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THE BATH WATERS
—
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THE BATH WATERS:

THEIR USES AND EFFECTS.

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THE
BATH WATERS:
THEIR
USES AND EFFECTS
IN THE
CURE AND RELIEF
OF VARIOUS
CHRONIC DISEASES.

BY
JAMES TUNSTALL, M.D.,

MEMBER OF THE ROYAL COLLEGE OF PHYSICIANS;
FORMERLY RESIDENT MEDICAL OFFICER OF THE BATH MINERAL WATER HOSPITAL.

SECOND EDITION,
REVISED AND ENLARGED.



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JOHN CHURCHILL, NEW BURLINGTON STREET.

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PREFACE.

IN presenting a Second Edition of this work to the notice of the profession and the public, I have to assure them that it has undergone considerable correction, and that I have brought to bear upon its improvement the knowledge gained by many years experience in the treatment of patients sent to this city for the benefit of the thermal waters.

I have to thank the reviewers of my first edition for their very flattering and favourable notices ; and to express my acknowledgments to various writers on Mineral Springs, both British and Foreign, for the kind manner in which they have done me the honor to speak of my researches.

*Bath, 35, Brock Street ;
Dec. 28th, 1859.*

PERMISSION

I have the honor to acknowledge the receipt of your letter of the 10th inst. in relation to the matter of the proposed extension of the term of the lease of the land owned by the State of New York, and in reply to inform you that the same has been referred to the proper authorities for their consideration.

I am, Sir, very respectfully,
Your obedient servant,
J. B. [Name]

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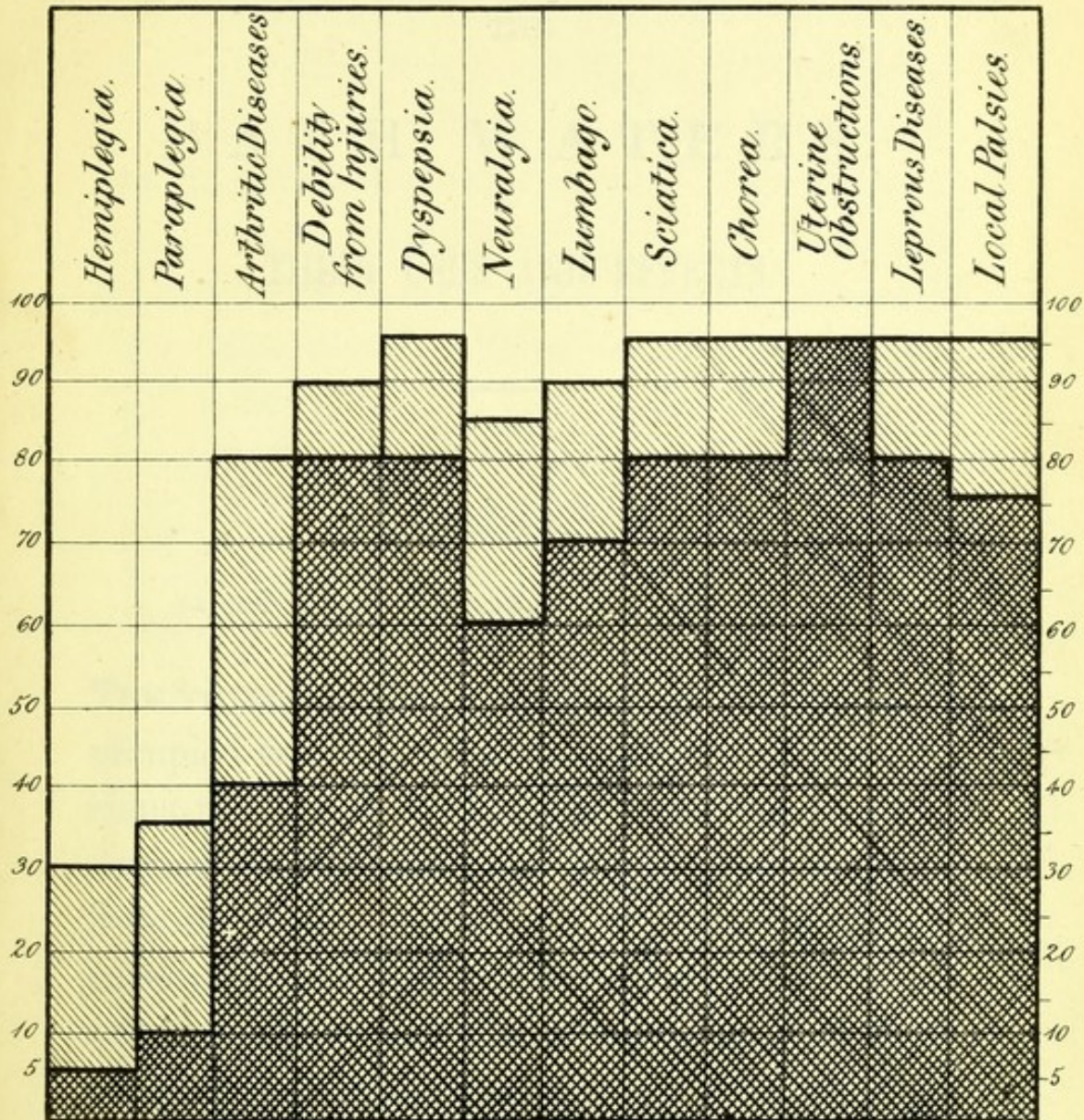
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TUNSTALL ON THE BATH WATERS.

Second Edition.

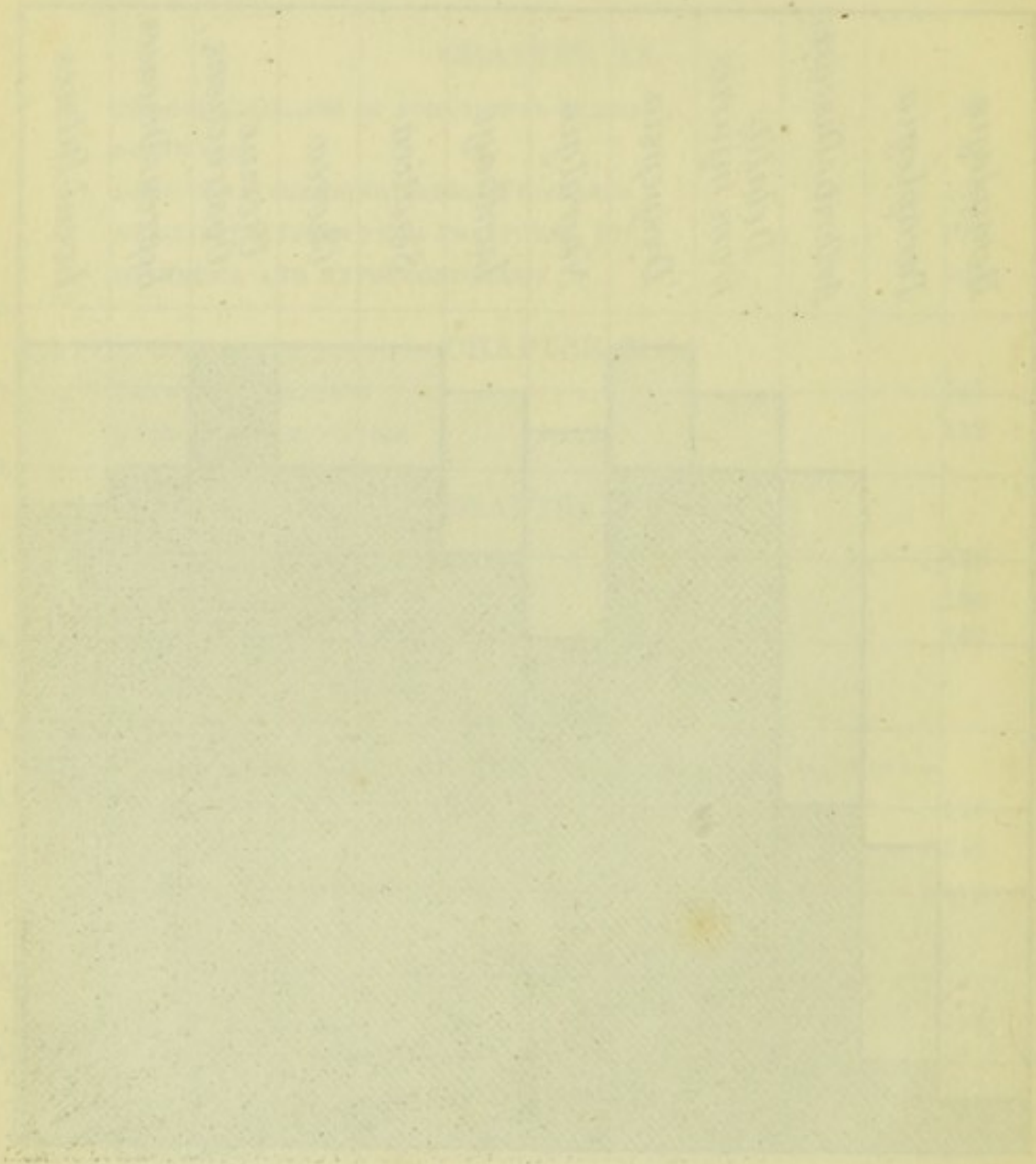


STATISTICAL TABLE.

Shewing the proportion of cases per Cent, cured and relieved by the Bath Waters; the cross lines represent the numbers cured, and the faint lines those who derive great benefit.

TUNSTALL ON THE BATH WATERS

General Plan



GENERAL PLAN

The plan shows the general arrangement of the buildings and grounds of the estate. The buildings are represented by the rectangular blocks within the grid. The grounds are represented by the spaces between the blocks. The plan is a general one and does not show the details of the buildings or the exact boundaries of the grounds.

THE
BATH WATERS:

THEIR USES AND EFFECTS.

CHAPTER I.

OF THE GENERAL PROPERTIES OF THE BATH WATERS.

THE virtues of the Bath Thermal Waters have occupied the pens of many distinguished physicians, more particularly those of the last century, during which period the city itself, extending from its ancient boundaries, stretched its magnificent streets and noble crescents far up the adjacent hills, and, from being one of the smallest and most inconvenient cities in the empire, took its place as the first in beauty and splendour. Its hot springs, which attracted the Romans to make choice of the valley of the Avon as a place of relaxation from the toils of a predatory warfare, and to bestow upon their settlement the name of. "THE CITY OF WATERS OF THE SUN," still preserve their uninterrupted

flow, and that mysterious healing power which no chemistry can explain and no mere artificial formation produce. Eliminated in Nature's laboratory, they flow towards the surface of the earth, adding to the bounteous gifts of Providence for the good of suffering humanity.

If we refer to the various chemical analyses of the Bath Waters, and observe the minuteness of the quantity of the medicinal substances which are dissolved in them, we are naturally at a loss to explain their beneficial effects and mode of action—we see results without being able to discern causes. Chemistry, indeed, in its reduction to their ultimate elements of the substances contained in the Bath Waters, performs an essential service to the medical investigator, but fails altogether in its attempts to discover the mode by which ingredients are held in solution in a stream (constant and unvarying), which, in the hottest day and coldest night, preserves a uniform temperature of 115 degrees of Fahrenheit's thermometer.

This temperature is derived from the source of the spring itself, and has been denominated Thermal Heat, and these and other allied waters, in various parts of the globe, have thence been denominated Thermal Waters.

I am persuaded that much of the benefit derivable from the Bath waters is due to this thermal property, which enables them to pro-

duce their exhilarating effects by the introduction, directly into the system, of free carbonic acid, united with saline materials, and a chalybeate in an extremely minute state of subdivision, in a warm and grateful fluid. Thus, by their internal administration, they stimulate the capillary vessels of the stomach, increase the nervous energy, and the volume and frequency of the pulse; promote the secretions, more particularly of the skin, liver, and kidneys, and by this means restore to their natural condition impaired and disordered functions—in fact, producing a tonic and stimulant effect more rapidly than any other form in which iron can be administered. And if we regard these waters merely as an article of the *Materia Medica*, an experience of many generations has proved them to be the best form of administering this valuable mineral.

In their external administration, they brace the extreme vessels of the skin, enabling it to secrete healthy perspiration in those forms of disease in which this function is depraved or unhealthy; and in general terms they may be said to improve the quality and vigour of the circulating fluid, by producing a direct tonic effect upon the heart and arteries.

I shall hereafter proceed to show how the effects of the Bath waters are beneficial in cases where their use is undertaken judi-

ously; and prejudicial, where due caution is not observed.

Much discredit has been thrown upon their use by those who have never seen the peculiar effects produced by them. Many say, a common warm bath, or an artificial medicated one, answers quite as well. I can only say, that my own experience justifies neither the one opinion nor the other.

While studying diseases of the skin in Paris, in the year 1834, I carefully observed the effects of medicated baths, and their great efficacy in *Lepros* and other allied diseases; but in no one instance did I observe the cure or relief so speedy or so permanently beneficial as I have seen produced by the Bath waters. And the same remark holds good in reference to hot and cold sea baths, which, generally speaking, produce too much irritation upon the already susceptible skin of the patient.

I have never seen a case of true *Lepros Vulgaris* which has not derived benefit from the Bath waters, either alone or in combination with other remedies.

With regard to common water heated to the same temperature, no person could immerse himself in a water bath of 105 or 110 degrees, without severe suffering; whereas the former is the ordinary temperature employed at the Bath Hospital, the patients describing it as

warm and pleasant. And I have seen a person take a bath at 114 degrees, without any inconvenience, but this was only done as an experiment, to determine the heat that could be borne. As a contrast, it may be stated that a *hot* water bath varies from 98 to 100, which is the temperature of a *warm* thermal bath. Moreover the effects of the hot water bath are relaxing and sedative, those of the hot thermal bath bracing and tonic; there is no disposition whatever to sleep after it, on the contrary the brain is more active, and the spirits more buoyant. The one produces loss of appetite and depression, the other an increase of appetite and exhilaration.

The general principles which should guide us in the employment of the Bath waters are, those which influence us in the use of all tonic remedies—that is to say, an absence of inflammatory action or disposition, a weak pulse, pallid look, with general loss of muscular power and energy. The more particular symptoms of disease, or condition of the circulating system, which forbid their use, will engage our attention when we come to speak of the specific states of diseased or morbid action in which their use is generally beneficial. It may be sufficient here merely to refer to the great discredit brought upon every remedial agent by its indiscriminate employment. I have no

desire to extol the Bath waters as an invariable specific in every stage of the diseases hereafter to be dwelt on, but as a valuable remedy, the use of which is founded upon strictly physiological principles, and which has been the means, for centuries past, of affording relief in the diseases in which its use is clearly indicated, when other means have entirely failed; in this I am but following in the wake of a multitude of distinguished medical authors, and adding to what is already known, the results of my own experience and observation, having had more than ordinary opportunities for forming a correct judgment, in that I have watched several thousand cases during their employment of the Waters, both when resident medical officer at the Mineral Water Hospital, and subsequently in private practice.

It is extremely curious that modern analyses both of the blood and of the Bath waters, shew that many of the saline and mineral ingredients of the one are found in the other; and in this respect we may, perhaps, find a reason why these waters are so beneficial in diseases in which the circulating fluid is altered in character, and deteriorated in quality; it being borne in mind that in the blood the saline and mineral ingredients are suspended in a VITAL fluid of a high temperature, and in the Bath waters in a THERMAL fluid, the source of whose heat is en-

tirely a matter of scientific hypothesis. It may be affirmed that no purely natural fluid so much resembles, in many of its constituent elements, the composition of healthy blood, as the Bath waters, it being remembered that the salts contained in the former are united together by vital heat, with certain animal principles; while the salts contained in the latter are held in solution by thermal heat, and are separated by cooling into solid and fluid portions, as the various parts of the blood are into coagulum and serum by the application of cold.

