate of magnesia,	-	-	-	-	3
Carbonate of lime,	-	-	-	-	8
Sulphate of lime,	-	-	-	-	2
Sulphate of magnesia,	-	-	-	-	3
Chloride of sodium,	-	-	-	-	2
Chloride of calcium,	-	-	-	-	3
Chloride of magnesium,	-	-	-	-	1 $\frac{3}{4}$
Sulphate of soda,	-	-	-	-	4 $\frac{1}{2}$

Sulphuretted hydrogen and carbonic acid gases abound in the water.

Grayson Springs are conveniently reached by persons traveling either in public or private conveyances, from the upper portions of North or South Carolina, into the great Spring region of Virginia.

CHAPTER XXIV.

ALLEGHANY SPRINGS.

THE *Alleghany Springs* are situated on the south fork of Roanoke River, in the County of Montgomery, three miles South of the Virginia and Tennessee Railroad. They are eighteen miles S. W. from the town of Salem, and ten miles E. from Christiansburg.

The property is owned by the Messrs. Holts, and at present furnishes accommodations for two or three hundred visitors. These Springs are growing in popular favor, and the energies of the proprietors are being exerted to keep their accommodations equal to the public demand.

Although the Alleghany Springs have long been esteemed valuable by persons in their immediate neighborhood, it is only within the last two or three years that they have attracted much general attention. The water of these Springs has not been analyzed. It is regarded, however, as belonging distinctly to the *saline* class, and to abound especially in *sulphate of magnesia*. It is cathartic, and somewhat diuretic in its operations, and many patients, together with several judicious physicians who have tested its virtues, regard it as a very superior mineral water in *dyspepsia*.

As yet, experience in its use has, perhaps, been too limited to assign to it its distinct position as a therapeutic agent; but it may justly be regarded as a very interesting medicinal agent, and one that promises to take high rank with the mineral waters of the State.

The facility with which these Springs may be approached, from the east or west, by the railroad, together with the great healthfulness of the climate in which they are situated, are very favorable to their annual increase of visitors, and consequently to their success as a watering place.

CHAPTER XXV.

PULASKI ALUM SPRING.

THIS Spring is situated in the N. W. portion of the County of Pulaski, on Little Walker's Creek, about ten miles from the town of Newbern, and seven in a direct line from the Virginia and Tennessee Railroad. It is owned by Mr. Hunter, who now furnishes accommodations for about 100 visitors, and who is actively engaged in so enlarging his improvements as to make them commensurate with the public demands.

This water has not been analyzed, but we are informed by intelligent persons familiar with our alum waters, that it very much resembles, both in its sensible qualities and its medicinal operations, the water of the Rockbridge Alum. It already enjoys a high reputation in its neighborhood, as a remedy for scrofula, cutaneous diseases, and other affections for which the alum waters of Rockbridge have become celebrated.

The fine salubrious climate in which the Spring is found, and the convenience with which it can be approached by the Railroad, together with the value of its waters as a medicinal agent, make it a place of interest and importance to the Spring going public.

CHAPTER XXVI.

NEW LONDON ALUM SPRING.

FOR a number of years it has been known that alum is a constituent part of a rock that is found in large masses near the town of New London, in the county of Campbell, 10 miles south-west of Lynchburg. An excavation made several years ago into the ground, penetrating this rock, but with no view of obtaining alum water, the virtues of which were not then appreciated, has, from the exudation of water through the layers of rock, afforded an alum of sufficient purity to be used by the good housewives of the vicinity for "setting their dies."

The medical reputation acquired within the last few years by the alum waters of Rockbridge, induced the proprietor of this rock, P. Echols, Esq., to sink a shaft or well into it, with the hope of obtaining alum water in sufficient quantity to be used for medical purposes. His enterprise has been crowned with entire success. On penetrating the rock to the depth of 16 feet, he came to several leaps or percolations of water, furnishing a sufficient amount to induce him to suspend further operations and to cut an entrance into the basin, or spring, after the manner of ancient wells, and of sufficient size

to admit of easy ingress and egress to and from the fountain.

This water has been much used since its discovery, for various diseases, and as popular fame alleges, and as several sensible and judicious persons in the neighborhood have assured me, with very great advantage.

An intelligent gentleman of the county of Bedford, who has been using this water in his family, writes me thus in reference to it:

“An invalid member of my family has been using the New London alum water for several months, and with very pleasant and beneficial results. Three glasses a day operate gently, but efficiently, upon the *bowels*, producing effects much resembling the operations from blue pill. It also promotes very decidedly the secretion of the *kidneys*, while it acts as a generous *tonic*, increasing the appetite and strengthening the general system. I have heard of several cures, that may well be called wonderful, that have been effected in this county from the use of this water.”

As a medicinal agent, this water is yet so new, and the cases in which it has been tried are so undefined as to their precise nature or pathology, that it is difficult to say, with any degree of confidence, what may be its peculiar therapeutical agency or medical adaptations. It is a water, however, that is justly exciting public attention, and is probably destined to occupy a high position among our mineral waters.

Since the above was written, I have been furnished with an analysis of the water of this spring by Professor

Gilham, and the following communication from that gentleman shows the result of his chemical investigations :

V. M. INSTITUTE,
Lexington, Va., Nov. 30, 1853.

My Dear Sir : I enclose you the results obtained in the analysis of a sample of alum water furnished me by Mr. Echols.

A gallon of water furnished the following mineral constituents :

Sulphuric acid,	-	-	59.008	grains.
Magnesia,	-	-	4.320	"
Protoxide of iron,	-	-	11.112	"
Alumina,	-	-	4.072	"
Lime,	-	-	7.768	"
Potassa,	-	-	5.064	"

If we now suppose, which is the most probable supposition, that the sulphuric acid forms simple combinations with the above bases, in the proportions of one atom, or equivalent, of acid, to one atom, or equivalent, of base, we shall have the various salts of the acid in the following proportions :

Sulphate of magnesia,	12.664	grs. to the gal.
" prot. of iron,	23.456	" "
" alumina,	7.240	" "
" lime,	18.672	" "
" potassa,	10.160	" "

And, in addition, we have of *free* or uncombined sulphuric acid, 19.976 grains.

Respectfully, your ob't serv't,

WILLIAM GILHAM.