If, then, we seek for a reason why these waters are so grateful to the system of a person debilitated by the action of acute disease, we can, I think, supply an answer. By long continued debility and suffering, want of exercise, and confinement to a room not exposed to the full influence of atmospheric air, the body, more particularly in certain cases of rheumatism, has become charged with blood which wants many of the elements of that fluid in a healthy state. The perspiration is offensive to the nose, and acid in its reaction upon test paper; the blood, if drawn in a full stream, is black, and separates into two distinct portions—a coagulum, with a coating of buff, more or less thick, and a large proportion of watery, or serous matter; and if, as I have in many instances found, that the same individual, after undergoing a course of

bathing until it has produced another active attack of inflammation in the joints previously disordered, has lost blood, this blood has been altered in character and consistence, no longer separating in two portions, but presenting one uniform appearance of a bright red color; and if, as I constantly witness, this last attack is followed by perfect recovery, I feel bound to say that the red color of the circulating fluid, and the immunity from succeeding attacks, is due to the effect of the Bath waters upon the blood. But this will form a portion of our enquiry when we come to treat of the effects of the Bath waters in chronic rheumatism, liable to occasional active attacks.

CHAPTER II.

OF THE DISEASED CONDITIONS IN WHICH THE BATH WATERS ARE
BENEFICIAL.

Of all the diseased conditions for the relief of which the Bath Waters are recommended, unquestionably the greatest amount of relief is experienced in those disorders of the nervous functions which do not involve the cerebro-spinal system. Among these *Chorea* stands first, then *Sciatica*, and *Neuralgia*.

The next class comprehends those paralytic affections which are produced by loss of power in the extreme motor nerves of the extremities, caused, most frequently, by the absorption of lead and other minerals into the system, although numerous instances of this diseased condition are met with from various causes, which will form the subject of another Chapter. These affections are classed together in the Bath Mineral Water Hospital under the name of *Dropped Hands and Feet*, and are palsied conditions of the nerves of the extremities which do not involve the nervous centres.

The next contains those diseases of the skin which, unaccompanied by sores of any kind, discharge a solid matter, varying in size from a branny roughness to a large scale, and in quan-

tity from a few grains to many ounces daily, in which the disease does not materially affect the general health of the patient, as *Lepra*, *Psoriasis*, *Eczema*, *Impetigo*, *Pityriasis*, *Porrigo*, *Tinea Capitis*, and their various subdivisions and complications.

The next will comprehend *Chlorosis*, and other functional diseases of the uterine system, *Anemia*, and the loss of general health and strength produced by continued illness, mental anxiety, studious labour, or bodily fatigue; diseased conditions, having their origin in diminished circulating power, and which, for our present purpose, may be classed together under the head of *General Debility*.

I now come to those which far outnumber all the others, viz., *Gout*, and *Chronic Rheumatism*. In the first of these the Bath waters have been used with most signal and almost universal success; we can, indeed, scarcely open the memoirs and biographies of celebrated persons of the last century, without finding constant references to their good effects. They deserve, indeed, to have accorded to them the reputation of a specific action upon this disease, as far as relief is concerned, and were constantly recommended by the most celebrated practitioners of the Metropolis, from the reign of Queen Anne to that of George the Third.

In *Chronic Rheumatism* they are equally effi-

cacious; but as this disease comprehends all painful affections, from the temporary heat and swelling of one or more joints to the complete or partial loss of power over several, the statistical or numerical account fails to shew the great benefit derived.

In chronic stiffness of the limbs after fractures, dislocations, and contusions, requiring long confinement in one posture for the cure of the original injury, their use has been attended with great advantage. The same may be said of chronic injuries to the spinal column, where all symptoms of inflammation have subsided.

In the hip joint disease, as soon as the active symptoms have subsided, I have seen the general health, in many cases, completely restored, the tendency to hectic fever removed, and considerable power given to the affected limb.

I shall have, hereafter, to speak of paralysis dependant upon organic lesion of the brain—*Hemiplegia*, loss of power of the extremities of one side—an incurable disease, one, in which the use of stimulating remedies requires great caution, and where only partial benefit can be hoped for from any plan of treatment adopted, and this only when the apoplectic symptoms are relieved. I shall consider, also, what claims these waters possess as a remedy in *Paraplegia*, loss of power of the lower limbs, dependant upon inflammation of the spinal marrow. It

must be admitted that the classing together under one name, two diseases so opposite in their origin and termination, as apoplectic and mineral palsies, has caused much difference of opinion as to the value of the Bath waters in paralytic cases. I set a high value upon their use in the latter variety, because experience convinces me that at least 92 per cent. are cured, while relief is all that can be expected or hoped for in the former. The same may be said in reference to *Paraplegia*. I have seen complete loss of power of the lower limbs, produced by fever and the metallic poisons, in which the disease has slowly proceeded from the feet upwards, completely cured; while in those cases in which the spine was first affected, but little relief has been obtained.

All the diseases cured and relieved by the Bath waters are chronic, so that it is necessary that I should proceed to shew the various circumstances which forbid their use, in order that the medical attendant may be guided as to the class of cases which, failing the ordinary remedies, are likely to derive benefit from their employment.

There are eight circumstances which, in general terms, render the use of the Bath Waters improper.

1st. *Epilepsy*.—In no case where well marked epileptic fits have occurred should they be em-

ployed, because their use will cause the disease to return.

2nd. *Recent Apoplexy*.—This is an evidence of determination of blood to the brain, and forbids their employment.

3rd. *Phthisis and Scrofula*.—Because their use would produce active symptoms : the same might perhaps be said of the chronic diseases of the bronchial membrane ; but I have never seen any mischief produced, in debilitated constitutions, by their cautious employment for the relief of the diseases mentioned above, even when accompanied with chronic bronchitis.

4th. *Disease of the Heart*.—This refers more particularly to cases of rheumatism. In all forms of that disease, where the acute stage has involved the heart, and disturbed cardiac action continues in the chronic, the use of the Bath waters is attended with great danger. In cerebral palsy, the fact of the circulation being affected, is condemnatory of their employment in any form.

5th. *Acute Diseases* are not benefitted, but rather increased in intensity, by their use, however long they may have continued.

6th. *Chronic Abscess or Ulceration*.—This circumstance applies more particularly to diseases of the joints, and to certain states of cutaneous disease, involving large abrasions or ulcerations.

7th. *Paralysis of the Sphincter Muscles*.—I

have never seen a case in which this distressing symptom was present, derive the slightest advantage from the use of the Bath waters.

8th. *Hæmorrhages*, whether active or passive, forbid the employment of the Bath waters.

I have now briefly detailed those disqualifications which, not being attended to prior to sending patients to Bath, have brought discredit, not only upon medical skill, but also upon the springs themselves. It is very easy to say, "Go to Bath;" but when the suffering invalid arrives, and finds his case neither suitable for cure nor relief, he is put to great inconvenience, and may suffer a serious relapse; or he may continue their use for a period of time unadvisedly, so that he aggravates his malady by the means employed for its relief, and departs worse than he came.

It will be seen that the existence of any diseased condition which has a tendency to accelerate the circulation of the blood in a person labouring under active disease of the internal organs, or cerebro-spinal system, contra-indicates the employment of the Bath waters for the relief of the special diseases which are suitable in themselves for their employment, supposing the patient to be in perfect general health.

Of their employment in conjunction with blood letting, low diet, and antiphlogistics, I

shall speak more particularly when I come to describe the various states of disease enumerated above, and, under each, shall point out the remedies which are the most likely to assist these waters in their action upon the constitution. I shall, therefore, assume that the patient comes for the express purpose of making a trial of the waters, and it ought to be presumed, by his medical attendant in this city, that the more usual remedies have been already ineffectually employed; it will then be seen how far general or specific treatment is likely to be useful as an adjuvant to the means of treatment which the Thermal springs supply.

It would occupy too much space to enter into descriptions of the various diseases mentioned above; nor is it necessary to detail cases in a work of this kind, written after so large an experience. The former may be easily referred to in systematic treatises; the latter would encumber the text, without adding to the value of the observations. The plan I propose is, to take each class of disease separately; to point out the efficacy of the Bath waters as a remedy in each; and then to review the effects of remedies employed conjointly with them.

CHAPTER III.

OF THE DIET AND REGIMEN TO BE OBSERVED DURING A
COURSE OF THE BATH WATERS.

EXPERIENCE in every age has shewn that the physician does but little, who, confining himself to the prescribing of medicines, neglects to attend to the various auxiliary means which aid him in the treatment of disease. In reference to our present enquiry, these comprise diet, clothing, air, exercise, and amusement.

The first requisite to the invalid in the employment of any remedy is confidence, imparted by the hope of receiving benefit; and, as a class of remedies, mineral waters demand this confidence more than any others: far better not to resort to them at all, than to do so without a reliance on their efficacy. Another essential is complete tranquillity of mind, and absence of all mental anxiety. The patient who goes to a Spa should leave all his troubles at home, or remain there until he can do so. It is presumed that he visits the springs to restore his impaired health, and this object should be his exclusive study during his stay. Thus, then, confidence and tranquillity are the first essentials to restoration to health.

Attention to diet is necessary in all states of disease benefitted by the waters of Bath. Many of them, indeed, absolutely require it; and when so many diseases, relieved by them, owe their origin to irregularities of diet and indigestion—as gout, from luxurious living; rheumatism, in certain cases, from hard beer and cider; and many diseases of the skin, from the constant use of pork and salted meats—it will be manifest that a strict rule in reference to this subject cannot be too forcibly impressed upon the invalid.

The patient should rise early, and take moderate exercise before breakfast; and avoid taking this meal in his bedroom, or, if obliged to do so, let him have his windows open for a short time, to admit the fresh purifying air. It is a great mistake to suppose that the admission of fresh air is prejudicial to the invalid; it only is so when the patient is exposed to a thorough draught. It is the close bedroom air which produces so much mischief in that stage of rheumatism in which the acute disease is subsiding into the chronic stage, and which renders the patient, on first leaving his bed, liable to suffer from the slightest breath of air.

For breakfast and tea, he may take as much stale bread and butter, or toast, as he can manage, with not more than two cups of black tea, or coffee, and one egg; but no meat or fish of any description.

He should take a moderate luncheon of biscuit, with one glass of good white wine, should he require it.

His dinner should consist of mutton, lamb, or beef, roast or boiled; boiled or roast fowl; he should eat sparingly of animal food, and avoid altogether all highly-seasoned dishes, green vegetables, and fish; and this meal should be taken in the middle of the day, in order that digestion may be fairly completed before retiring to rest.

Stimulants are to be avoided, more particularly the stronger kinds of malt liquor; the best beverage, if the digestive system be impaired, either by the long continuance of the disease, or the previous administration of powerful medicines, is very weak Cognac brandy and water.

The supper must be of the lightest description, consisting entirely of farinaceous materials, and should, in every case, be taken at least one hour and a half before retiring to rest.

The bed should be comfortably warm, and not too luxurious or enervating; for, if so, it is likely to interfere with the salutary effect of the Bath water treatment, by causing too great a determination to the skin.

The clothing should be sufficiently thick to protect the patient from atmospheric changes, but not too warm. Thus, an underclothing of merino is better than flannel, and good cotton

stockings far better than worsted. All unnecessary wraps are to be thrown away; for, however useful they may have been when the disease first appeared, they now only render the parts to which they are applied, more susceptible to cold and local inflammation; and the same remark applies to bandages of every description, which interfere or restrict the free motion of the joints to which they are applied. Upon this subject I speak not from mere observation, but from personal experience; having had twice to resort to Bath for protracted courses of the waters, I am enabled to say, that I have enjoyed a greater freedom from rheumatic attacks, since I adopted this plan of clothing, than I ever did under the warmer treatment which I before thought necessary.

Fortunately for those who resort to Bath for their health, the houses on the Parades and streets adjacent were erected exclusively for the accommodation of the invalid. The pavement is on a level with the street doors, so that, by means of the wheel chairs—which take their name from this city—even the cripple may enjoy the fresh air without fatigue, and partake, in some degree, in the amusements, so necessary to his forlorn condition.

To all who can walk, I recommend free exercise in the open air. Bath is surrounded, at

easy distances, by romantic walks and pleasing villages. With a view to interest the valetudinarian, I, while residing at the Bath Hospital, employed the leisure time spared me from more arduous labours, in the preparation of a volume, entitled, "RAMBLES ABOUT BATH AND ITS NEIGHBOURHOOD," in order that he might know how to employ his time in healthful recreation. Such little excursions, chosen as they may be in Bath, even in the severest weather, so as to avoid the chilling breeze, will add variety to his amusements, and, by the occupation of his mind, forbid the contemplation of the supposed hopelessness of his case, and aid the efforts that may be made for the restoration of his health.

Bath, indeed, still preserves its Saxon reputation as the "City of the Sick Man." Its Pump-Room was erected that it might form a promenade in wet weather; and there is not a day, however cold, in which a warm and sheltered walk may not be chosen.

It must here be remarked that Bath is, from position, the warmest inland town in the empire during the winter season; that its prevalent winds are westerly, so that those who come from a more bracing air, require out-of-door exercise, otherwise their health fails, and the full benefit expected from the waters is neutralized by the warmth of the atmosphere. But if

the invalid will bear in mind that he comes to Bath, not to frequent its fashionable resorts, but for the benefit of his health, he will require no other inducement to take his out-of-town walk or drive.

When longer excursions are inadmissible, the Victoria Park will afford variety enough. It is situated to the westward, and is sheltered from the north and north-easterly winds, so prejudicial to the poor rheumatic invalid.

Above all things, let the invalid avoid any inducement to violate the rules laid down for his guidance in reference to diet; let him shun all temptations which will interfere with his main object, and steadily devote himself to an observance of the simple rules which are to guide him during his residence at the springs.

There is one point which, although incidentally noticed by writers upon this subject, has not received that attention which its importance demands, and that is, that these waters are the best remedy that can be used to wean the habitual indulger in strong potations of his propensity to drink. The stomach, in these unhappy cases, experiences a craving, which is relieved by a glass of the Bath waters; the dyspepsia is relieved, not at the expense of fresh fuel added to the already burning heat, but with a grateful fluid which moderates its rage. The glow of health is substituted for that of a

feverish excitement; and a steady course of the waters will speedily cure the vicious propensity; in some instances, by producing a smart attack of gout, heretofore latent in the system and, in others, by supplying energy to the injured organs, which enables them to resist and subdue the morbid propensity by the restoration of their healthy functions. I have had many instances under my notice in which these results have occurred: in this condition the healthy stimulus afforded by the waters is so grateful, that the patient, at last, prefers it to that which, a few weeks before, he thought essential to his very existence.

I have never seen any ill result, in those accustomed to *live well*, who have adopted the temperance system during their treatment by the Bath waters; on the contrary, the very best results have marked all cases in which this plan has been adopted.

CHAPTER IV.

OF THE MODES OF EMPLOYING THE BATH WATERS.

TAKEN altogether, there are nowhere more systematic arrangements for the comfort of the invalid, than those which are presented by the suite of Baths and Pump Rooms in the immediate neighbourhood of the thermal springs, the property in which having been, since the reign of Queen Elizabeth, vested in the Mayor and Corporation, everything that science could suggest and suffering require, has been brought to bear upon their completion.

I need not here enter into the enumeration of the number of gallons eliminated from the springs in a given time, or any of the details which find their proper places in the Guide books of the city;—I have alone to deal with the Bath waters in their therapeutic or medicinal character.

To those who come to Bath for its amusements, the season commences in November, and terminates in April; but for those who resort hither for the restoration of their health, various periods of the year seem to me to be appropriate for different disorders.

The winter is certainly best for those who

drink the waters for the diseases induced by debility and exhaustion; and in all cases where a mild air is recommended for the invalid, this season is to be preferred, great care being taken to avoid all exposure to cold.

From the middle of February to the end of April, and from September to the end of November, are the best times for those afflicted with cerebral or spinal palsies. In these months the extremes of temperature are avoided, and exercise can be always indulged in, whether active or passive.

For the various diseases of the skin, the warmer months are the most suitable, because the general health not being materially affected, and the object to be gained being the restoration of the cuticular function, free exercise in the open air is the greatest adjuvant to the cure.