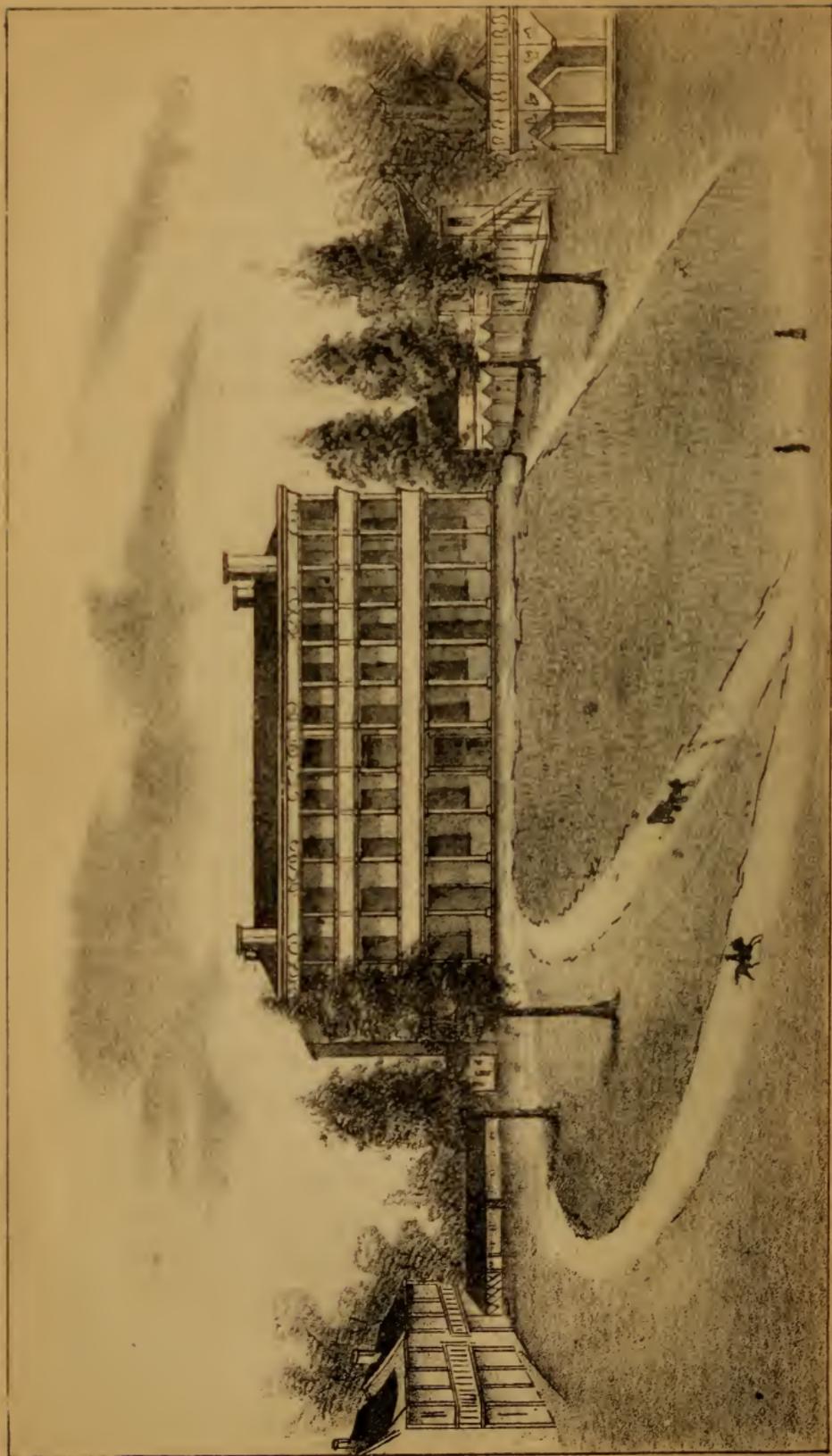
Dr. J J. MOORMAN, Fancy Hill.

This analysis of Professor Gilham will give confidence as to the component parts of this water, while it indicates, as far as can be done by chemistry, its appropriate medical adaptations.

Suggesting now, as heretofore, when treating of the analysis of other waters in connection with their medicinal use, the uncertainty of any analysis as a basis for the administration of mineral waters, I remark, that we have a new and valuable light in this particular case, not always accessible to new and untried waters. Between the analysis of this water, and the alum waters of Bath and Rockbridge, whose reputation and adaptations are now pretty well established, there is a similarity in several respects, so striking as to induce the belief that they are suited to the same general range of disease.

The intelligent physician at all acquainted with the peculiar action of the alum waters, and looking to the leading indications afforded by the analysis of this, will not fail to perceive that it is pointed out as a valuable remedy in a large circle of cases that require an *alterative tonic treatment*. It will probably be found valuable in the various forms of *Salt Rheum*, as such waters invariably are; while its good effects in *Chlorosis*, and other female affections, unattended with febrile action, may be looked to, we would think, with decided confidence.





Lith of Huguenot Springs-Powhatan, Richmond, Va.

HUGUENOT SPRINGS-POWATAN VA.

CHAPTER XXVII.

HUGUENOT SPRINGS.

THIS watering place is in Powhatan County, about fifteen miles above Richmond. It is situated near the centre of a tract of land granted by the British crown to a body of Protestant refugees driven from France by the repeal of the edict of Nantes in 1685, who came to our shores near the close of that century and settled in Powhatan and Chesterfield. From this circumstance, which cannot be without interest to a brave and free people, strenuous upholders of the rights of conscience as the Americans have always been, the name of these Springs was taken when it was determined to establish them as a watering place.

Their situation is more than ordinarily striking. On approaching the place from the north, along a broad and level road, the hotel emerges to view across a smooth green lawn, bounded on each side by a graveled avenue which is used as a carriage way. On both sides of this lawn, beyond the avenues, are rows of cabins, placed at irregular intervals and at varying distances, but which, though only seen and partly concealed among the scattered trees, contribute to the picturesque effect. Near the

western row, a little in advance of it, and not far from the hotel, is an elegant pavilion, shaded by half-grown trees—a favorite resort with the ladies. On approaching nearer the hotel, the eye is arrested by a cabin in the rear of the western row, standing a little apart, on the brow of a bold rounded hill. This was built by Major Wooldridge, one of the proprietors of the place, and is occupied by him as the summer residence of his family. Perhaps a scientific observer might be at a loss to determine the exact style of its architecture, which seems of a composite order, and it may be a little fantastic; but all will agree that its long piazzas, numerous windows, and light, airy, half-oriental cast, produce a pretty and pleasing effect, and adapt it well for a summer sojourn. But the hotel is the object which first arrests the view of the visiter. It is of large size, being 120 feet long, is three stories high, and has three broad piazzas running its entire length. Its position is at the lower extremity of the lawn above described. On the southern side the ground is level for only about fifty feet, after which it descends rapidly, though not abruptly, to an extensive valley, open in general, but interspersed with trees, and marked in various directions by intersecting roads. From this valley a lateral branch or broad ravine passes northward, running west of the western row of cabins; while, from the other extremity of the valley, another ravine of about the same dimensions runs parallel to the first, at nearly the same distance from the eastern row of cabins. The hotel thus occupies the southern extremity of a high level plateau of singularly symmetrical propor-

tions, which gives it a commanding position, similar, in its more striking features, to that of the Capitol in Richmond before the western ravine of the square had been reduced by the recent grading and filling.