For the cure of metallic and local palsies, nervous diseases, and simple rheumatic affections—all periods of the year.

Gout and rheumatism vary so much, both in intensity and degree, that no general rules can be laid down.

A fair course of the Bath waters is considered to be six weeks; but I have seen repeated instances where they have continued to produce benefit for four or five months. As a general rule, if they agree, a perceptible improvement is manifested after a very few days; and then,

if the patient steadily improve for six weeks, it is better to suspend their use for a short period, and resort to them again for another period of six weeks, than to persist in a more extended course. It must always be borne in mind that our great object in the administration of all remedies requiring time for their operation, is to assist nature in relieving the system of a disordered action, whether functional or organic; and experience shews that the beneficial effects of the Bath waters are gradual and cumulative, requiring time for their production, and that the benefit derived is, in the majority of instances, not fully developed until two or three weeks have elapsed after their entire discontinuance. It frequently happens that much discredit is induced by persons who imagine that three or four baths ought to suffice for the cure of a disorder which has, perhaps, existed for months. While the poor patients in the hospital remain until they have undergone a full course, and return home cured of their afflictions; many persons in the upper ranks of life are dissatisfied if they are not enabled to leave Bath quite well the week after their arrival!

The administration of the Bath waters is,—external, in the form of baths, dry and wet pumping, and—internal by drinking; with modifications, which will be hereafter mentioned when I come to speak of the special diseases for

the relief of which the various methods are either simultaneously used, or varied, the one for the other.

The usual period for drinking is between nine and eleven in the forenoon, and between three and four in the afternoon. It is advisable, in all cases where practicable, that the patient should take the waters at the Pump Room; the quantity should not exceed four ounces for the first six doses, afterwards six ounces may be taken for eight doses, and then, if they are found to agree, the full quantity may be persevered in, which is from one pint, to one pint and a half per diem. Moderate exercise should be taken immediately after each dose of the waters, as essential to the production of their full beneficial effects.

Their peculiar action is soon perceptible, in the great exhilaration of the spirits, in the warm glow imparted to the skin, by the feeling of hunger, and by an increased action of the kidneys.

Bathing may be enjoyed either in the public baths, which are uninterruptedly supplied from the spring in the centre of the King's Bath, or in the private baths attached thereto, or to the hot spring in Bath Street, or at the old Roman bath.

In the private baths, the invalid will find every luxury that can be required. The atten-

dants are accustomed to the care of the sick, and are attentive to a degree.

With regard to the temperature of the baths, those who bathe in the King's Bath are unrestricted—they bathe in the natural water as it rises from the earth.

The private baths are supplied with tanks, in which the thermal waters are allowed to cool, so that the heat may be regulated to the requirements of the individual case, each bath being entirely filled, and the temperature accurately made known by the thermometer, in the presence of the bather.

A hot THERMAL bath is of the degree marked by Fahrenheit's thermometer, 105 to 107. A warm bath, 98 to 102. A temperate bath, 95. A tepid bath, 86. A large swimming bath of the latter degree is kept constantly filled in the neighbourhood of the hot spring.

The invalid should bathe on alternate days, not later than two hours after a meal, nor earlier than one hour and a half, and should be provided with extra external coverings, in order that he may not take cold on his return home.

He should leisurely undress, and proceed at once into the bath, in which he should remain for a period not exceeding twenty minutes, as a general rule, although some persons come out refreshed after a much longer period. He should move about in the bath, and give full

play to his limbs, employing moderate friction by means of the flesh brush; and *under no circumstance* immerse his head, which from the great density of the waters, is not unaccompanied with danger. The great proof of its agreeing with the system is the breaking out of a profuse perspiration on the brow; and in order that this may proceed without waste to the system, the attendant will supply him with a glass of the waters from the adjacent spring, which he will drink with relish, and which will add greatly to the efficacy of the bath.

Upon coming out, the attendant will place a hot napkin upon his chest, and envelope him in a large linen sheet, with which he will carefully dry him. He should then wrap himself up in a blanket and lie down on the sofa in the dressing-room for a quarter of an hour, in order that he may freely perspire, and then slowly dress himself before the fire; and if his circumstances permit, he should proceed home in a wheel-chair, and not come into the external air for the remainder of the day.

I feel persuaded that a much greater amount of benefit is derived by patients in the Bath Hospital by the enforcement of the rule that "no patient is allowed to go out after being in the bath," than one sees in similar cases out of the house, because, in the latter, this rule is not considered of importance in aiding the curative

effects of a remedy which acts directly upon the cuticular surface.

When it is necessary to apply a force of water to a particular part of the body, the douche, either wet or dry, is used.

Where bathing alone is employed, three baths a week will be found as much as the system can bear with advantage in any case. To this rule, from personal experience and close observation, I can form no exception whatever.

When the dry douche is used alternately with the bath, two baths and two douchings a week will answer every purpose required; the patient will be enabled to continue his thermal treatment for a longer period if he take the bath and douche on succeeding days, allowing two days for exercise, then a douche and the following day a bath, will leave the Sunday as the day of rest.

I must again repeat that the diseases remedied by the Bath waters are all, more or less, of long duration; that this remedy exerts its peculiarly beneficial influence by its gradual action upon the corpuscles of the blood; and that no remedy with which we are acquainted requires us so constantly to bear in mind the old adage, "the more haste, the worse speed." A careful steady perseverance is of the first importance; the patient must be satisfied with gradual improvement, since every attempt to hasten this desirable

object by too frequent bathing, not only retards the cure, but brings on symptoms of over excitement or plethora, which require depletory remedies for their cure. In this case the physician is bound to regard the immediate constitutional symptoms, and to leave out of sight the special disease for which the waters were employed. I am confident that much undeserved discredit has accrued to the Bath water cure, from inattention to this fact; and I am the more particular in enforcing these general rules, because my own experience and observation convince me of their importance. Much mystery has been created by the inculcation of the notion that a course of the Bath waters requires that the system should be prepared for their employment: the only thing necessary in *all proper cases* is, that the bowels act regularly, because chalybeates have a tendency to produce costiveness. The patients at the Bath Hospital are submitted to no such preparation; an aperient is given, and they are sent to the bath, except in those comparatively few instances in which they enter the Institution unfit for the immediate commencement of the thermal treatment.

The whole suite of Baths and Pump-Rooms are now managed by a Committee of the Corporation of Bath, who have spared neither care nor expense in order that they might preserve

their reputation of being the most complete in Europe. In addition to these, the old Roman Baths, which were accidentally discovered in the year 1755, have lately been restored, and are now replete with every convenience required by the invalid. These baths are now let on lease by Earl Manvers to Mr. Penley, formerly superintendent of the Corporation Baths under the late lessees, Messrs. Green and Simms.

CHAPTER V.

OF THE USE OF THE BATH WATERS IN NERVOUS DISEASES WHICH DO NOT INVOLVE THE BRAIN AND SPINAL MARROW IN INFLAMMATORY ACTION, EITHER IN THEIR COMMENCEMENT OR PROGRESS—CHOREA, LUMBAGO, SCIATICA, AND NEURALGIA IN CERTAIN FORMS OF THAT DISEASE.

CHOREA.

THIS disease is well known under its common name of Saint Vitus's dance, and may be defined to be a violent jactitation of the voluntary muscles suspended during sleep. It occurs more frequently to females than males, usually between the ages of four and fourteen years—in other words, during the period of the second dentition—arising very much from the same causes as convulsions in infancy, namely, local irritation, involving in its continuance that portion of the spinal marrow from which the nerves of voluntary motion proceed. It is not in general a disease of inflammation, but one which is peculiarly suited for the exhibition of mineral tonics. When they have been tried for a few weeks without remedying the disease, and there is danger of its becoming permanent and affecting the mind, the Bath waters rarely fail to effect a cure.

I am led particularly to notice the effect of dentition, from having seen adult patients, both male and female, who experienced distinct attacks of chorea while cutting each separate "wisdom tooth."

It is essential for the cure of this disease that the patients should be entirely separated from children of their own age, who have not the sense to know that they are objects of compassion and kindness, rather than of laughter and ridicule. This is a very important step in the treatment; all agitation of mind should be carefully avoided, and compulsory education suspended, otherwise the diseased action will become habitual, and the mind will be blunted.

The warm douche to the spine by means of a rose, is the best method of applying the waters externally, the force being regulated by the age and strength of the patient, who may drink a small glass of the waters twice daily. The cure occupies from six weeks to two months, according to the previous duration of the disease. Should plethora, inflammatory action, or determination of blood to the brain ensue, greater relief will be experienced by the application of one or more leeches behind each ear than by any other form of depletion. Should an occasional purgative be required, the motions should be carefully examined in order to as-

certain if there be any worms, or other intestinal irritations.

In this disease the Bath waters are so useful in themselves, that I shall merely mention one auxiliary remedy, viz.,

Sulphate of Zinc, which, in doses of one grain twice a day, gradually increased to sixteen or twenty, given upon a full stomach in the form of pill, may be advantageously substituted for the internal use of the waters, a tepid thermal shower bath being used in place of the rose douche. This remedy does not produce either sickness or nausea; the appetite and strength improve; and the physical control of the muscles is seen daily to increase. When the full dose has been arrived at, it should be diminished in the same proportion, and not suddenly suspended.

LUMBAGO AND SCIATICA.

These diseases, as involving special nerves in a painful condition without inflammation of the nervous centres, may, for our present purpose, find a place here.

Both are attended with a degree of lameness; both have a tendency to become chronic; and, in a great degree, both are benefitted by the same modes of treatment. They may occur as varieties of rheumatic inflammation, with some

degree of febrile excitement; or in the form of pure neuralgic affections of the lumbar, and sacro-ischiatic nerves. Their diagnosis is exceedingly easy, and their treatment simple.

The patient should be sent to bed, and cupped immediately over the seat of pain. He should be freely purged with colchicum combined with Epsom salts; and, if unrelieved, a blister should be applied, and low diet, with antiphlogistic remedies, prescribed. These rarely fail to produce speedy relief, but should the patient experience a return of pain, upon exertion or exposure to cold, the treatment required is of an antispasmodic and tonic character, with the use of external liniments of a stimulating property. These failing to afford relief, the case should be sent to Bath for thermal treatment. The advice which experience sanctions, is to commence with the bath at the usual temperature three times a week, and alternate it as soon as the patient can bear the pressure of the column of water, with the wet douche and afterwards with the dry; drinking moderately of the waters for three weeks. Should no perceptible improvement take place in the special complaint, and the general health have derived advantage, some of the adjuvant remedies which are now more particularly to be detailed, must be adopted. These may be divided into external and internal.

The former comprise cupping, blistering, acu-

puncture, galvanism, stimulant embrocations, and Iodine.

Cupping to the extent of from four to eight ounces is frequently attended with the greatest advantage, and the patient may resume his bathing on the day after the operation, with marked improvement.

Blisters, or sinapisms to the loins, where the pain is of a dull kind, are useful adjuvants.

Acupuncture with three needles in the course of the sciatic nerve, allowed to remain for an hour, has been attended with the best results in many cases in which I have seen it employed. It is a painless operation easily performed. In some forms of the disease the relief is instantaneous, while others require it to be repeated two or three times before relief is experienced.

Galvanism, either in or out of the bath, has been very successfully employed.

The best stimulant embrocation for lumbago and sciatica is that composed of one drachm of the tincture of cantharides to one ounce of the compound camphor liniment. A good external application is the saturated tincture of iodine and iodide of potassium, applied with a brush lightly over the course of the affected nerve. The patient being enabled to trace the pain from one end of the extremity to the other, the attendant applies it, as it were, immediately to the painful part.

As to the frequency and extent of the application, much care will be required. If local irritation is produced it will fail in its effects, and interfere with the due action of the thermal waters. Nor must the peculiar physiological effects of iodine be overlooked, of which I shall speak when I come to consider its value, as an internal remedy taken in conjunction with the external employment of the waters.

The internal remedies which are most useful are, quinine, iron, and iodide of potassium.

In these diseases there is often a marked accession of pain towards night, so that, in many respects, they bear a close resemblance to intermittent neuralgia, and in fact become so. In these cases, although bathing may be advantageously continued, the internal exhibition of the waters must be superseded by a moderate dose of the sulphate of quinine. These paroxysms usually occur about six o'clock in the evening. Two grains taken twice a day will, in the majority of cases, prevent the regularity of the exacerbation, and assist in the cure of the disease.

With regard to the various forms in which iron has been employed during a course of thermal chalybeate treatment, I have, by contrasting cases thus treated with those of a similar character in which the Bath waters only were employed, completely satisfied myself

that they retard rather than increase their good effects, because they produce constipation, which symptom materially interferes with the success of the thermal treatment in cases where the chylopoietic viscera have been previously debilitated by the active remedies required in the more acute form of the disease. Here, then, I take my leave of "feruginized Bath waters."

The iodide of potassium, however, is a remedy with respect to whose virtues I cannot speak too highly, because I have seen marked beneficial results, both constitutionally and locally, in this class of nervous affections, produced by it. Its action is alterative and tonic, depending, I believe, upon its decomposition in the digestive organs, by which the iodine is set free and produces its peculiar tonic effect upon the glandular and nervous systems; while the alkali being left, neutralizes the acidity which more or less attends upon all chronic affections; thus, the blood being improved in its quality by the external use of the waters, this medicine assists the various glands to resume their natural function, and its use in this form of disease can only be explained by its general constitutional benefits.

I have spoken of its physiological effects, and must confess that I have been surprised at the large doses of this remedy that have been taken by patients in other places with impunity and temporary beneficial effects, but I have fre-

quently seen that the Bath waters have produced a satisfactory result, after iodide in large doses has failed to do so.

I am certain that climate, temperament, and local position, have their influence upon the action of this and other powerful remedies, although freely to discuss this, would occupy too much space in a work of this kind; I must be allowed to refer to experience, which has fully shewn that from two to five grains twice a day is the most beneficial dose of this remedy, when used as an adjuvant to the Bath waters.

The constitutional symptoms which indicate that the iodide should be discontinued are, general febrile excitement, irritation of the bronchial membrane, and congestion of the conjunctivæ. These effects cease by the operation of a saline purge, and the patient is instantly relieved. I remember shewing a medical friend a case of this kind; he hastily said, "This is scarlet fever." "No," I replied, "it is iodism,"—and the patient was well on the morrow. These effects are peculiar to the damp days of winter, when two or three moderate doses are sufficient to develop them in a marked degree. I regard them, as we do mercurial ptyalism, as an indication that a sufficient quantity of the drug has been given. Colchicum in these diseases, except as an adjuvant to an occasional purgative, depresses the system too much to

produce any beneficial result. Gum guaicum exerts no beneficial effect, and arsenic has been recommended, but, in my opinion, the results obtained do not justify its use during a course of thermal treatment for the cure of neuralgic affections.

Judiciously employed, the Bath waters possess great value in the treatment of these painful affections when they become chronic—remedies which have been previously useless seem to possess new powers when given in conjunction with them, and where they have been alone employed, their use has been attended with many surprising cures, and marked improvement in the general health.

NEURALGIA.

The effects of the Bath waters in the ordinary *tic-doloureux* are, in the majority of cases, rather palliative than curative: they may, and frequently do, produce great relief; but where the disease has become habitual this is but temporary, and the pain returns. In these cases we must look to the cause of the disease, and consider it as one of that class which involves the nervous centres, and therefore beyond the reach of any mere palliative treatment.

But there are cases of severe nervous pains which have not a constitutional origin, and to which I would apply the term "simple neuralgia," which derive the greatest advantage from

the Bath thermal treatment, provided this is had recourse to before the disease has become chronic.

As a general rule, in all cases where the disease has returned, after a temporary benefit has been derived from the exhibition of the preparations of Iron, the internal and external employment of the Bath waters will be attended with beneficial results. There is a form of this disease—of which I can find no mention made in any of the systematic writers, which, without doubt, is cured by the Bath waters, when all other means that science can invent have proved ineffectual. Upon this point I speak with perfect confidence, as my own case, now about to be briefly related, first drew my attention to the importance of a correct diagnosis of that form of the disease to which I propose to give the name of mercurial neuralgia of the joints.