Near the point where the western ravine enters the main valley is the sulphur spring, which fills a marble reservoir and then passes off by a covered conduit into the brook running close by. It has a tasteful pavilion erected over it. Immediately west of this spring rises a high, bold bluff, free from undergrowth, but covered with tall trees, which, being cool and breezy, and furnished with numerous seats, is a favorite retreat for those fond of quiet reading or lonely musing. Not far from the corresponding point in the eastern ravine, but a little more northward, is the chalybeate spring. No pavilion has been erected over this, the high embowering trees being a sufficient covering; but the spring is surrounded by a low-walled parapet. The stream issues from a fissure in a large sandstone, and a reservoir for the water has been hewn out of its native rocky bed. In the valley south of the hotel, a little to the west, is the well from which is obtained a water strongly tinctured with both sulphur and iron. This is used, not only for drinking, but for bathing, its medicinal properties when employed in this way being considered highly valuable. Of these waters, the first has been analyzed by Professor W. B. Rodgers, who determined its properties to be similar to those of the Greenbrier White Sulphur water, but weaker. The second was analyzed by Professor Socrates Maupin, who pronounced it a mild and pure chalybeate.

The third has not yet been analyzed, though the proprietors intend shortly to have it done; but if the award of experience is of any value, it is a fine, invigorating tonic, highly useful in cases of children, and more especially in female disorders.

Pleasant public retreats near large towns are always a blessing to the community. During the hot summer months, the system, debilitated by a city residence, often gives easy access to the dangerous diseases by which human life is perpetually assailed. This remark is true in regard to all persons of feeble constitutions, and to men subject to the languor and lassitude of a close, laborious occupation. In the cases of such, a short visit to a place of the kind, where good fare and comfortable accommodations may be had, and pleasant society and amusements are offered, often gives a healthful, elastic tone to the system which bears it safely through the heat, dust and weariness of city life during the season when the dog-star is raging.

The benefit is still greater if to these ordinary advantages is added a mineral water which, as such waters usually are, is mildly medicinal in its effects. There are many who think these waters are of use only in a few exceptional cases to which their properties are specially adapted; and that the marked improvement of health so often exhibited is to be ascribed solely to change of air and scene, and to relaxation from the toils of business. These last have certainly their influence, and that influence is doubtless a highly salutary one. But it is an error to refer all the advantage to this source, or to sup-

pose that the number is small of those to whom mineral waters are beneficial. In general they are mild tonics, whose tendency is to open and excite languid secretions; and in cases of protracted weakness or lingering disorders, their good effect is often great as gentle alteratives, correcting the diseased habit of body and restoring health and vigor to the frame. This view is supported by the high popular favor such springs have secured both in ancient and in modern times; and certainly a benefit thus avouched by what may be called universal experience should not be lightly regarded.

The Huguenot Springs bear a high character for the excellence of the fare and general accommodations. In this respect their vicinity to Richmond gives them great advantages. The hotel and cabins together offer ample accommodations to 150 visitors, which number might be doubled with little inconvenience, if the crowding system adopted at some other springs were pursued here.

From Richmond the visitor to the Huguenot Springs takes the Danville train and proceeds about ten miles to Robiou's. At that place he is met by two large stages, or omnibuses, sent by the proprietors, which, together, are capable, without inconvenient crowding, of conveying nearly forty persons. The entire cost of the trip is about one dollar. He reaches the Springs about 9, A. M., and has ample time to look around and judge for himself in regard to all the advantages offered by the place, before the dinner hour arrives. After that, if the Springs are too crowded for his taste, or any other consideration induces him to return, he can do so the same evening, and

be in Richmond again by 6 o'clock. Moreover, for such as have families at the Springs, or may otherwise find it convenient, the train and the omnibus carry up visitors every Saturday evening, and return them to the city by 9 o'clock on Monday morning. This, we believe, is a permanent arrangement, and it affords great facilities to the spring-going folk of Richmond.

For amusements, besides music and the dance, for which they have a band and a ball-room of large size, well suited to the purpose, there is a bowling saloon and a billiard room, the former free of charge. Exhibitions of fire-works take place from time to time through the summer; cotillion parties are had weekly, and large balls occasionally. The grand finale of the season is a tournament, in which gallant young gentlemen strive together in deeds of daring, each contending for the honor of placing the crown of love and beauty on the head of his selected fair. Then follow a coronation and a fancy ball, and so the season closes in gaiety and splendor.

APPENDIX.

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APPENDIX

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NATURAL CURIOSITIES OF VIRGINIA.

As many who resort to the Mineral Springs of Virginia desire, in the progress of their travel, to see the *Natural Curiosities* that may be conveniently accessible, we have thought that an acceptable service would be rendered to such, by enumerating the more interesting of these objects of the traveller's curiosity, and by indicating the routes by which they can conveniently be reached.

HARPER'S FERRY,

On the Potomac, in the county of Jefferson, and immediately on the great line of rail road from Baltimore to Cumberland in Maryland, and to Winchester in Virginia, has been rendered classic ground by the pen of the sage of Monticello. It derives its interest from a happy commingling of scenery at once wild, beautiful, and magnificent. Mr. Jefferson, in his Notes on Virginia, says, it "is one of the most stupendous scenes in nature. You stand on a very high point of land; on your right up comes the Shenandoah, having ranged along the foot of the mountain a hundred miles to seek a vent. On your

left approaches the Potomac, in quest of a passage also; in the moment of their junction they rush together against the mountain, rend it asunder, and pass off to the sea. The first glance of this scene hurries our senses into the opinion that this earth has been created in time; that the mountains were formed first; that the rivers began to flow afterwards; that in this place particularly, they have been dammed up by the Blue Ridge mountains, and have formed an ocean which filled the whole valley; that, continuing to rise, they have at length broken over at this spot, and have torn the mountain down from its summit to its base. The piles of rock on each hand, particularly on the Shenandoah, the evident marks of their disrapture and avulsion from their beds by the most powerful agents of nature, corroborate the impression. But the distant finishing which Nature has given to the picture is of a very different character; it is a true contrast to the foreground; it is as placid and delightful as that is wild and tremendous; for the mountain being cloven asunder, she presents to your eye, through the clefts, a small catch of smooth blue horizon, at an infinite distance in the plain country, inviting you, as it were, from the riot and tumult warring around, to pass through the breach and participate of the calm below. There the eye ultimately composes itself, and that way, too, the road happens actually to lead. You cross the Potomac above the junction, pass along its side through the base of the mountain for three miles, its terrible precipices hanging in fragments over you, and within about twenty miles reach Frederickstown and the fine

country around that. The scene is worth a voyage across the Atlantic, yet here, as in the neighborhood of the Natural Bridge, are people who have passed their lives within half a dozen miles, and have never been to survey these monuments of a war between rivers and mountains, which must have shaken the earth itself to its centre."

The grounds adjoining Harper's Ferry are the site of a United States Arsenal, and the extensive manufactories that are constantly in operation fabricating the various implements of war, are well worthy of a visit from the passing traveller.

From Harper's Ferry, the visiter to the Virginia Springs should take the rail cars to Winchester; thence by stage coaches up the fertile valley of the Shenandoah, and at the distance of eighty miles he reaches the little village of *Mount Sidney*, in the county of Augusta. Seven miles east of this village, and not far from the western base of the Blue Ridge mountains, is the famous

WEYER'S CAVE.

This cave derives its name from Bernard Weyer, who discovered it in 1804, while in pursuit of a wild animal that took refuge in it.

It would be difficult to convey an adequate idea of the "vastness and sublimity of some, or the exquisite beauty and grandeur of other, of its innumerable apartments, with their snowy white concretions of a thousand various

forms. Many of these, with their striking and picturesque objects, have names exceedingly inappropriate, which, to mention, would degrade any description, however well written, by the association of the beautiful and sublime with the vulgar and hackneyed." Its largest apartment is known as Washington Hall, and is 250 feet in length. A foreign traveller who visited the cave at an annual illumination, gives the following description of this hall :

"There is a fine sheet of rock-work running up the centre of this room, and giving it the aspect of two separate and noble galleries, till you look above, where you observe the partition rises only 20 feet towards the roof, and leaves the fine arch expanding over your head untouched. There is a beautiful connection here standing out in the room, which certainly has the form and drapery of a gigantic statue; it bears the name of the Nation's Hero; and the whole place is filled with these projections—appearances which excite the imagination by suggesting resemblances, and leaving them unfinished. The general effect, too, was perhaps indescribable. The fine perspective of this room, four times the length of an ordinary church; the numerous tapers, when near you, so encumbered by deep shadows as to give only a dim, religious light, and when at a distance, appearing in their various attitudes like twinkling stars on a deep, dark heaven; the amazing vaulted roof spread over you, with its carved and knotted surface, to which the streaming lights below in vain endeavored to convey their radiance; together with the impression that you had made so deep

an entrance, and were so entirely cut off from the living world and ordinary things; produces an effect which, perhaps, the mind can receive but once, and will retain forever."

"Weyer's Cave," says the same writer, "is, in my judgment, one of the great natural wonders of this new world, and for its eminence in its own class, deserves to be ranked with the Natural Bridge and Niagara, while it is far less known than either. Its dimensions, by the most direct course, are more than 1,600 feet, and by the more winding paths, twice that length; and its objects are remarkable for their variety, formation and beauty. In both respects, it will, I think, compare, without injury to itself, with the celebrated Grotto of Antiparos. For myself, I acknowledge the spectacle to have been most interesting; but to be so, it must be illuminated as on this occasion. I had thought that this circumstance might give the whole a toyish effect; but the influence of 2,000 or 3,000 lights on these immense caverns is only such as to reveal the objects, without disturbing the solemn and sublime obscurity which sleeps on every thing. Scarcely any scenes can awaken so many passions at once, and so deeply. Curiosity, apprehension, terror, surprise, admiration, and delight, by turns and together arrest and possess you. I have had before, from other objects, one simple impression made with greater power; but I never had so many impressions made, and with so much power, before. If the interesting and the awful are the elements of the sub-

lime, here sublimity reigns, as in her own domain, in darkness, silence, and deeps profound."

MADISON'S CAVE.

Within a few hundred yards of Weyer's, is *Madison's Cave*. It is thus described by Mr. Jefferson, in his "Notes on Virginia":

"It is on the north side of the Blue Ridge, near the intersection of the Rockingham and Augusta line with the south fork of the southern river of Shenandoah. It is in a hill of about 200 feet perpendicular height, the ascent of which on one side is so steep, that you may pitch a biscuit from its summit into the river which washes its base. The entrance of the cave is in this side, about two-thirds of the way up. It extends into the earth about 300 feet, branching into subordinate caverns, sometimes ascending a little, but more generally descending, and at length terminates in two different places at basins of water of unknown extent, and which I should judge to be nearly on a level with the water of the river; however, I do not think they are formed by reflux water from that, because they are never turbid; because they do not rise and fall in correspondence with that in times of flood, or of drought, and because the water is always cool. It is probably one of the many reservoirs with which the interior parts of the earth are supposed to abound, and which yield supplies to the fountains of water, distinguished from others only by its

being accessible. The vault of this cave is of solid limestone, from 20 to 40 or 50 feet high, through which water is continually percolating. This, trickling down the sides of the cave, has encrusted them over in the form of elegant drapery; and dripping from the top of the vault generates on that, and on the base below, stalactites of a conical form, some of which have met and formed massive columns."

BLOWING CAVE.

On the stage road between the Rockbridge and Bath Alum Springs, and one mile west of the little village of Milboro', in a high ledge near the bank of the Cow Pasture river, is the *Blowing Cave*, noticed by Mr. Jefferson in his "Notes on Virginia." The mouth of the cave is 30 or 40 feet above the road; it is semi-circular in shape, and about 4 feet in height. This cave has been explored for a considerable distance. It is said that a small dog who entered its mouth, found his way out by some unknown passage. * "When the internal and external atmosphere is the same, there is no perceptible current issuing from it. In intense hot weather, the air comes out with so much force as to prostrate the weeds at the entrance. In intense cold weather, the air draws in. There is a *Flowing and Ebbing Spring* on the same stream with the *Blowing Cave*, which supplies water-

*Howe.

power for a grist-mill, a distillery, and a tan-yard. It flows irregularly. When it commences, the water bursts out in a body as if let loose from a dam." This is called by Mr. Jefferson a *Syphon Fountain*. Two others of the same kind are known in Virginia; one in Brooks' Gap, in Rockingham county, the other near the mouth of the North Holston.

NATURAL BRIDGE.

This, perhaps the most celebrated of the Natural Curiosities of Virginia, is in the county of Rockbridge, and near the geographical centre of the State, 172 miles west from Richmond, and 63 east from the White Sulphur Springs. The mean height of the bridge from Cedar Creek, which flows under it, is 215 feet. Its length is 93 feet, its average width 80 feet, the thickness of its arch 55 feet. Its height is greater than the Falls of Niagara by about fifty-five feet, and by some who have seen both, it is regarded as a greater object of wonder. Whatever may be its relative merits when compared with the peerless Niagara, it admittedly ranks high among the natural curiosities of the world, and is well worthy of a visit by all the pleasure-journing public that visit our mountains.

An accomplished European traveller thus describes the Bridge, and his own impressions on viewing it:

"This famous bridge is on the head of a fine limestone hill, which has the appearance of having been rent asun-

der by some terrible convulsion in nature. The fissure thus made is about ninety feet; and over it the bridge runs, so needful to the spot, and so unlikely to have survived the great fracture, as to seem the work of man; so simple, so grand, so great, as to assure you that it is only the work of God. The span of the arch runs from 45 to 60 feet wide, and its height, to the under line, is about 200 feet, and to the head about 240! The form of the arch approaches to the elliptical, and it is carried over on a diagonal line, the very line of all others so difficult to the architect to realize; and yet so calculated to enhance the picturesque beauty of the object!

There are chiefly three points of sight. You naturally make your way to the head of the bridge first; and as it is a continuation of the common road, with its sides covered with fine shrubs and trees, you may be on it before you are aware. But the moment you approach through the foliage to the side, you are filled with apprehension. It has, indeed, a natural parapet; but few persons can stand forward and look over. You instinctively seek to reduce your height, that you may gaze on what you admire with security. Even then it agitates you with dizzy sensations.