In July, 1838, while walking in London, I was knocked down by a truck, falling heavily to the ground. I bruised my right knee joint, which subsequently inflamed and involved the inguinal glands. I was at once ordered to bed ; leeches and other antiphlogistic remedies were had recourse to ; but still chronic tumefaction remained both in the joint itself and in the glands above, for the relief of which blue pill internally, and the application of mercurial ointment were directed. This treatment was continued for three weeks without any effect

upon the gums, but with great relief to the parts affected, when, one afternoon, just as I had got out of bed, I fell fainting upon the floor. Reaction taking place, I experienced severe pain in the neighbourhood of the hip joint, with inability to use the slightest exertion without extreme agony. I became perfectly crippled upon the right limb, which wasted away until I could nearly grasp the right thigh with the right hand. Constitutional disturbance set in ; I had night perspirations and all the symptoms of rapid decline, with the exception of cough. I consulted many eminent men without relief, until Sir Richard Dobson, of Greenwich Hospital, suggested the Bath waters, and I came to Bath, more dead than alive, at the latter end of October. My friend, Dr. Garrett Dillon, suggested that I should see the late lamented Dr. Barlow, whom I so much honour both as a kind mentor and as an instructor in the treatment of diseases by the Bath waters,—whose name I cannot mention without a sigh for his loss,—whose precepts have been my guide in many a season of difficulty and trial,—and whose practical knowledge and experience were always at my command.

Dr. Barlow put me upon a plan of treatment, ordered me to drink the waters, and to bathe thrice a week. In three weeks, I threw away my stick ; in six weeks I danced a quadrille ;

and in two months I was so completely restored to health that my limb resumed its natural size, and regained its former strength ; and I have never experienced lameness, ache, nor pain in the limb since that period.

A gentleman consulted me in the year 1845, and gave me the following history of his case :—His complaint was considered to be disease of the hip joint in its chronic form, for which he had been treated: his health was much impaired; he could not put his foot to the ground from the severity of the pain; the limb was wasted, and tender to the touch; the joint itself, though painful under the finger, was equally so when pressed upon by the whole hand, and upon tracing the course of the crural and ischiatic nerves, great pain was produced. I then asked him if he had ever taken mercury, and he told me that which he thought of no consequence, viz., that, in the convalescence of scarletina, during the previous year, he had taken a few doses, and that the pain came on immediately after getting out of bed, with great severity, and had never left him. I prescribed a generous diet, with tonics; and, as soon as he was able, a thermal bath, to be continued thrice a week. In six weeks he was able to walk without assistance; and in three months he resumed his professional avocations in the Metropolis, having entirely regained his health and strength.

I have seen cases in which this painful affection has attacked the shoulder joint, and one arm has become wasted and useless. A good diagnostic sign of the peculiarity of the disease is, that you can put the limb through all its natural motions, *if done gently*, without pain; whereas the patient himself is unable to perform one of them, also that pressure with the fingers, and pressure with the whole hand produce a nearly equal amount of pain, the pain, in fact, occupying too large a surface to indicate disease of the joint itself, which is implicated in the neuralgic affection; and it must be, moreover, borne in mind that it is a debilitating disease of the gravest character, and presents no features of inflammation or excitement, even in its severest forms; and it is of essential importance that we rightly diagnosticate between pain of a nervous character, and that produced by inflammatory action, otherwise our practice will be inoperative.

Many ladies suffer from a species of neuralgia caused by wearing the half-cap made of wool in the morning, which, being laid aside in the after part of the day, causes pain in the head and that portion of the face covered by the cap, upon the least exposure to a current of cold air. The reasons are obvious: the cap is but the partial covering with a warm material unsuited to the purpose, of a part of the system

very susceptible to the influence of atmospheric changes, and which is the ordinary seat of simple neuralgia. The cap being thrown aside, the portion of the head previously covered is attacked with pains which speedily become habitual and very difficult to cure, because the cause of the affection is unsuspected, and therefore unremoved.

I introduce this subject because it is sometimes exceedingly difficult, in nervous affections, to arrive at their proximate causes, without which no good can result from any plan of treatment.

The remarks made in reference to the thermal treatment of lumbago and sciatica are equally applicable here, always bearing in mind that, in the majority of cases, the patients have previously given a fair trial to all the officinal remedies, and that the less we interfere with the waters, by the exhibition of other remedial agents, the more likely they are to prove effectual in these diseased conditions.

Should acidity of the stomach exist, I have found much good derived from a combination of the alkaline carbonates, given in small doses at breakfast time, or from an aromatic cordial mixture. Should the drinking of the waters appear to disagree, an aromatic bitter may be substituted and the bathing continued.

CHAPTER VI.

LOCAL AND MINERAL PALSIES.

PALSIES, in which the sensorium is not affected, which come on gradually without any constitutional disturbance, and which, commencing in the extremities of the limbs, gradually involve one set of muscles after another without impairing the sensation, are the next class of diseases which require our attention. They are, immediately that the cause of the disease is manifest, more under the control of the Bath waters than any other form of paralytic affection, and are known in the Bath Hospital under the appellation of "Dropped Hands and Feet."

Where this disease occurs in painters, and workers in lead, copper, and other minerals, it is usually preceded by attacks of colic, and the diagnosis is easily arrived at. These artificers resort to Bath upon the first appearance of the "dropping," and receive a cure, which although it may not be perceptible immediately on their return home, is perfected by a fortnight's change of air, and is permanent until the metal again exerts its influence.

The same remark holds good in those cases which are known to arise from the improper manufacture of cider in leaden vessels, which,

as the danger becomes more and more known, are decreasing annually, so that this disease, once so common, is now comparatively rare in the cider districts.

But where no apparent nor appreciable cause exists of a mineral nature, the fact that this disorder is of an entirely local character may be overlooked even by the most skilful. The disease being referred to the brain, the patient is treated by general bleeding, setons, blisters, and issues, which, instead of benefitting him, increase the palsy by weakening the general nervous system, and impairing the health and strength; so that many of these cases, which, had they been sent to Bath in the first instance, would undoubtedly have been cured, do not derive any benefit on account of the severity of the remedies which have been employed to relieve a supposed diseased condition which did not exist.

Colic, or spasmodic constipation, is the first observable effect of minerals when they produce mischief of a chronic character. Where this has not occurred, it will be found that obstinate constipation, without spasm, has preceded the paralytic affection; and in all these cases a peculiar blue or leaden coloured line will be observed on the patient's gums. In some cases, the quantity of mineral substance introduced daily into the system is so small, that no one

(unless well acquainted with the disease, and aware of the extraordinary idiosyncrasy of some persons to the action even of a newly-painted article of furniture) could conceive what very slight causes will produce the Painters' palsy.

Where this loss of power attacks persons in the higher and middle walks of life, the cause will frequently be found to exist in the daily use of water conveyed in leaden pipes to leaden cisterns. Here the water, combining with the air, acts upon the lead, and a minute portion of the oxide of that metal is conveyed into the system with each meal.

I have had frequent opportunities of observing this disease in tailors, clerks, and workmen whose avocations were of a sedentary character, persons not supposed to be exposed in any way to the action of lead, but who had drank malt liquor while at work, brought in a pewter pot; which by standing a certain time, perhaps put on the hob to warm, caused the acid of the liquor to form a salt of lead from the pewter, which, entering the system of one more susceptible than another to metallic influence, had produced lead colic and palsy of the hands.

I have seen a very severe case of this disease occur in a man who sold white lead in a country shop. I have seen potboys suffer from it from cleaning pewter pots. It is a common disease with reporters for the press. I knew a gentle-

man who merely took slight refreshment in the newly-painted coffee room of an hotel, in which he remained but a few minutes, suffer severely; and Dr. Elliotson, in his lectures, relates a case in which a newly-painted cot, placed in the bedroom of a gentleman, produced violent Painter's colic.

Gardeners suffer from it from entering newly-painted hot-houses; and it is not uncommon to see it among country carpenters, who occasionally do rough painting work.

There can be no doubt that the impregnation of the atmosphere with the fumes of turpentine carrying minute portions of lead into the lungs of a susceptible individual, will produce colic and mineral palsy: the first, perhaps, only as mere constipation, the second, as dropped wrists and fingers, occurring nearly simultaneously in both upper extremities—a good diagnostic mark that the brain is not involved in the disease.

I was much struck by observing the effects of different minerals in two cases which came under my observation, in both of which no colic could be traced—the one a compositor, the other a bell-hanger, in which cases the thumb and forefinger only of the right hand were affected, and both were completely cured by the Bath thermal treatment without any adjuvant remedies. In these cases, the metal was applied

directly to the extremities of the thumb and finger affected.

Having thus reviewed this affection in relation to mineral poisons, we have now to consider the subject in reference to more remote causes.

I once saw a very distressing case in a young married woman, in which it was produced by her sick child having slept upon her hand and forearm during a severe illness which lasted several days.

A gentleman of eminence, as a metropolitan professor of music, was advised to ask my opinion, in the year 1846, as to the efficacy of the Bath waters, he having entirely lost the use of both arms. He had been in the habit, for several hours daily, for many years, of giving lessons on the piano-forte, and in addition, was organist at a church. Two years before his visit to Bath, he had experienced a loss of power in the fingers, which being supposed to be the result of cerebral mischief, he was put upon very active depletory treatment without relief, in fact, with a gradually increasing loss of nervous energy, so that when he arrived in Bath, the hands hung loosely by his side, without the power to move a single finger; there was wasting of every muscle from thumb to shoulder, although feeling was as perfect as it would be in a natural condition, and his general health

unimpaired. Finding that he had a seton in his neck, I directed it to be removed. I changed his low into full diet, and advised him to drink the waters, and to be galvanized in a thermal bath three times a week for a period of twenty minutes, at the same time telling him that the case was, I feared, a hopeless one, from the extreme loss of power and great nervous and muscular debility of the upper extremities. He persevered for a period of three months; his general health became robust, his appetite completely restored, and a considerable portion of muscular power in the arms was regained. His palsy arose from the frequently long continued pressure of the extremities of the fingers upon the keys of the instrument, and affords us a physiological fact that muscular energy depends upon the integrity of the motor nerves.

A clerk to a solicitor, who, during the railway excitement, had to copy a multitude of writings, was afflicted with palsy of the thumb and fingers. He received a cure from the use of the thermal treatment, and may be cited to prove that local palsy may be the result of mechanical pressure to the extremities of the nerves.

Modellers of cornices in wet plaster,—those who level stone by the application of sand and cold water,—quarrymen who have to prepare wet slabs of freestone,—those who receive the damp sheets of paper from the printing press

for folding,—are all liable to this species of palsy; and I have seen cases in which it could only be referred to one or other of these causes, so that I feel called upon to say that, where the palsy commences with both hands, we are bound to regard it either as the effect of a mineral absorbed into the system, or directly applied to the parts affected, or as a result of mechanical pressure, or of the continued application of cold to the extremities of the nerves supplying the parts implicated in the paralytic condition; in other words, that it is the effect of a cause which requires the medical practitioner to enquire into the avocation or amusement of the patient who places himself under his professional care, in all cases where loss of power over a set of muscles occurs without direct evidence of cerebral disturbance.

I have now briefly to discuss the causes of palsy of the lower limbs, commencing with the feet.

As dropped hands have been erroneously referred to the brain, so dropped feet have been treated as affections of the spine. Where one foot only is affected, the diagnosis may be difficult; but the previous history of the patient must be learned; the peculiarity of the motion observed; the state of the digestive organs, in reference to constipation, accurately enquired into, before we can arrive at a satisfactory plan

of treatment. The causes of this affection are in the majority of instances, the same as those mentioned above in reference to dropped hands. It may occur simultaneously with them, or the lower limbs may be alone affected. Young subjects are liable to it during and subsequent to convalescence from fever; those who work in water, and, again, those who get wet during their work, and, removing their shoes, remain in their stockings for several hours. In a few words, it generally arises from the continued numbness of the nerves of the extremities of the limbs, produced by the direct application of cold and moisture, or as the result of the constitutional absorption of mineral materials.

Sir Charles Hastings relates a very interesting and important case, where it succeeded a course of arsenic judiciously administered in the Worcester Infirmary for the cure of a leprous affection. This case is reported in the Provincial Medical Journal for 1848, and, being read at the meeting of the Provincial Medical and Surgical Association, held in Bath in that year, I was enabled to make some practical remarks upon the subject, founded on experience, to which I refer as bearing upon the effects of arsenic.

The difficulty of diagnosis in dropped feet, not arising from minerals, is materially increased by the fact that it is a disease of great rarity

in comparison with dropped hands; that its causes are somewhat obscure; and, moreover, that these causes more commonly produce other affections, as catarrh, rheumatism, lumbago, and sciatica; and that when they produce this peculiar paralytic affection, they do so by very slow degrees, involving one portion of the extremity after another in an almost imperceptible progress upwards.

I saw one of the worst cases of metallic palsy, affecting both upper and lower extremities, and produced by the slow absorption of lead into the system, in the autumn of 1849.

Mr. T—, aged about 40, from the west of England, had gradually lost all power over his upper and lower extremities, so that when he arrived in Bath, he could not move without the assistance of another person. He was unable to support himself upon his feet, and the whole muscular system was impoverished and had a peculiar flabby feel; sensation, and intelligence remained perfect; the appetite was good, the pulse regular, the secretions natural, the gums presented the peculiar blue line, and the face was dusky, and, as it were, leaden. His previous treatment had been depletory and antiphlogistic; and he had been subjected to the constitutional effects of mercury without relief. It was agreed that he should be put upon a generous but unstimulating diet, and

that he should freely use the Bath waters in conjunction with galvanism, which was applied for a considerable period daily by Mr. Tylee, with great advantage. His muscular power, weight, strength, and appetite, rapidly improved, and at the end of six weeks, he could walk several yards without assistance,—could feed himself, take a pinch of snuff, and write a short note; when, business calling him away, he was obliged to go home, promising to return again, which he did with increased advantage.

I have dwelt, perhaps, longer upon this subject than the nature of my present design apparently justified; but from the mistakes in diagnosis which I have repeatedly seen, in these sometimes mysterious affections, I feel that my extended experience would be valueless did I not draw largely upon it, in treating of these really local, though apparently constitutional, diseases.

In these diseased conditions of the nerves, the Bath waters seem to possess a specific action. They expose the whole surface of the body to the direct action of the tonic properties of iron, and, administered internally, the system, as it were, is saturated with the antidote to mineral poisons. By increasing the volume and power of the pulse, diminished nervous energy is changed into excited power; the constitution, previously reduced in muscular fibre by the

long impregnation of a deleterious and subtle poisonous principle, is restored to vigour; and the cure may be observed to progress daily. Such, indeed, is no exaggerated sketch of the effects of the Bath waters in mineral palsies; and I have never observed them produce any ill effects where they have been judiciously persevered in even for a longer than ordinary period, in those cases in which no constitutional predisposition to disease existed.

In the more obscure cases, their results are equally beneficial. When early submitted to their effects, it is manifest that, when the constitution has been subjected to violent remedies, and the nerves have remained as it were useless for a long period, the cure will be protracted, and the benefits derivable from the thermal treatment somewhat doubtful. Nevertheless, although the special complaints may but slowly improve, so long as the system gains rather than loses by the employment of the waters, their use is to be persevered in.

The Bath waters, when suitable to the case, are so very useful, that the Bath practitioner has little else to do than to carefully watch their effects. It must be admitted, however, that patients are very apt to think that their doctor is doing nothing, who merely superintends their restoration to health; hence to earn his fee, he is necessitated to prescribe, a system

which is but a relic of a physic-taking custom which ought long ago to have been exploded.

Far be it from me to say, that the Bath thermal cure does not require medical superintendance. It is in itself a remedy of great power, occasionally requiring a temporary suspension and the exhibition of medicines; but if both practitioner and patient would remember the object of the invalid's visit to Bath, I am certain that more satisfactory results would be obtained from the thermal waters.