You then make your way some fifty feet down the bosom of the hill, and are supplied with some admirable standings on the projecting rock-work, to see the bridge and all its rich accompaniments. There is, 200 feet below you, the Cédar River, apparently motionless, except where it flashes with light as it cuts its way through the broken rocks. Mark the trees of every variety, but

especially the fir, how they diminish as they stand on the margin of its bed ; and how they ascend step by step on the noble rock-work, till they overshadow you ; still preserving such delicacy of form and growth as if they would not do an injury, while they lend a grace. Observe those hills, gathering all around you in their fairest forms and richest verdure, as if to do honor to a scene of surpassing elegance. Now look at the bridge itself, springing from this bed of verdant loveliness, distinct, one, complete ! It is before you in its most picturesque form. You just see through the arch, and the internal face of the further pier is perfectly revealed. Did you ever see such a pier—such an arch ? Is it not most illusive ! Look at that masonry. Is it not most like the perfection of art, and yet what art could never reach ? Look at that coloring. Does it not look like the painter's highest skill, and yet unspeakably transcend it ?

This is exquisite. Still you have no just conception of this master-piece until you get below. You go some little distance for this purpose, as in the vicinity of the bridge the rocks are far too precipitous. A hot and brilliant day is, of all others, the time to enjoy this object. To escape from a sun which scorches you, into these verdant and cool bottoms, is a luxury of itself, which disposes you to relish every thing else. When down, I was very careful of the first impression, and did not venture to look steadily on the objects about me till I had selected my station. At length I placed myself about 100 feet from the bridge, on some masses of rock which were washed by the running waters, and ornamented by the

slender trees which were springing from its fissures. At my feet was the soothing melody of the rippling, gushing waters. Behind me, and in the distance, the river and the hills were expanding themselves to the light and splendor of day. Before me, and all around, every thing was reposing in the most delightful shade, set off by the streaming rays of the sun, which shot across the head of the picture far above you, and sweetened the solitude below. On the right and left, the majestic rocks arose with the decision of a wall, but without its uniformity, massive, broken, beautiful, and supplying a most admirable foreground; and, every where, the most delicate stems were planted in their crevices, and waving their heads in the soft breeze, which occasionally came over them. The eye now ran through the bridge, and was gratified with a lovely vista. The blue mountains stood out in the back-ground; beneath them the hills and woods gathered together, so as to enclose the dell below; while the river, which was coursing away from them, seemed to have its well-head hidden in their recesses. Then there is the arch, distinct from every thing, and above every thing. Massive as it is, it is light and beautiful by its height, and the fine trees on its summit seem now only like a garland of evergreens; and, elevated as it is, its apparent elevation is wonderfully increased by the narrowness of its piers, and by its outline being drawn on the blue sky, which appears beneath and above it! Oh, it is sublime—so strong, and yet so elegant—springing from earth, and bathing its head in heaven! But it is the sublime not allied to the terrific, as at Ni-

agara; it is the sublime associated with the pleasing. I sat, and gazed with wonder and astonishment. That afternoon was the shortest I ever remembered. I had quickly, too quickly, to leave the spot forever; but the music of those waters, the luxury of those shades, the form and colors of those rocks, and that arch—that arch—rising over all, and seeming to offer a passage to the skies—O, they will never leave me.”

PEAKS OF OTTER.

These celebrated mountain heights, with one or two exceptions, are of greater altitude than any other mountains in the southern country. They are in the county of Bedford, ten miles by the public road from the beautiful village of Liberty, and about thirty-five miles from the city of Lynchburg. Mr. Howe, in his interesting history of Virginia, states that the northern peak is 4200 feet above the plain, and 5307 feet above the level of the ocean, which is more than a mile in height. The summits of these peaks are, perhaps, two miles apart. The most southerly, or the conical peak, is much visited. A writer in the *Southern Literary Messenger* gives the following account of his visit to these interesting heights:

“After riding about a mile and a quarter, we came to the point beyond which horses cannot be taken, and dismounting our steeds, commenced ascending on foot. The way was very steep, and the day so warm that we

had to halt often to take breath. As we approached the summit, the trees were all of a dwarfish growth, and twisted and gnarled by the storms of that high region. There were also a few blackberry bushes, bearing their fruit long after the season had passed below. A few minutes longer brought us to where the trees ceased to grow; but a huge mass of rocks, piled wildly on top of each other, finished the termination of the peak. Our path lay for some distance around the base of it, and under the overhanging battlements, and rather descending for a while, until it led to a part of the pile which could with some effort be scaled. There was no ladder, nor any artificial steps, and the only means of ascent was by climbing over the successive rocks. We soon stood upon the wild platform of one of nature's most magnificent observatories, isolated and apparently above all things else terrestrial, and looking down upon and over a beautiful, variegated, and at the same time grand, wild, wonderful, and almost boundless panorama. Indeed, it was literally boundless, for there was a considerable haze resting upon some parts of the 'world below,' so that, in the distant horizon, the earth and sky seemed insensibly to mingle with each other. I had been there before. I remember, when a boy of little more than ten years old, to have been taken to that spot, and how my unpracticed nerves forsook me at the sublimity of the scene.

“On this day it was as new as ever; as wild, wonderful and sublime as if I had never before looked from those isolated rocks, or stood on that awful summit. On one side, towards Eastern Virginia, lay a comparatively

level country, in the distance bearing strong resemblance to the ocean; on the other hand were ranges of high mountains, interspersed with cultivated spots, and then terminating in piles of mountains, following in successive ranges, until they were lost also in the haze. Above and below, the Blue Ridge and Alleghanies run off in long lines; sometimes relieved by knolls and peaks, and in one place above us making a graceful curve, and then again running off in a different line of direction.

“Very near us stood the rounded top of the other peak, looking like a sullen sentinel for its neighbor.

“We paused in silence for a time. We were there almost cut off from the world below, standing where it was fearful even to look down. It was more hazy than at the time of my last visit, but not so much so as to destroy the interest of the scene.

“There was almost a sense of pain at the stillness which seemed to reign. We could hear the flappings of the wings of the hawks and the buzzards, as they seemed to be gathering a new impetus after sailing through one of their circles in the air below us. North of us, and on the other side of the Valley of Virginia, were the mountains near Lexington, just as seen from that beautiful village—the Jump, North and House mountains succeeding each other. They were familiar with a thousand associations of our childhood, seeming mysteriously, when away from the spot, to bring my early home before me—not in imagination, such as had often haunted me when I first left to find another in the world, but in substantial reality. Further on down the valley, and at a great dis-

tance, was the top of a large mountain, which was thought to be the Great North Mountain, away down in Shenandoah county. I am afraid to say how far off. Intermediate between these mountains, and extending opposite and far above us, was the Valley of Virginia, with its numerous and highly cultivated farms. Across this Valley, and in the distance, lay the remote ranges of the Alleghany and mountains about, and, I suppose, beyond the White Sulphur Springs. Nearer us, and separating Eastern and Western Virginia, was the Blue Ridge, more than ever showing the propriety of its cognomen of the 'back bone,' and on which we could distinctly see two zigzag turnpikes, the one leading to Fincastle and the other to Buchanan, and over which latter we had traveled a few days before. With the spy-glass we could distinguish the houses in the village of Fincastle, some twenty-five or thirty miles off, and the road leading to the town. Turning towards the direction of our morning's ride, we had beneath us Bedford county, with its smaller mountains, farms and farm-houses, the beautiful village of Liberty, the county roads, and occasionally a mill-pond, reflecting the sun like a sheet of polished silver. The houses on the hill at Lynchburg, twenty-five or thirty miles distant, are distinctly visible on a clear day, and also Willis' mountain, away down in Buckingham county.

“Myself and companions had, some time before, gotten on different rocks, that we might not interrupt each other in our contemplations. I could not refrain, however, from saying to one of them, ‘What little things we

are! how factitious our ideas of what is extensive in territory and distance!’ A splendid estate was about the size I could step over; and I could stand and look at the very house whence I used to start in days gone by, and follow with my eye my day’s journey to the spot where, wearied and worn, I dismounted with the setting sun. Yet I could look over what seemed so great a space with a single glance. I could also look away down the Valley of Virginia, and trace the country, and in imagination the stage coach, as it slowly wound its way, day and night, for successive days, to reach the termination of what I could throw my eye over in a moment. I was impressively reminded of the extreme littleness with which these things of earth would all appear when the tie of life which binds us here is broken, and we shall all be able to look back and down upon them from another world. The scene and place are well calculated to excite such thoughts.

“It is said that John Randolph once spent the night on these elevated rocks, attended by no one but his servant; and that when, in the morning, he had witnessed the sun rising over the majestic scene, he turned to his servant, having no other to whom he could express his thoughts, and charged him, ‘Never from that time to believe any one who told him there was no God.’

“I confess, also, that my mind was most forcibly carried to the judgment day; and I could but call the attention of my companions to what would, probably, then be the sublime terror of the scene we now beheld, when the mountains we saw and stood upon should all be melted

down like wax; when the flames should be driving over the immense expanse before us; when the heavens over us should be 'passing away with a great noise'; and when the air beneath and around us should be filled with the very inhabitants now dwelling and busied in that world beneath us."

Travelers in the public conveyances, who desire to visit the *Peaks*, should stop at Liberty, where carriages can be obtained for the mountain excursion. Those traveling in private conveyances may detour at Buchanan from the main Valley road, or from Liberty. They will find a well-graded turnpike from either of these places to the Peaks, and a comfortable hotel immediately at their base.

THE HAWK'S NEST, OR MARSHALL'S PILLAR,

Is on New River, in the County of Fayette, a few rods from the main turnpike leading from Guyandotte to the White Sulphur Springs—ninety-six miles from the former and sixty-four from the latter place. It consists of an immense column or pillar of rock, rising perpendicularly to the height of 1,000 feet above the river. It is called Marshall's Pillar in honor of the late venerable Chief Justice, who, as one of the State Commissioners appointed to reconnoitre that section of country for the location of a public improvement, stood upon its dizzy height and sounded its exact depth to the margin of the river.

A foreign traveler thus beautifully describes the elevating and sublime emotions with which he was inspired on visiting the Hawk's Nest :

*“ You leave the road by a little by-path, and after pursuing it for a short distance, the whole scene suddenly breaks upon you. But how shall we describe it? The great charm of the whole is connected with the point of sight, which is the finest imaginable. You come suddenly to a spot which is called the Hawk's Nest. It projects on the scene, and is so small as to give standing to only some half dozen persons. It has on its head an old picturesque pine; and it breaks away at your feet abruptly and in perpendicular lines, to a depth of more than 1,000 feet. On this standing, which, by its elevated and detached character, affects you like the monument, the forest rises above and around you. Beneath and before you is spread a lovely valley. A peaceful river glides down it, reflecting, like a mirror, all the lights of heaven, washes the foot of the rocks on which you are standing, and then winds away into another valley at your right. The trees of the wood, in all their variety, stand out on the verdant bottoms, with their heads in the sun, and casting their shadows at your feet, but so diminished as to look more like the pictures of the things than the things themselves. The green hills rise on either hand and all around, and give completeness and beauty to the scene; and beyond these appears the gray outline of the more distant mountains, bestow-

*Howe's History of Virginia.

ing grandeur to what was supremely beautiful. It is exquisite. It conveys to you the idea of perfect solitude. The hand of man, the foot of man, seem never to have touched that valley. To you, though placed in the midst of it, it seems altogether inaccessible. You long to stroll along the margin of those sweet waters, and repose under the shadows of those beautiful trees; but it looks impossible. It is solitude, but of a most soothing, not of an appalling character, where sorrow might learn to forget her griefs, and folly begin to be wise and happy."

THE ICE MOUNTAIN,

In the county of Hampshire, is justly regarded as one of the most interesting and wonderful curiosities of the State. It is situated on the eastern bank of the North River, and is twenty-six miles N. W. from Winchester, and sixteen miles E. from Romney. It rises to the height of near 500 feet above the river.

*"The west side of the mountain, for a quarter of a mile, is covered with a mass of loose stone of a light color, which reaches down to the bank of the river. By removing the loose stone, *pure crystal ice* can always be found in the warmest days of summer. It has been discovered even as late as the 15th of September; but never in October, although it may exist throughout the

*Howe's History of Virginia.

entire year, and be found, if the rocks were excavated to a sufficient depth. The body of rocks where the ice is found is subject to the full rays of the sun from nine o'clock in the morning until sun-set. The sun does not have the effect of melting the ice as much as continued rains. At the base of the mountain is a spring of water colder by many degrees than spring water generally is. 'Very near this spring,' says Kerchival, 'the owner of the property has removed the stone and erected a small log dairy, for the preservation of milk, butter and fresh meats. When the author saw this little building, which was late in the month of April, the openings between the logs, (on the side next the cavity from which the stone had been taken out,) for eighteen inches or two feet from the floor, were completely filled with ice, and about one-half the floor was covered with ice several inches thick. Mr. Deevers, who is the owner of the property, informed the author that milk, butter, or fresh meats of any kind, are perfectly safe from injury for almost any length of time, in the hottest weather. If a fly venture in, he is immediately stiffened with the cold and becomes torpid. If a snake, in his rambles, happens to pass over the rocks covering the ice, he soon loses all motion and dies. Christopher Heiskell, Esq., informed the author that several instances had occurred of snakes being found dead among the rocks covering the ice. An intelligent young lady at the same time stated that she had seen instances of this character. In truth, it was upon her first suggesting the fact, that the author was led to make the inquiry of Mr. Heiskell. And Mr. Deevers stated that

he had several times removed torpid flies from his dairy into a more temperate atmosphere, when they soon recovered life and motion, and flew off."

A writer in Silliman's Journal, Mr. C. B. Hayden, thus accounts for the curious phenomenon of the preservation of ice in this mountain :

"The solution, I conceive, is found in the large and unusual collection of rocks, which, from their porous homogeneous texture, are extremely poor conductors of heat. One side of the mountain consists of a massive wall, many hundred feet in thickness, and heaped up against this as an abutment is a mass of rocks containing several thousand cubic feet. As the mountain has a general direction from N. E. to S. W., the talus heap containing the ice has a N. W. exposure. The cavernous nature of this heap would admit the free entrance of atmospheric waters, which during the winter would form ice in the interior of the mass. The ice thus situated would be protected from external heat by the surrounding rocks, as in a refrigerator, isolated and protected from the external temperature by the non-conducting sides of the refrigerator. The Ice Mountain only requires, for the explanation of its phenomenon, the application of the familiar principle upon which is constructed the common refrigerator, which temporarily effects what the Ice Mountain permanently does—a temperature independent of external causes. The Ice Mountain is, in fact, a huge sandstone refrigerator, whose increased and unusual effects beyond those of the ordinary refrigerator,

are due to the increased and unusual collection of poor conducting materials which form its sides."