The internal adjuvants will not detain us long. First, the preparations of iron, more particularly the sesqui-carbonate, have been largely prescribed. The great inconvenience of this remedy is, that it re-induces the constipation; whereas, during a course of the waters, in this and other diseases benefitted by them, the bowels should act once every day as a general rule. I have seen strychnine largely employed both internally and externally, without any benefit whatever in any single case.

Should the relaxing atmosphere of the city produce temporary headache, and mucous irritation, a mixture composed of the *infus. chiraytæ* with *sp. ammoniæ aromaticus*, will be found to produce marked effects, in enabling the constitution to bear up against them, both in these and the other affections which are curable by the thermal treatment.

The external adjuvants are galvanism, both in and out of the bath, stimulating embrocations, and blisters.

The daily use of the galvanic battery will be found of essential service, by exciting nervous irritability and the vital contractions of the palsied muscles, and may be continued for half an hour without inconvenience.

Rubbing the affected limbs with a stimulating embrocation, twice daily, will be found a useful adjuvant, if used with the free motion of the limbs by the nurse or attendant. This latter should be done several times during the day, in order to preserve the integrity of the joints.

Blisters to the alternate limbs affected excite a greater degree of nervous power in the extremities than other applications. During the healing of the blister the extremity should be supported upon Dr. Pemberton's splint, called in Bath "the handboard."

The following will be the plan which the medical attendant should pursue. He will direct a mild aperient vegetable pill, to be taken every alternate night until the functions of the bowels are completely restored; the use of a stimulating embrocation, passive motion, and galvanism, with the bath and douche each twice a week, and the internal exhibition of the waters in gradually increased quantities for a

fortnight, and will then intermit their use, in order, if necessary, to apply a blister. This should be large enough to cover the lower portion of the dorsal aspect of the fore arm, the wrist, and fingers, to the second series of phalanges, and may, without constitutional disturbance, be from seven to ten inches long, by from two to four inches broad. The blistered extremity should be carefully supported on a splint; and should the inflammation run high, the best application will be a bread poultice for a day or two. As soon as the blister is quite healed, the baths may be again resumed for a fortnight with more advantage than before; then the other extremity may be subjected to a similar treatment; but I have often seen good results follow the application of one blister only, by the intimate sympathy which exists between the nerves supplying both extremities.

In mineral and local palsies of the upper extremities, as soon as the patient can grasp a weight, the dumb bell will assist him; or, by means of a pulley, he may be encouraged to develop his muscular energy by lifting a weight gradually increased. In those cases where the lower extremities are affected, the use of crutches is much to be deprecated;—but little improvement results where their employment is continued. The patient must begin gradually to depend on his own limbs for support. First,

he must be made to bear the weight of his own body upon his feet; then to make an exertion to step; or, sitting down, move the lower extremities until he feels tired; or recline upon a sofa, and for several hours daily persist in moving his limbs, until he acquires confidence to move them in the erect position with the assistance of two sticks.

These directions may appear too minute as regards minor details, but in cases where our object is to develop muscular power, every means which experience sanctions must be adopted. These cases are invariably chronic, and their progress to recovery slow; our object should be so to direct the energies of the patient that every action may produce benefit: his mind should be diverted from the contemplation of his helpless condition by directing it to perform some portion of the necessary work of improvement, and thus his cure will be steady and progressive, gratifying alike to the patient and his physician.

The ordinary time required for the cure of these diseases is from eight to twelve weeks; and where manifest improvement has taken place without a perfect cure, the patient is not conscious of all the relief obtained from a visit to Bath until he has been away for three weeks or a month, and if this improvement is well marked, he may, after the lapse of six months,

return again to the thermal treatment with every prospect of a complete cure.

As soon as the slightest voluntary motion is perceptible (even although it be but the mere movement of a finger), the patient should be directed to persevere until fatigued in directing his thoughts to the moving of that particular member. By bringing the brain to bear upon it, every movement will be supplied with fresh nervous energy, which will go on steadily increasing: and although the progress may not be perceptible from day to day, comparisons in these affections must be made from week to week. If he is stronger than he was the previous week, his cure is progressing favourably; it must be the gradual improvement caused by a remedy, acting as it were, stealthily upon the system in general, for the relief of a local affection: and every attempt to increase it, that is not founded on principles of pathology, will tend to retard, rather than benefit the patient. Let him remember that he requires medical superintendance, and not doctoring; and that his cure is to be attained only by perseverance, and the steady accumulation of progressive improvement.

CHAPTER VII.

CHRONIC DISEASES OF THE SKIN.

IN our observations upon the use of the Bath thermal waters in these complaints, we are struck with their manifest advantages in those cases which, by the unlearned, are called "scorbutic eruptions." These, without producing loss of general health in any way, seem to be caused by some general irregularity of the secreting functions of the skin—acting locally upon particular portions of the external surface.

In these diseases, the waters possess the virtue of accommodating themselves to every variety of practice. Frequently in the simpler forms of the squamous or scaly diseases, they cure without any other remedies. They are efficacious in their employment with internal tonics and external stimulating applications, and they produce decided advantage in combination with blood-letting and antiphlogistic remedial means in many forms of disease, particularly general eczema and some of the varieties of inflammatory psoriasis.

The treatment of these diseases in ordinary

practice is empirical, which arises, in a great degree, from the limited experience of the general practitioner; and it is much to be regretted that cases of cutaneous eruption should be allowed to proceed month after month unrelieved, or, if relieved, only at the expence of after suffering from mercurial and arsenical preparations, when thermal springs, employed with care and caution, invariably relieve and frequently cure them by means which invigorate the cutaneous exhalation without injury to the general health.

It is not my intention, in the present work, to enter upon the distinctions which pathologists have drawn between the various forms of scaly cutaneous eruptions, since many of them are but varieties of the same diseased action. They may co-exist, and in many inveterate cases do so. I shall never forget the remarks which M. Alibert made on this subject, during his course of clinical lectures at the Hôpital de Saint Louis; and the experience which I have had, has convinced me that these distinctions, however useful to the student, are of no practical avail to the practitioner of medicine, except, perhaps, in the acute stage.

Occasionally, among the patients resorting to Bath, we see many varieties co-existing. I remember an inveterate case in which four of

them were present: *lepra vulgaris* occupied the knees and elbows; *psoriasis* had taken possession of the arms and legs; *pityriasis* covered the face and neck; and *porrigo* the head. Each in its commencement had presented its nosological definition: all arose from the same cause, modified by long continuance of diseased action, and by those particular portions of the body which are most commonly selected by each. Although in their more acute stages, they presented distinct nosological appearances, when the case came to Bath, these were obliterated, and the thermal treatment cured the patient.

I saw a remarkable case in a female covered from head to foot with *psoriasis*, in which the body daily discharged an enormous heap of scales, bearing a proportionate weight to the quantity of the cutaneous exhalation of a healthy person. This case was entirely cured by the application of Barbadoes naphtha, by means of a painter's brush, which prevented the formation of the scales, and a concurrent three months' course of the Bath waters, when singular to relate, scabies, in an inveterate form, which had existed prior to the appearance of the *psoriasis*, made its appearance, and more than one of those who had constantly waited upon the patient became infected with the pustular disease, although they were un-

aware of its existence during the cure of the squamous.

To what, then, are we to attribute these varieties of disease? They are modifications of cuticular disorder produced by habit, temperament, and peculiar constitution; in some cases errors of diet will produce herpes, in others impetigo and the various forms of eczema. The direct application of cold will produce psoriasis in its various modifications in some individuals, and lepra in others; and we often see congenital skin diseases, which assume the form of pityriasis, running in patches into eczema and ichthyosis.

The causes which originate these various diseases may be defined to be, a want of cleanliness, errors of diet, the direct application of cold air to particular portions of the body, various trades, and hereditary predisposition.

In regard to the latter, our endeavours to arrive at a hidden cause for an uncommon affection have much misled us in our investigations. I am inclined to believe that the predisposition to particular forms of cutaneous disease may be hereditary, without the disease itself being so—the same causes being applied to parent and offspring. I have had patients under my charge who had large families, and in no one instance have I been enabled to elicit that either their parents or children were simi-

larly affected. It must be admitted, however, that these diseases are more common than is generally believed; and when, in their milder forms, they do not interfere either with the health or comfort of the individual, they cease to be an object of solicitude, and are frequently unknown to any one but himself.

The direct application of cold air—in other words, suppressed perspiration—is the common cause of lepra and its allied diseases. In these cases the cuticle seems to be altered in its pathological character, and to assume a diseased function. The exhalations are first suppressed altogether, and then the follicles become enlarged one after another, and the leprous patch is the result; enlarging from within outwards, the cure, commencing with those follicles which were the first to take on the diseased action, proceeds also from within outwards, and is completed by the gradual absorption into a healthy state of each individual cell. These, in their diseased state, secrete a matter which solidifies upon its reaching the surface, and constitutes the varieties of lepra and some forms of psoriasis; and the cure does not commence until moisture exudes from some portion of the squamous patches, in other words, until the cuticular function is restored.

The same remarks will apply to that peculiar affection of the fingers, in which the disease,

perhaps affecting one or more, and confining its exacerbations to them alone, changes its character daily, sometimes vesicular, sometimes pustular, sometimes squamous, but always attended with distressing feelings of burning—a disease which let it be as inveterate as it will, is like all the squamous diseases, incommunicable by contact even to an abraded surface, a fact which I have proved by actual experiment. This, which is a variety of psoriasis palmarum, is relieved by the application of leeches, and cured thereby in conjunction with the Bath waters.

If we take lepra and its varieties, in conjunction with psoriasis forming its peculiar snake-like incrustations, as one and the same disease; modified in particular constitutions—and in many of the sufferers you are enabled to shew distinct portions which answer to both definitions—we are naturally anxious to enquire into their causes, and upon this head many theories have been advanced; by some they have been considered as diseased alterations of the cutis, by others as an extreme development of the cuticular cells. No doubt, under the microscope, the cells of the cuticle have been observed to be changed in their character; but I have made repeated observations upon patients who have just left the bath, and wherever I have observed moisture and a freedom from solid deposition immediately after leaving the waters,

I have invariably found improvement in the eruption—in the circular spots of lepra a disposition to form healthy skin in the centre; and in the serpentine forms of psoriasis, a breaking up of the line of disease. The result of these observations has been to convince me that these diseases are to be considered as an abnormal condition of the cuticular function, in which, the follicle being inflamed, the perspiratory matter becomes solid; and that their cure depends upon the restoration of the perspiration, sensible and insensible, to its normal condition.

Among the diseases of the skin (which, in most instances arise from some accidental or long-continued errors in diet) herpes and eczema may be cited as instances. In these cases, a well-regulated course of the Bath waters, with strict attention to diet, and various adjuvant means, hereafter to be mentioned, rarely fails to cure.

Leprous diseases and pityriasis, or dandriff, are frequently caused by a neglect of personal cleanliness, the latter disease more particularly so. When it affects the head, it is, in a great degree, to be attributed to the constant irritation produced by the use of the small-toothed comb, which, irritating the tender scalp, excites the exhalent vessels to pour forth a diseased secretion, which, in the first instance, presents the form of pityriasis, then porrigo becomes

associated with it—a disease frequently resisting all ordinary methods of cure, but which, in almost every instance, rapidly succumbs to the influence of the Thermal treatment.

The imprudent drinking of cold water when heated, is a frequent cause of cutaneous disease. Here the system, receiving a shock, throws the diseased action to the surface, to avoid more fatal consequences, and, once established, the diseased cuticular action becomes habitual. Hence the necessity of caution in our attempts to cure them: suddenly suppressed, they cause the diseased condition to attack the internal organs. In these cases the Bath waters are admirable adjuvants; they assist other remedies by their influence upon the circulating fluid itself; slowly progressing in their effects, they act as constitutional alteratives, and convert diseased into healthy action. Thus invigorating the whole body, they restore the healthy action of the skin.

In the peculiar forms of squamous disease which affect particular callings, and which sometimes assume the character of the other genera, grocer's itch and the soda eruptions of the laundress may be mentioned. In these cases the Bath waters, either alone or in combination with local depletion, are eminently successful, by restoring healthy perspiration to the parts affected.

The common child's scald head, which sometimes assumes a variety of features, and changes its distinctive character almost daily, is but one of the forms of squamous disease. It frequently accompanies lepra, which, in the majority of cases which become chronic, is to be found on the head also. The most common cause will be found to be imperfect second dentition: it must be regarded as an effort of nature to free the system from the effects of local irritation; the majority of children suffering from which are attacked with eruptions of the scalp—the minority with chorea. I have seen many cases of this compound eruption, in which free scarification of the gums and the use of the Bath waters have not only entirely cured the eruptions, but have enabled the system to contend against the disposition to unhealthy exhalations from the skin. Once affected with cutaneous disease of a squamous character, the system remains ever after liable to its return: indeed, many patients resort over and over again to Bath for cleansing, in consequence of the return of their eruptions.

Perhaps the most singular feature in these cases is the perfect health which the patients enjoy during their continuance. This is very remarkable. They seem to possess a perfect immunity from vital or structural disease; and in conjunction with this fact, it is well to

remember that almost all the remedies employed for their cure, have a tendency to render the constitution less vigorous, that arsenic and mercury are, in some cases, specifics; but what is the result? Patients are cured of their local disease at the expence of their general health. At these springs, however, the remedy is of a mild and health-imparting quality: the bath soothes the already inflamed papillæ of the skin, and removes the irritating scales; by improving the character of the secerning vessels, it enables them to pour forth a bland, and not an acrid solidifying fluid. It restores the function of the skin to its healthy action; and where it fails to cure, it invariably relieves. Then a knowledge of the adjuvants is necessary, there being scarcely one of the ordinary remedies which does not acquire additional powers when used with discretion in combination with the Bath thermal waters.

I shall now briefly state my experience of the use of these remedies in conjunction with the Bath waters.

LEPRA AND PSORIASIS.

These, which are by far the most numerous cutaneous diseases sent to Bath, may be advantageously treated of together. They frequently run their course in the same individual, and seem (if I may be allowed the use of the ex-

pression) to select each its particular portion of the body, and both illustrate, in almost every case, the symmetry of disease. The knees and elbows are the chosen seat of lepra vulgaris; the shins, of psoriasis; while the head, invariably implicated more or less in the eruption, may present other forms of concurrent squamous disease. Happily, the general health of the patient is very good in almost every ordinary case, and the cure progresses slowly but satisfactorily throughout.

I have seen many cases in which the Bath waters alone have entirely cured these varieties, true lepra and psoriasis, with the eruption of the head, running their course together. For this combination of diseased conditions, I feel almost disposed to invent the name "lepriasis," to express ideas which are otherwise difficult to convey. It may be sufficient to observe that I have repeatedly seen cases in which almost every diagnostic mark of lepra and psoriasis have been observed, and not only so, but of many of their varieties also, while, in many of them, diseases of the scalp were present, which partook of characters distinct from each: eruptions belonging to the same class of diseases co-exist; each seems to possess its peculiar locality; the same causes developing different genera of cutaneous disease, in different parts of the body of the same individual.

When such cases present themselves to our notice, our examination proceeds as follows:— First, the head; then the mouth, a point which has been much overlooked, in children more especially, the scalp disorder (no matter what its nosological variety may be) will, in the majority of instances, be found to depend, in a great degree, upon imperfect, delayed, or irregular dentition; and then the body. In order that we may see the extent of disease, a superficial view is not enough; a few spots may be shewn upon the extremities which may mislead us in our prognosis: I am never satisfied unless I examine cases of chronic cutaneous disease in bed.

Having satisfied ourselves of the nature of the eruption, and, as far as possible, ascertained the previous history of the patient, his habits, and the treatment of the case, we enquire into the state of the general health and character of the secretions. Dyspepsia, with the lithic acid diathesis, will almost invariably be found as a prominent constitutional symptom. This point must not be overlooked: if it alone be present, we may safely conclude that it is but functional; and, having regulated the diet of the patient, we direct him to use the thermal treatment. It is of great importance that this should be conducted upon the plans laid down in Chapter IV.; and he should endeavour to

encourage the action of the skin, and after his bath avoid all external exposure to the cold air.

It is necessary to regard these forms of eruption as a local manifestation of constitutional disturbance: they are to be treated as systemic diseases, and not as mere diseases of the skin. Every organ of the body must in turn undergo a searching enquiry, ere we can arrive at a satisfactory mode of treatment. The diet, habits, and occupations of the patient must be carefully regulated, and we ought to have a reason for the employment of every adjuvant remedy; in fact the beneficial effects of the Bath waters can only be explained by their constitutional effect upon the general system.

It is wonderful how long an advantageous course of the waters may be borne without inconvenience. I have known them, in severe and long-standing cases, continued for half, and even three-quarters of a year, with improvement resulting in cure, the affected parts gradually resuming a healthy state.

In all cases in which the scalp participates, the head must be shaved twice a week, and washed twice daily with the petroleum soap. If the disease is inveterate, this may be applied by means of a shaving-brush, and, as an article of the toilet, the patient must use it during his cure. I have seen decided advantage result

from its use in many cases of chronic cutaneous disease. It is a mechanical union of the Barbadoes tar with soap; the latter washes off, while the former affords a balmy oleaginous covering to the skin.

The head speedily improves, and, in six weeks is perfectly cured. The decayed portions of primary teeth must, however, be removed, and the second dentition carefully regulated. Without this, all applications are useless; the disease constantly recurs if the mouth is allowed to remain in an unhealthy condition.

In cutaneous diseases, the Bath waters act by their gradual effect upon the circulating fluid, by their preventing the disposition of the skin to secrete an abnormal matter; and by their direct effect upon the capillary system, they induce an improved digestion and secretion.

Where plethora exists upon a patient's first coming to the city, the blood drawn will present a dark grumous or unhealthy aspect, but rarely or ever buffed. If, after the lapse of a month, we again draw blood, it will present the florid hue of health; thus by a gradual process, the waters acting constitutionally, cure the local affection, without the injurious effects which many of the common cutaneous remedies produce.

Numerous instances have from time immemorial occurred, in which these waters have produced a cure when medical skill of the highest order, has failed to do so. Of this the records of the Bath Hospital afford abundant proof.

We will now consider the numerous adjuvant remedies, but they need not detain us long.

The first and most important is to regulate the digestive functions by means of a mild vegetable aperient pill, and the exhibition of antacids and bitters: the *mistura chyrate composita* seems to fulfil all these indications better than any other form of vegetable bitter. Antimony is the great remedial adjuvant, our object in these complaints being to direct the restoration of the cuticular secretion to its normal condition. From experience prior to my residence in Bath, I have reason to believe that Plummer's pill derives its chief efficacy in these affections from the antimony, and not from the mercury.

In my late father's practice at the establishment for pauper children at Norwood, this was a favorite combination, viz., the ingredients of the Plummer's pill with the mercury omitted. It is a singular circumstance that, in the many hundreds of cases in which I have seen Plummer's pill regularly administered, for weeks together, in combination with the thermal

treatment, in no single instance have I observed ptyalism. One or two of the antimonial pills may be taken every night, and during the day two fifteen minim doses of the antimonial wine in a saline mixture. The virtues of antimony have been much overlooked: it is in many cases the best adjuvant; it may be taken for a considerable period without danger, and acts upon strictly rational principles. During the antimonial course, the best period for bathing is the latter part of the day; and the patient, upon leaving the bath, should be packed in blankets for twenty minutes at least, in order that the cuticular function may be encouraged, and then he must be enjoined to return home quickly, that the skin's action may not be checked. I feel persuaded that the reason why so much good is done in these affections in the Bath Mineral Water Hospital may be found in these two circumstances—the packing, and the confinement to the house on the day of bathing.

It is quite certain that, by means of this excellent charity, the poor enjoy, in a far higher degree, the advantages of the thermal treatment than the rich and noble, who visit the springs.

The next remedy upon the list is arsenic, which undoubtedly possesses a very high value in the treatment of these diseases. It must, however, be remembered that it is a remedy

possessing a cumulative effect; that it exerts its influence directly upon the mucous membranes; and if continued too long, after its constitutional effects are developed, may cause a susceptibility to catarrh, which becomes constitutional with the individual once subjected to its influence.

The researches of my friend, Mr. Hunt, as given in his valuable Memoir in the Transactions of the Provincial Medical and Surgical Association, shew that comparatively large doses of this mineral, continued for several weeks, have never been known to produce effects destructive or injurious to life; but I have seen many instances in which its constitutional effects have continued for years, in which every catarrh has produced a species of influenza, the direct cause of which I have traced to an arsenical course too long continued. So well marked are the symptoms, that they cannot be mistaken by any one who has once observed them; the most prominent being an injection of the vessels of the conjunctivæ—a pathognomonic sign of an arsenical course which has been continued until full constitutional effects have been produced.

I had an opportunity of shewing to the members of the Provincial Medical Association, at their visit to Bath in 1848, a case in which less than half a drachm of the Fowler's solution

had been administered in divided doses, in which the constitutional effects of the mineral were present, and the case was published in the Journal of the Association.

I am inclined to believe that the Bath waters used in combination with arsenic, modify, in some degree, its action. Doses of from three to five minims of the solution, seem to act more powerfully than larger quantities. This may arise from the stimulant effect of the waters. The medicine is not then acting upon an entirely diseased, but upon a partially restored membrane, more liable to its effects than it would have been had the mineral been employed alone. I am certain that the exhibition of arsenic in combination with the Bath waters requires close and assiduous watching, and that cases have been cured by their united agency when both have failed when separately employed.

When the waters appear to exert too great an influence upon the circulation, without manifest improvement, small bleedings will be found materially to assist the progress of the case. It will not be necessary to suspend their use, but the patient should, at the same time, take either antimony or arsenic as adjuvants, according to the discretion of his medical attendant.

When the disease appears to depend upon the

lithic acid diathesis, and is attended by dyspeptic symptoms, a course of alkaline remedies may be advantageously pursued.

Dulcamara, sarsaparilla, and other remedies of a similar character appear to exert no influence in combination with the waters. Our object in the cure is manifestly to abstain from the exhibition of mere tonics and supposed specifics; the indications are to restore the healthy action of the skin by the improvement of the secreting functions generally; to overcome the perverted habit, to improve the digestion and circulation; and so to use the thermal treatment, that, where it fails of itself to effect a perfect cure, it may be so combined with other remedies that it may assist to do so. These remedies must be selected with care and judgment, and so combined as mutually to assist each other. The cure is, from the nature of the disease, of necessity protracted; so that, where health is the object, it is necessary that our patients should, when improvement steadily progresses, make up their minds fully to persevere.

I must now refer to the external adjuvant remedies. As a general rule, it may be observed that many of the ointments which contain animal grease are bad in these complaints, and that cerates are better than unguents. If we consult the works of the older writers upon

these diseases, we find that almost every variety of external application has been, at one time or another, extolled for its supposed specific effects; and the old case books of the Hospital fully demonstrate that the most opposite plans of treatment have been attended with equally beneficial effects. I am persuaded that, in many of these instances, the Bath waters have cured these diseases *in spite of* rather than *in consequence of* the adjuvant remedies. My own experience fully proves that the simpler our treatment, the better the patient, and that we should employ our restorative means upon rational rather than upon empirical principles.

The patient resorts to Bath for one of two reasons, either that he has heretofore in vain sought relief from medical skill, or from the hope that these waters may possess the virtue of cleansing his body from a loathsome disease. The pharmaceutical applications he can use at home, the thermal waters only in this city, and we are bound to employ them, as far as our judgment justifies their application. In almost every case they may be fully employed externally and internally with manifest daily improvement; and as long as they do this, without injury to the general health, all extraneous applications are worse than useless, excepting those which tend to soothe irritation, among which may be mentioned cerates composed of the oxyde of

zinc, trisnitrate of bismuth, carbonate of magnesia, petroleum barbadense, nitrate and nitric oxyde of mercury, each separate cerate being formed by the addition of a drachm of the drug to seven drachms of simple cerate. Iodine externally applied is also useful in some tedious forms of these diseases.

In the employment of all external applications, one general rule is to be observed, that a very small quantity suffices, and should they exert no beneficial effect after a few applications, the cerate must be changed for another.

Sometimes the bland vegetable oils, will fulfil all our wishes, and this may be said more particularly of glycerine.

ECZEMA AND IMPETIGO.

These diseases of the external surface, in the majority of instances, arise from derangements of the digestive and assimilative functions. They require a strict attention to diet during the course of thermal treatment, which may be combined with bloodletting and other antiphlogistic means until all inflammatory appearances have subsided, and then the Bath waters alone will complete the cure, unaided by any other adjuvants than the milder aperients occasionally administered.

SYPHILITIC ERUPTIONS.

The eruptions of syphilis derive manifest advantage from the external and internal use of the thermal waters. The wandering nocturnal pains are relieved, the disposition to pereostitis checked, the broken constitution renovated, and the general health restored. There is, perhaps, no form of general cachexia in which they produce a greater amount of decided benefit than in these melancholy cases.

In this brief outline of the benefits derivable from the thermal waters in chronic skin diseases, I have been embarrassed by the weight of the materials at my command. Living, as I did, for a period of seven years, in an hospital containing every variety of these affections, from every part of the United Kingdom, hourly under my personal observation, I have been enabled not only to see that medicines have exercised but little benefit in their treatment, but that, when rightly employed, the thermal waters of this city are a remedy of great value, and a means of cure which no mere combination of remedies, however powerful, can compete with; and, in concluding this Chapter, I must be allowed to express my surprise that, with these daily evidences of their value before our eyes, they should ever have been allowed to fall into disrepute. Dr. Cheyne, in 1717,

imagined this to arise from their public and indiscriminate use, without medical advice; but although there is much truth in the learned Doctor's remarks, I am afraid the truth lies nearer home, viz., the neglect they have received from the medical profession itself. I should feel disposed, in all chronic cutaneous affections, which have resisted the ordinary modes of treatment, to give them a judicious trial, either alone, or as adjuvant to any plan of treatment that might be deemed desirable.

CHAPTER VIII.

CHRONIC DEBILITATING DISEASES OF THE UTERINE FUNCTION.

THIS class of disorders will comprehend all those functional derangements which exist with loss of health and strength without manifest structural change. The first and most important are those diseases which are characterised by diminished, excessive, or peculiar secretions; the first most commonly attend the young, the second the advanced, while the latter are common to all the periods of uterine vigour.

The diseases of diminished secretion are comprehended under the nosological terms of amenorrhœa, dysmenorrhœa, and chlorosis—diseases of pure functional debility. In them chalybeates possess properties which no other remedies lay claim to, and the Bath waters, have from time immemorial, been considered of extreme value as a remedial agent in their cure when taken internally, and externally applied by means of the douche, to the back and loins of the patient. Not even the disrepute into which these springs have fallen in modern times has been able to supersede their employment in these affections.

Hysteria, with its protean forms of disease—

now simulating paraplegia, now disease of the hip joint, sometimes neuralgia, with exquisite sensibility, and sometimes disease of the head, chest, or abdomen, with symptoms of an alarming nature were we not familiar with its erratic manifestations—is a disorder which is relievable by the exhibition of these waters. Medicine in this affection acts both mentally and physically, in promoting a due return to health. There is a lassitude of body, a loss of control over the will, which renders every exertion painful and distressing. One object which the practitioner should have in view, is the gentle but stern command to employ every means which can amuse the mental faculties, and at the same time call into exercise the muscular powers: these cases, indeed, at the same time that they demand our most powerful sympathies, require us to be firm in the use of every means which can arouse the patient from her morbid condition.

Many such patients are brought to Bath in a perfectly helpless state. In our examination of them, a very little pressure will produce violent pain in the lumbar portion of the vertebræ, in fact we find the spine abnormally sensitive, and if we continue our examination, we can transfer, as it were, this morbid sensitiveness to every portion of each extremity. In these cases we find the upper eyelid tremu-

lous; and should a paroxysm of hysteria take place during the examination, the pupils easily acted upon by the light will invariably converge towards the nose. Increased secretion from the kidneys invariably occurs, with costiveness, the secretions from the bowels being dark and offensive, and there is frequently considerable œdema observed in the lower extremities.

In the aggravated forms of hysterical paraplegia, in which the lower extremities are perfectly motionless from defect of volition, attended with acute pain throughout the vertebra, much mischief to the health of the patient may arise from our treating the pain of excessive sensibility as the result of inflammatory action: we may bleed till we are tired, and cover the back with the incisions of the scarificator without producing the slightest effect upon the functional disease, excepting that which follows great loss of blood—increased pain in the head upon the slightest mental emotion, and an aggravation of all the symptoms.

Hysterical paraplegia is to be regarded as a disordered condition of the nerves of sensation, which become acutely sensible, and of the nerves of volition, which cease, as it were, to act. The first effect produced by it is depraved or suspended secretions; the second, loss of power over those voluntary muscles which are not concerned in the duty of supplying nutri-

ment to the system; and as the disease advances in intensity, hæmoptysis, and more frequently hæmatemesis, occur, as vicarious efforts to supply a natural secretion, to the establishment of which all our remedial measures must be directed.

The effect of strong purgatives in these cases contra-indicates their employment, because each dose necessitates a repetition, and reproduces the costiveness it was given to overcome. The daily use of a mild enema, at a stated hour, will re-establish the natural action of the bowels,—one of the primary indications to be fulfilled.

Patients will frequently refuse to make even the necessary exertion required to feed themselves, lying, as it were, a burden upon their attendants, and crying out with pain upon the slightest touch, so exquisite is their morbid sensibility. The physician, therefore, is required to point out both the moral and the medical treatment.

Kindness, with firmness, is necessary. The medical attendant must direct that the patient be dressed and laid outside the bed every day prior to his visit, and that her mind be amused by cheerful society, particularly desiring that every one who approaches her shall speak the language of hope, not pity; her nurse must be one on whom he can rely implicitly, who unites sympathy with firmness. From the bed, as

soon as she is able, she must be removed to the sofa; and, as soon as she can bear it, be wheeled about in the open air in a chair daily. Everything must be done gradually: the progress made must be stealthy, rather than forced; the general health attended to, and not mere symptoms prescribed for, as is too often the case.

It is desirable that change of air and scene should speedily be resorted to, and Bath, from possessing remedial agents of great value, should be the place recommended.

The apartments chosen should be upon the ground floor, in a warm and sheltered situation, not exposed to the north or east winds. She should not pass the day in a room occupied at night; her diet should be light and nutritive, with total abstinence from all stimulants; and as soon as she has recovered from the fatigue and excitement of her journey, the thermal treatment may be commenced.

This will require care and caution as long as she is unable to leave the house. She may take her breakfast in bed, and her bath (at a temperature of 98) in her room, one hour after that meal, retiring to bed immediately for a period of twenty minutes, when she must be dressed, and laid upon the sofa in the adjoining room. Friction by an attendant, with passive motion of the trunk upon the lower limbs, may

be employed usefully in order to accustom her to a sitting posture, provided no severe pain be given; and the bath may be repeated twice or three times a week, at the discretion of the medical attendant, while stimulating liniments, with sinapisms, may be employed as excitants to the cuticular surface of the back.

As soon as she can bear the motion of a wheel chair, she must be drawn to the Pump-Room for the purpose of drinking the waters, which should be done twice or three times daily, the quantity being regulated by such circumstances as the medical attendant may deem desirable; and the use of crutches may be directed for in-door exercise only.

When she is able to bear the transit, she should be conducted to the baths and use the wet douche, moderately increased in number and force; and then the tepid thermal shower bath may be alternated with it for a period of six or eight weeks.

Adjuvant remedies, given with a desire to increase the effects of the waters, interfere with their beneficial action in this disorder. Opiates administered for the relief of pain, invariably increase the subsequent suffering, from their effect upon the liver and other secreting organs, which are impeded in their functions by their employment.