In the same county there are several other curiosities of interest, particularly—

CAUDY'S CASTLE, THE TEA TABLE, AND THE
HANGING ROCKS.

Caudy's Castle (Howe) "was so named from having been the retreat of an early settler, when pursued by the Indians. It is the fragment of a mountain, in the shape of a half cone, with a very narrow base, which rises from the banks of the Capon to the height of about 500 feet, and presents a sublime and majestic appearance.

"The *Tea Table* is about ten miles from Caudy's Castle, in a deep, rugged glen, three or four miles east of the Capon. It is about four feet in height, and the same in diameter. From the top issues a clear stream of water, which flows over the brim on all sides, and forms a fountain of exquisite beauty.

"The *Hanging Rocks* are about four miles north of Romney. There the Wappatomka River has cut its way through the mountain of about 500 feet in height. The boldness of the rocks and the wildness of the scene excite awe in the beholder.

A bloody battle, says tradition, was once fought at the

Hanging Rocks, between contending parties of the Catawba and Delaware Indians, and it is believed that several hundred of the latter were slaughtered. Indeed, the signs now to be seen at this place exhibit striking evidence of the fact. There is a row of Indian graves between the rocks and public road, along the margin of the river, of from sixty to seventy yards in length. It is believed that very few of the Delawares escaped."

Persons who visit the *Capon Springs* may conveniently see these curiosities, and they are all well worthy of the observation of the inquisitive traveler.

SALT POND.

The *Salt Pond*, now becoming celebrated among the curiosities of Western Virginia, is a beautiful lake of clear, deep, fresh water, on the top of the *Salt Pond Mountain*, one of the highest spurs of the Alleghany. It is in the county of Giles, ten miles east of Parisburg, and five from the Hygeian Springs.

This pond (Howe) "is about a mile long, and one-third of a mile wide. At its termination it is dammed by a huge pile of rocks, over which it runs; but which once passed through the fissures only. In the spring and summer of 1804, immense quantities of leaves and other rubbish washed in and filled up the fissures, since which it has risen full 25 feet. Previous to that time, it was fed by a fine large spring at its head; that then disappeared, and several small springs now flow into it

at its upper end. When first known, it was the resort of vast numbers of elk, buffalo, deer, and other wild animals, for drink." It was also a place at which the pioneers of the country salted their cattle in the mountain ranges; and hence its name of "Salt Pond." It has no taste of salt, and is inhabited by fine trout and other fish.

In enumerating the natural curiosities of the State, we have confined ourselves to those that may be conveniently reached by visitors to our springs; nevertheless, the enumeration embraces all the most celebrated objects of the kind. Every watering place, and almost every neighborhood in our mountain regions, boast of their local curiosities, or their wild, beautiful, and picturesque scenery. Of these merely local objects of interest, every pilgrim to our mountains, either in his travels or his sojournings, will not fail to hear, and to learn, not only their locality, but the peculiar interest that attaches to each.

OLD POINT COMFORT.

Although not strictly a natural curiosity, *Old Point Comfort* is now so distinguished, not only for its fine *sea bathing*, and as a place of fashionable and healthful resort by persons from every portion of our country, but also for its extensive fortifications guarding the entrance from the ocean into the interior of the country, that we

have thought some notice of it might be acceptable to the spring-going and pleasure-seeking public.

Old Point *“on which stands Fortress Monroe, is $2\frac{1}{2}$ miles from Hampton, and about 12, in a direct line, from Norfolk. It is a promontory exactly on latitude 37° , and, with the opposing point *Willoughby*, forms the mouth of James River. The name was given to it in 1607, by the first colonists of Virginia, who, on their exploratory voyage up the James, previous to landing at Jamestown, called it *Point Comfort* “on account of the good channel and safe anchorage that it afforded. The prefix of “*Old*” was afterwards given to distinguish it from “*New Point Comfort*.”

A fort was built on the Point a few years after the first settlement of the country. The following act for its erection was passed in March, 1629–30 :

“Matter of fortifications was againe taken into consideration, and Capt. Samuel Mathewes was content to undertake the raising of a fort at Poynt Comfort; whereupon, Capt. Robert Ffelgate, Capt. Thomas Purfury, Capt. Thomas Graies, Capt. John Uty, Capt. Tho. Willoby, Mr. Tho. Heyrick, and Lieut. Wm. Perry, by full consent of the whole Assembly, were chosen to view the place, conclude what manner of forte shall bee erected, and to compounde and agree with the said Capt. Mathewes for the building, raising, and finishing the same,” &c.

* Howe's History of Virginia.

Count de Grasse, the admiral of the French fleet, threw up some fortifications on Old Point Comfort a short time previous to the surrender at York.

The salutary experience, dearly bought in the lessons of the late war, when these waters were the resort of British fleets, has doubtless had much influence in prompting the erection of the fortresses Monroe and Calhoun. The first is one of the largest single fortifications in the world, and is generally garrisoned by a regiment of the U. S. troops.

The channel leading in from the Capes of Virginia to Hampton Roads, is at Old Point Comfort reduced to a very narrow line. The shoal water, which, under the action of the sea, and re-acted upon by the bar, is kept up in an unremitting ripple, has given the name of *Rip Raps* to this place.

When the bar is passed, Hampton Roads affords one of the finest anchorages, in which navies could ride in safety. Fort Calhoun, or the castle of the *Rip Raps*, is directly opposite Fort Monroe, at the distance of 1900 yards. The two forts are so constructed as to present immense batteries of cannon at an approaching hostile ship; and the probabilities are, that long before she had completed the bendings of the channel, she would be a wreck or a conflagration from the hot shot thrown into her.

The Rip Raps structure is a monument of the genius of the engineers by whom it was planned. It is formed upon an island, made from the sea by casting in rocks in a depth of 20 feet of water, until, by gradual accumula-

tion, it emerged above the tides. The present aspect of the place is rough and savage; the music of the surrounding elements of air and sea is in keeping with the dreariness and desolation of the spot!

Old Point affords a delightful beach for *sea bathing*, equal to any on the coast; this, with its fine hotels and the facility with which it is reached from any quarter of the country, make it a place of great resort during the summer months.