Anti-spasmodics afford but temporary relief;

and depletory remedies increase the evil by diminishing the constitutional vigour.

Should heartburn and indigestion exist, the Bath waters internally exhibited will restore the tone of the stomach, and will be retained when all other remedial means have been rejected. It is wonderful how soon, in these cases, they relieve the irritability of that organ: they seem, as it were, to imbue it with new life, and as our object is to exhilarate the spirits of the patient, they fulfil this indication marvellously.

I have said that our main object is to restore functional derangement; and when we refer to the state both of the biliary and visceral secretions, it is plain that the simpler our mode of treatment, the better for the patient. The mere production of an alvine discharge by means of powerful purges causes no amendment whatever in the state which leads to the vitiated secretion; the healthy condition can only be restored by acting directly upon the muscular fibre of the bowels themselves, by imparting power to the nerves employed in digestion and assimilation, and the Bath waters fulfil this indication also, a domestic enema being daily employed to remove the feculent accumulation from the lower intestines. Experience convinces me that the costive and irregular condition of bowels, under which the

majority of females labour in this climate, are mainly to be attributed to the use of drastic cathartics, and that they are to be overcome only by habituating themselves to a regular period of evacuation. Nature demands that all should study her dictates; every object in creation obeys the law of alternate activity and repose; periodicity is as universal in the animal and vegetable world, as gravitation is in the inanimate: the habit once established, pain will compel obedience; and health may be preserved through an unbroken series of years without the aid of purgatives by a simple adherence to this plan.

The period usually prescribed for a course of the waters in these cases, varies from ten to twelve weeks, with remissions at the end of every fourth week; and should the periodic uterine function return, their use must be suspended during its continuance both in this and other disorders.

STERILITY, OR BARRENNESS.

The older physicians practising at these springs, in their various essays, point out the extreme value of the Bath waters as promoters of uterine vigour in married females, who have either never borne children, or who have more than once aborted. There can be little doubt

that their experience fully confirmed this; indeed I have myself seen instances in which they have by their tonic power enabled the constitution, as it were, to invigorate itself by the alteration of vitiated and impaired secretions. Pregnancy is no bar to their cautious employment, and they may be continued safely until the fourth month; nay, in one case under my direction, they were commenced at that period, and continued until the seventh, when the patient returned home in a state of general good health and spirits, to which she had been long a stranger.

There can be no doubt whatever that, in almost every case of uterine functional disorder, steel, in its various forms, at one time or another, is a suitable remedy; and also that change of air powerfully contributes to the restoration of the healthy secretion.

Nature in this city, has poured forth, from her own laboratory, a combination of iron with various mineral bodies in a form the most agreeable to the debilitated invalid, and placed the thermal springs in the most sheltered and most delightful valley in England, accessible by an easy transit from every point of the united kingdom, and in a city abounding in every convenience which the most fastidious invalid can require.

For the poor the gratitude of the last century

erected the Mineral Water Hospital, as, in the previous one, it had restored the noble and imposing Abbey church;—both buildings having been completed by those who had recovered a long-lost health by the use of the bounteous fountain which the Almighty caused to flow in the vale of Bath. With these monuments before us, who can say that these springs possess no more virtue than mere hot water?

CHAPTER IX.

CHRONIC DISEASES, OF FUNCTIONAL ORIGIN.

BRAIN FAG.

I have classed together, under the above name, many functional disorders which afflict those who make great use of the pen, and, at the same time, take but little exercise—overworking their mental faculties without sufficient bodily fatigue, the subjects of them being authors, journalists, solicitors, and clerks in merchants' counting-houses, and other persons who are engaged in mental industry, not requiring, but rather preventing, bodily exertion.

The causes of the disorder are manifestly, in the first place, severe thought and sedentary occupation; the effects are those complicated functional derangements which, unfortunately, I can describe from my own personal experience and from cases among gifted and talented men of letters which have fallen under my own observation.

They are, severe dyspepsia, loss of appetite, irregularity of the hepatic and renal secretions, with diarrhœa alternating with costiveness, hemorrhoidal tumours with frequent micturi-

tion; watchfulness, irritability to the slightest external impression, nervous dreams, palpitation of the heart, with a weak and irregular pulse, and intermittent, ill-defined headache.

The combination of all, or some of these symptoms, constitutes the first stage of the disease, during which the sufferer pursues his intellectual employment, and satisfies himself with the treatment of its more prominent symptoms.

In the second stage, the lower extremities begin to lose their nervous power, from the pressure applied by the sitting position. Gradually the feet lose their motive action, and their sensation becomes impaired; the patient describes himself as walking, as it were, upon horsehair; the muscles of the legs and thighs waste from want of the due exertion of their muscular substance; cerebral mischief sets in, and the patient is compelled to abandon all employment: his hands, dropping to his side, refuse any longer to write down his thoughts; he, being totally helpless, is compelled to resort to medical advice.

He has now arrived at the third, or critical stage of his disease, for upon his treatment now depends either the total loss of health, or his complete, though gradual, restoration. His symptoms are alarming, his state paralytic, shewing evidence of disease of the cerebro-

spinal axis, and for his relief, the routine practitioner orders him bleeding and antiphlogistics. He becomes rapidly worse; all his *symptoms* increase, and still the same system is pursued: the causes of the disease are unlooked for, and their *debilitating* effects not understood. Should complete hemiplegia occur, we find it to have taken place a few days subsequently to a venesection, which we may regard as cause and effect.

In these cases the brain gives repeated warnings, transferring, as it were, the effects of excitement to the distant nerves, which fail one after another, according to their importance in the animal economy, the great sympathetic alone preserving its integrity.

During the railway panic, many persons suffered from this disease in its various forms, and not a few found their way to Bath, where they came under my daily observation. The history of one is the history of them all. The patient, describing his case, says, "Some time since, I had great mental anxiety (requiring me to devote several hours a day to studious writing, being then preparing a work, getting up evidence in a case, or to go to Parliament, as the case may be). My meals were irregular; I was up early and late in my study, and suffered much from irregularity of the bowels. In a short time I lost in a great degree the use of

the extremities, headache came on, and I was compelled to apply to my medical attendant, who cupped me on the neck, applied blisters, and ordered me to live sparingly. I became weaker and weaker, until I was advised to come to Bath, as a last resource."

These cases are sometimes considered to arise from *ramolissement*, or from some excitement of the brain leading to slow inflammation. In some we see a vigor in regard to mental effort, while the ordinary daily operations of the mind become obtuse and blunted, the duality as it were between the ideal and the actual being entirely overbalanced. In addition to the cases which the Hospital presented to my notice, and those in which I had the opportunity of learning from intelligent patients the rise and progress of their disease, I have been consulted by coroners, magistrates, and County Court judges, in whom this disease had arisen from too close an application to the duties of their office.

There are two grand diagnostic marks, which, in addition to the previous history, distinguish these cases from structural disease of the brain. The first is the complete clearness of the intellect, the second the state of the pulse, which will be found to manifest distinct debility of the circulating system, the artery seems as it were contracted in its calibre, and weak in its beat, its pulsations never exceed the healthy

standard, they are laboured, and easily compressible.

The prominent symptoms are complete prostration of nervous and muscular energy, with increased mental power, the mind as it were flourishing at the expense of the material frame. In some cases we see great hilarity of spirits, in others great despondency, the tone of the mental faculties being counteracted by the physical disease.

It will be seen, by the above description, that the disease is one of general nervous debility, and that it requires a plan of treatment which will invigorate the general tone of the system.

The first and most important point is to debar the patient from all mental exertion, and to promote, as much as possible, the restoration of his digestive functions; the second, the exhibition of chalybeates.

Patients in this disease are the ready victims of every quackery: by turns they apply to mesmerisers, homœopathists, and hydropathists.

A full course of the Bath waters, in conjunction with galvanism, carry out the requirements of the legitimate practitioner, as well as those of the empiric. Let us enquire by what means. The Bath waters strengthen and brace the nerves of the dyspeptic stomach when iron in its various forms disagrees, and when the whole

farrago of tonics have been tried in vain; they restrain vomiting and water brash, and materially improve the digestion of aliment, when the stomach is so irritable as almost to reject the slightest meal.

In combination with electricity, they impart warmth and motive power to the limbs in a far higher degree than mesmerism has ever pretended to do. As a homœopathic remedy, the most enthusiastic follower of Hahnemann cannot object to them, since they contain but an infinitesimal quantity of iron in a large proportion of a bland and grateful fluid. The hydropathist, also, must allow that these waters fulfil all the indications he professes to carry out, with the great advantage that here the tonic virtue resides in the water itself, which may be applied at a temperature varying from 60 to 117 degrees; and, it must be confessed, with more grateful feelings to the suffering invalid than the application of pure cold water, which cannot in every case be so nicely and agreeably regulated as that which proceeds from thermal chalybeate springs.

The blood in all these cases contains a larger proportion of carbon than is essential to the due performance of its healthy function; the Bath waters, from their containing many salts, the acids of which are compounded of oxygen, together with free carbonic acid, impart, in a

marked degree, oxygen to the circulating system: they increase the red particles of the blood, and restore the circulation to its healthy standard.

The accounts of the benefits derived from the cold water cure have reached us by the publications of those who evidently laboured under the disease I am now treating of in its first stage. It would not be difficult to judge, from the writings of Sir Edward B. Lytton and Mr. Lane, how much benefit they derived from the absence of mental fatigue, and the enjoyment of the pure air of the Malvern hills in pleasant society—the latter, with the diet enjoined, was the adjuvant, the hilarity produced by the former, the cure.

Now, at Bath, I have seen patients cured, who have in various parts of the kingdom and on the continent tried the cold water cure without relief; nay, a few years since, one of these establishments was started in this city without success, because its projectors forgot that here we had springs which *could* cure the diseases which the cold water system *professed* to do.

From practical experience I can decidedly affirm that, unless the case has been allowed to proceed too far unrelieved, the Bath waters are capable of curing the diseased condition of nervous function which I have classified under

the name of "brain fag,"—intense functional derangement of very frequent occurrence, in which the cause is unlooked for, and which, unrelieved, in many instances terminates in incurable loss of power, and frequently in complete paralysis, when all that can be hoped for from this or any other plan of treatment is relief, and not cure.

The approach of disease in these cases is slow but sure: gradually one function after another becomes impaired. The sufferers usually lead lives which cause them to be irregular not only in their periods of meals, but of retiring to rest. Frequently, after a day of severe mental labour, intellectual society has charms for the man of letters, which form a pleasing contrast to the daily labours of his life: thus the demand upon his brain is unceasing, nature gives her warnings unheeded, still the struggle for name and fame goes on, or the still harder effort, for the means to supply the daily wants of life; existence, as it were, becomes one unceasing mental effort, and the physical frame succumbs. The energies of the brain are concentrated upon thought, so that the power of exertion becomes lost, and the body sinks into a state of disease.

The athletic form becomes weakened, the face pallid, the muscles, no longer called into action, part with their fibre to maintain the

severe drain caused by the overworked brain upon the system at large, nature is at last subdued, the physical falls before the intellectual, and disease usurps the place of health.

The disease usually takes place in the full vigor of life, so that mental despondency is superadded to bodily infirmity.

The great object is to check the disorder in its first stage, by remedial measures, by strict attention to diet, regular hours, change of scene, and by abstinence from all mental labour. Where these are ineffectual, a course of the Bath thermal treatment in conjunction with galvanism, will rarely fail to cure.

DEBILITY SUCCEEDING FEBRILE DISEASES.

There is a class of functional disorder which is much benefitted, not only by treatment, but by the warm westerly breezes which prevail in Bath. I allude to the convalescent stages of severe fevers, and other diseases in which the system has become debilitated by the long duration of the malady.

In these cases the patients are generally tired of taking medicine, however useful, and are exactly in that condition when the removal to a warm and sheltered aspect is desirable; and it was from this circumstance that Bath derived its Saxon appellation of Aikman Chester

—the City of the Sick Man, which name is still preserved in the old Roman road of Aikman-street.

The Bath waters, in these cases, soon produce their beneficial effects; even a week's drinking will cause the patient sensibly to improve in absolute weight, and a three weeks' course will restore him to perfect health.

DEBILITY OF LIMBS, FROM FRACTURES, DISLOCATIONS, AND CONTUSIONS.

IN the treatment of various injuries produced by external violence, it is absolutely necessary that perfect rest should be enjoined by the surgeon for the relief of the implicated limb: this for the time interferes with its natural motion, the injury itself is cured, but the limb remains wasted and weak.

Unfortunately, after the surgeon has discontinued his attendance, and has stated that the limb is well, the patient continues the rest enjoined *only* during the cure, and the use of the limb is impaired, and permanent lameness is the result.

In these cases, the Bath waters, combined with judicious exercise of the affected part, materially assist in restoring the use of the affected muscles, and I have repeatedly seen limbs, which at first sight I was inclined to be-

lieve were permanently distorted, by a gradual increase of the power of the douche bath completely restored to the normal condition, and where this has not been successful in the cure, they have been much benefitted, Perhaps one of the most difficult lessons to teach a patient is the necessity of using personal exertion. He says the limb is weak, and in vain you endeavour to impress upon his mind, that muscular vigour is only imparted by his own exertions: he is unwilling to make the slightest effort.

In these affections much benefit arises from friction by an attendant, and in Bath there are nurses who make a business of producing artificial movement of the muscles in these cases.

Numerous cases have been admitted into the Hospital, where the patient, not knowing that he was able to do without them, has come in with two crutches or sticks. A trial made, if only of two or three steps, assisted by the hand, convinces him that these may be made without the supports; he is ordered not to use them in the house, and he recovers; and the physician often wishes that he could treat his private patients in the same decisive manner.

In cases where a lower extremity is affected, it is better that the patient should walk a few steps in his room without crutches, than a mile

in the open air with them; and in those in which the arm is affected, it should not under any circumstances be carried in a sling, but be allowed to drop to the side, and should constantly be subjected to friction and exercise. Galvanism in the bath, or by immersion of the limb in the water medium, is the most useful adjuvant, the relief being more speedy than could be anticipated from the bath alone.

When the various joints have sustained some degree of immobility, either from disease of their structures, or from the position required for the cure of other affections, among which erysipelas may be mentioned, the free use of the limb may be restored by the galvanic bath, which more speedily increases the volume of muscular structure, and the motive power of the affected part, than any other means that can be recommended.

In fine, wherever loss of muscular power exists, without structural disease, that has not been allowed to proceed until the synovial fluid (being no longer required) is not secreted, the effects of the Bath waters, in conjunction with galvanism, are surprisingly efficacious; but where rigidity of joints has been allowed to continue for any length of time, relief is all that can be expected.

DYSPEPSIA, AND HYPOCHONDRIASIS.

Without entering into a systematic description of this disordered condition, it may be sufficient to observe, that a six weeks' course of the Bath waters, internally administered, with a bath twice a week, will cure simple dyspepsia; and that lithiasis, and other disordered conditions of the renal secretion, are, from the diuretic effects of the remedy, invariably relieved by them, the diet recommended being rigidly pursued during their employment. I am inclined to think that the vaunted power of the waters in calculous complaints, which is so constantly prominent in the writings of the older authors upon the Bath waters, arose from their power of relieving the lithic acid diathesis; indeed I should recommend their free use in all such cases, provided there were no evidences of structural disease to contra-indicate their use.

For the cure of this condition of the digestive apparatus, the physician fulfils but half his duties, who resorts to the use of the various specifics which have been recommended for its cure or relief, unless he directs at the same time the ordinary diet of the patient; articles which may be taken with impunity by the healthy, absolutely cause the affection in the weak; thus broths, gruels, the various malt

liquors, and wines of a thin body, will produce dyspeptic symptoms, the former from distension, wines and beer from their fermenting qualities, while spirits, acting directly upon the mucous membrane, impede the function of digestion.

The distension caused by the constant use of tea, and the fact of its containing a free acid, will, I think, sufficiently explain why those who drink much of this favourite beverage are invariably dyspeptic.