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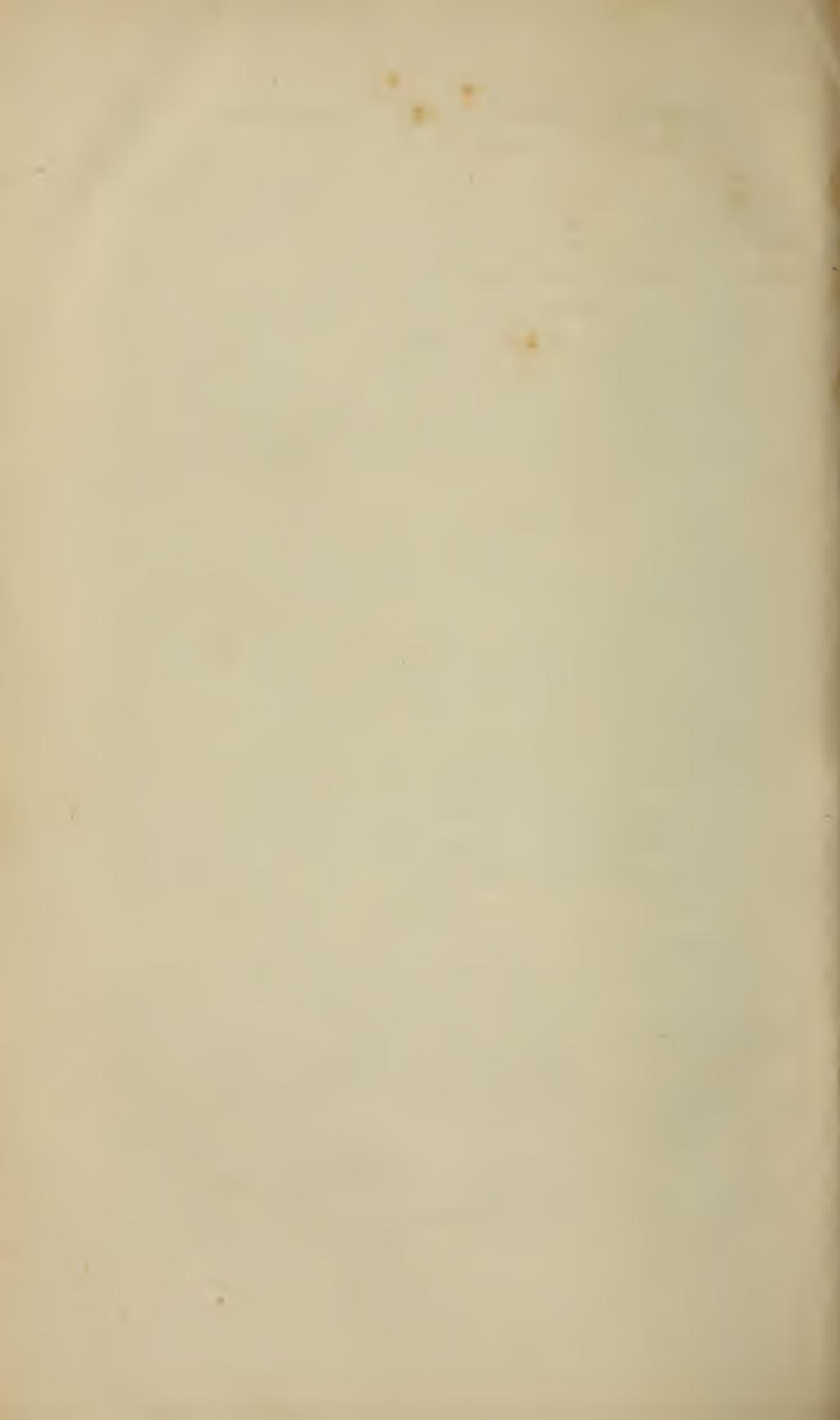
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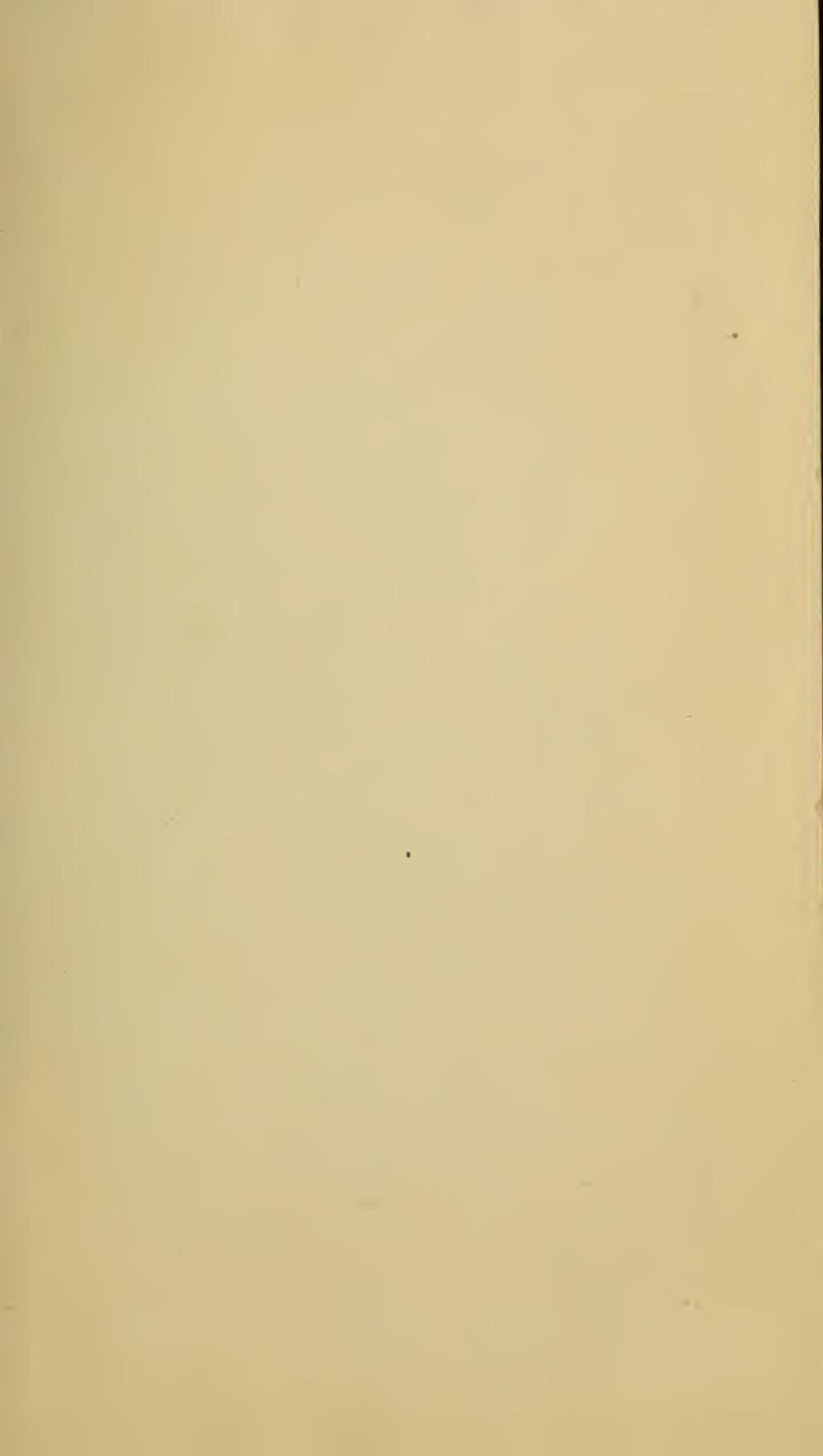
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