The sensation denominated heartburn, is the first symptom of simple dyspepsia, the best remedy for which is the common Spanish liquorice, which possesses the power of checking this digestive fermentation in a far higher degree than the antacids, without producing any of their ill effects. I trust that the efficacy of this remedy will excuse the mention of so simple a cure, the use of which has been sanctioned by many years of personal experience.

Every remedy, however, which is given for the relief of a prominent symptom only, fails at last in its effect; and both doctor and patient getting heartily tired of each other, the former recommends change of air, the latter resorts to the empirics, who fleece him and fail one after another in their boasted means of cure: he at last is recommended to seek for relief in the waters of this city.

Dyspepsia, as I before observed, is common

to many of the diseases cured by the thermal treatment, and where it exists alone, and the patient is enabled to take sufficient exercise, his mind being freed from anxiety, his cure commences with the first glass of the waters, and makes so rapid a progress, that in many cases a few days only suffices to complete it. In order that it may be permanent, I generally advise that they should be employed at least seven days after all dyspeptic symptoms are removed, desiring the patient to adhere to my rules of diet after he leaves Bath.

I saw a remarkable case, shewing the necessity of a strict observance of this rule. A patient who had been drinking the waters for three weeks for dyspepsia, and who was about to return home cured, was invited by a friend to drink a tumbler of porter. He did so; the next morning he sent for me in great agony, the messenger stating that all the symptoms had returned. I advised an aperient, and a renewal of the internal use of the waters; this was complied with, and he declared when he took his farewell, that he thought the second course had done him far more good than the first, and promised a strict observance of the rules which I laid down for his future guidance.

Dyspepsia is frequently produced in those, who, under the idea of strengthening the

system, eat more than one meat meal a day. Nature does all she can to accommodate herself to this increase of labour, but the time surely comes when the stomach rebels, and atony takes place, heartburn, flatulence, pyrosis, and congestion of the liver is the result. Cathartics are had recourse to, constipation succeeds, and the patient becomes afflicted with simple dyspepsia.

In the Bath Hospital, where the patients are supplied with a liberal, but at the same time a restricted dietary, much benefit accrues from such restriction. The disease is relieved, and in the majority of instances cured, by the action of the waters upon the nerves of the stomach itself, which produces a greatly-increased appetite. This appetite the patients gratify by eating bread, the allowance for each being one pound daily; while that of meat varying from four to eight ounces, according to the circumstances of the case, enables them to eat just so much of the latter aliment as suffices for perfect digestion.

It were well if the more opulent classes, resorting to these springs, were to adopt the Hospital dietary as a means of cure. From it we learn that a man, no matter what his previous habits may have been, may be preserved in perfect health and increase in weight by the use of the Bath waters with four meat meals a

week, each weighing (after cooking) four ounces, which, as his cure progresses, is increased to eight, the diet on the other three days consisting of broth and rice pudding.

Where dyspepsia proceeds to hypochondriasis, a course of the Bath waters, with the amusements afforded by the city, rarely fail in their good effects, except there be an hallucination of mind, when the disease is no longer amenable to treatment as far as physical remedies are concerned.

I am very much disposed to consider the Bath waters as a remedy of great efficacy in functional disorders of the digestive organs. I would accord to them a much higher meed of praise than they have of late years received, and I consider their uncombined exhibition as more likely to restore healthy action than any other combination of remedies. These cases have, in the majority of instances, gone through the whole routine of treatment, and we can scarcely suggest any form of practice which has not been ineffectually prescribed before the patient seeks the thermal springs. At the same time they require careful superintendance, in order that their doses may be regulated and their effects watched; sometimes, indeed, the internal exhibition may disagree, when a carefully conducted course of bathing will alone effect a cure.

CHAPTER X.

ARTHRITIC DISEASES.

GOUT, RHEUMATISM, RHEUMATIC GOUT, NODOSITIES AND
CONTRACTIONS.

As these diseases have in general terms a common origin in an inflammatory condition of one or more joints, I propose, in reference to our present inquiry, to consider them under one general head.

They are seldom seen by the practitioner at Bath, until all acute symptoms have disappeared, his duty being to employ the thermal treatment so as to counteract the debilitating effects of previous disease and treatment, to repair the mischief produced by the long continuance of the limbs in one position, and to superintend the gradual restoration of the patient's general health.

The Bath waters are well borne both internally and externally, in ordinary cases where debility is a prominent symptom. The digestion and secretions are restored, the blood is changed in its character and consistence, and the absorbents stimulated to a due performance of their functions.

The waters, however, require caution in their

application, a common occurrence being the production of an active attack:—I use the word active in contra-distinction to acute, which should be restricted to the primary accession only.

When a course of the waters produces an active attack, it is to be regarded as a favourable indication; they require then a short cessation, and the disease is to be treated upon general principles, and when subdued, the waters invariably restore the patient's general health, and a greater freedom is given to the affected limbs.

During the last century, many persons subject to gouty attacks were in the habit of resorting to Bath when the disease was lurking about the system, in order that it "might be driven to the extremities" by the stimulus afforded by the thermal waters. The relief was apparent; and the subsequent course, by its restoration of the function of the digestive organs, rendered the system more healthy and less liable to frequent attacks.

It must be admitted that the more temperate customs of the present century have rendered gout less common than in the preceding; at the same time we must allow that in the form of rheumatic gout it is still a common disease, and that it is not so rare as is usually supposed among the poor and hard worked classes of

society, and that well marked cases are met with in both sexes, in both young and old.

As a general rule, patients are not recommended to resort to Bath, until considerable immobility of the joints has taken place. It were well that they were sent thither as soon as all acute symptoms had subsided; then, when the system is endeavouring to free itself from the over carbonized condition of blood, when the joints are enlarged by an undue secretion, and the stomach labours under dyspepsia, causing the kidneys to secrete an abnormal fluid, the thermal treatment is most desirable, the restoration to health most complete.

It would be foreign to my purpose to draw nice distinctions between the causes of gout and rheumatism. I have to consider them in their chronic form as modifications of diseased action in the joints, with general derangement of the system; their more prominent symptoms being dyspepsia, pain and swelling without actual redness, degeneration more or less complete of the articulations, with contraction and rigidity of the fibrous structures, all arising from a previous inflammatory condition.

The fibrous structures of the whole system appear to be more or less involved in these diseases. Repeated observation has convinced me that the blood in them presents the buffy coat throughout the acute stage, because these

structures are in a state of inflammation more or less severe. I have seen, in the practice of the late Dr. Barlow, many cases characterised by debility, wherein the blood presented the buffy coat after repeated venesections; and in one I obtained buffy blood by the cupping glass, so that I regard the buffy coat as characteristic rather of the nature than of the extent of the morbid action.

Sometimes, for precaution's sake, it is necessary to abstract a very small quantity of blood prior to the commencement of the thermal treatment. In these cases you get the buffy coat without any indication whatever of inflammatory action; and the waters seem to produce a better effect in plethoric constitutions where this plan is adopted, the chance of an active attack being certainly lessened.

What are the results of this specific fibrous inflammation? The secretion of synovia is suspended, and crepitation of the joints results; or, this secretion is altered in its quantity and character, and earthy solidifying concretions are deposited in its stead; metastasis occurs, either to the membranes of the brain, heart, chest, or stomach, and unsuspected *post mortem* appearances are discovered when the disease terminates fatally, as I have in more than one instance verified.

Gout and rheumatism should be considered,

in their acute stages, as varieties of the same morbid condition produced by different causes: in the former by errors of diet long continued, in the latter more commonly by cold; the latter cause, with an hereditary predisposition to the former disease, producing the variety denominated rheumatic gout.

They require to be treated upon the general principles which should guide us in the treatment of all inflammatory conditions. Two errors have been fallen into: the practitioners of one school never bleed; those of another carry depletory measures too far. As a general rule, small venesections answer better than large ones, and local bleeding may be used as an adjuvant with marked relief, when another venesection is not desirable. Thus, in the outset, blood may be drawn in quantities varying with the age and condition of the patient from six to twelve ounces, and a five-grain calomel pill administered, followed up two hours afterwards, with a drachm of *vinum seminum colchici* in a black draught. This will make an impression upon the disease; and the subsequent treatment should consist of a pill containing two grains of calomel and a quarter of a grain of opium, taken night and morning until slight tenderness only of the gums is produced, and an ordinary diaphoretic mixture with ten minims of the wine of colchicum, in lieu of

antimonial wine, may be taken every six hours, the subsequent treatment varying with the circumstances of the case.

Great care must be taken, during the acute and active stages of these diseases, that the patient be as much as possible protected from currents of cold air;—although while in bed a circulation of fresh air is absolutely essential,—the windows must be closed should he require to be moved or uncovered. The disease apparently confined to the affected limb only, involves the whole system in diseased action, and metastasis occurs from very slight exposure; the arteries in their fibrous structure become implicated, and through them the disease is as it were transferred to the heart and pericardium, if suddenly checked in the extremity, where Nature locates the effects produced by internal causes.

Experience fully proves that cases treated upon the above system in the outset, are those in which the Bath waters effect a cure. As soon as the patient can bear the journey, he should be sent to Bath, where he will speedily regain his health and strength with comparatively trifling deformity.

It is not a little singular that the medical attendants of the Bath Hospital can point out at first sight the cases in which venesection has been employed, and those in which it has not.

The distinctive characters are well marked in the severe distortions which are left by the soothing treatment, the worst cases admitted being those in which the disease has been treated in its acute stage with opiates and colchicum too long continued. The patient being considered to be incapable of the slightest exertion, the disease is encouraged by the vitiated air of an over-heated bedroom, for nurses consider pure water for ablution, and the fresh breeze of heaven, as abominations in a sick room; and thus stifled with a superabundance of flannel, narcotized with opiates, and motionless from long confinement, the disorganizing disease pursues its unchecked course long after the physician has taken his leave of the more acute disease which called for his professional aid. Nor are stimulants and high feeding, under pretence of keeping up the patient's strength, forgotten; so that a disorder which medical skill, temperance, fresh air, and moderate exercise would have arrested or subdued, is allowed to proceed until it becomes a chronic and almost incurable disease; the limbs, accustomed to be passive, lose the power with the will to move them, and joints become immoveable solely from want of effort. A student seeing these cases for the first time, would exclaim, that acute rheumatism, when severe, has no convalescence.

I have seen hundreds of cases wherein the limbs, from being confined entirely to one position, and moved, as it were, without the motion of their several joints, have become disorganized in their several articulations and nearly immovable, which have been greatly restored by a steady perseverance in a course of the Bath thermal waters, with the auxiliary agents, galvanism, friction, iodine, and other means hereafter to be enumerated.

The treatment of chronic rheumatic affections, including gout, requires more than, perhaps, any other class of morbid actions—the employment of moral as well as medical means. The patient must be encouraged to exertion to prevent immobility; he must be kindly but forcibly impressed with its absolute necessity: he must be told that partial motion is better than immobility, and that it is only by exercise that the synovial fluid expels the secretions which have usurped its habitation. He appeals to our sympathies, and declares that even passive motion is painful; but we must tell him that he has become crippled because his limbs were, from his long confinement, rendered painful upon the first commencement of activity; that “*vires acquerit eundo*” must be his motto if ever he intends to regain healthy power.

In these cases pain does not indicate inflammatory action. It arises from calling into

action, muscles too long unemployed in their natural function.

There is a marked difference between the sexes in respect to mobility of joints after acute arthritic diseases. Women whose occupations are sedentary, and who are satisfied with the power, however limited, of performing needlework, knitting, &c., rarely attempt to walk; while men, who are fond of out-of-door exercise, recover the use of the lower extremities long before they call any portion of the upper limbs into action.

With the exception, perhaps, of *lepra vulgaris*, we see in these cases the most prominent examples of the symmetry of disease; and it is very wonderful to observe how Nature accommodates herself to the performance of various habitual movements;—when the joints of the fingers are so completely subluxated that the phalanges form angles with the palms of the hands, mobility remains.

The object of the practitioner will be to direct the exercise of the joints in such a way as will, with the least amount of pain, restore the healthy action of the affected limbs.

I believe, indeed, that much of this immobility of joints may be prevented by the substitution of a modified active treatment, such as I have above laid down, for the mere palliation of symptoms which usually forms the treat-

ment of the acute stage of gout and rheumatism.

What indications do opiates fulfil? They deaden the more acute sensations, while the morbid condition stealthily proceeds; the minute ramifications of the arteries pour out a diseased secretion, and the fibrous tissues of the joints partake of the inflammatory action; the muscular substance becomes involved, and the tendons contract from long-continued spasmodic action: the liver is locked up from want of nervous energy; the kidneys are deranged in their secretions; the bowels are constipated, and the sufferings of the patient are increased; the acute stage, as it were, wears itself out, and the patient is left a cripple.

The adjuvant in these cases is colchicum,—a valuable remedy when properly and carefully administered, but which, from its direct effect upon the nervous system, requires more care and watching than is usually supposed. I have seen many cases in which this medicine has been employed as a domestic remedy in the first accession of an *active* attack of chronic gout. It certainly fulfils its indication, but after a few years it produces nervous tremors and a peculiar sallow state of countenance, with irregular and frequently intermittent pulse.

Gout is to be regarded as an effort of nature to produce a disease in an unimportant part of

the body, when a vital organ, or class of organs are functionally deranged. When this is suddenly checked, the functional disease proceeds unsuspected into an organic lesion; hence interruptions of the portal circulation overwhelm the heart, and cause it to participate in the constitutional disturbance. Long-continued dyspepsia, with suddenly suppressed or atonic gout, brings with it a train of organic mischief in the liver and kidneys; while, in not a few, the fibrous membrane of the brain becomes involved, and apoplexy and paralysis are the result. The first effect of colchicum is upon the liver, which it more speedily unloads than any other purgative: as soon as it has done this, its use should be discontinued, it having fulfilled its indication. A longer continuance causes the tongue to become covered with a peculiar creamy coating, indicative of its action upon the mucous membranes, which coating must not be confounded with the coated tongue of overloaded bowels. In chronic rheumatism, its use is perfectly unnecessary and useless, excepting when we wish to act upon the liver by a mild mercurial course in combination with it. Irregularity of the biliary secretion, is, in most long-continued cases, a concomitant of gout and rheumatism; in these cases, a pill, containing a grain of the acetic extract of colchicum, with two grains each of blue pill and cathartic ex-

tract, will be found to be the best form of alterative aperient, and may be taken every night for a week. Should a brisk purgative be required, a dose of Mr. Abernethy's mixture, with a drachm of the vin. sem. colchici, will produce beneficial effects, but must not be repeated at a less interval than a week, because of its powerfully depressing influence upon the pulse and nervous system.

It is too much the custom with those who labor under repeated attacks of mild gout, to fly to colchicum, or some empirical remedy containing it, upon the first appearance of redness and swelling. The gout is certainly relieved, but relief is purchased at the expence of nervous power, which is much debilitated by the action of the remedy. I have always been of opinion, and experience has confirmed my views, that low diet, purgatives, warmth, and confinement to bed for a few days prior to the exhibition of any mere specific treatment, affords greater relief to the system at large, and induces a greater immunity from frequent attacks than any other plan. Gout is a relief to a bad and unwholesome state of system, and is attended more or less by a febrile condition. The tongue is loaded with a brownish fur, the interstices of the teeth are filled with earthy concretions, the breath is offensive, and the perspiration, if not altogether suppressed, is changed in its character.

These symptoms, commonly regarded as concomitants of gout, are in reality indications of the state of system which produces the gouty paroxysm. No doubt, a full dose of colchicum, by its energetic action on the liver and intestines, produces a vast amount of immediate relief, but it has no effect whatever upon the causes which lead to it. It suppresses the prominent symptom, it silences the warning, while it produces its debilitating effects upon the system, and leaves the hidden cause of the disease to pursue its course unchecked.

Being myself a sufferer from hereditary gout, I regard a red knuckle as a good sign. I invariably experience relief from it, and am quite sure that I suffered for many years from constitutional debility from having taken large doses of colchicum in my youth for the relief of its paroxysms. Now, my plan is to remain in bed for the day: I eat nothing, and usually take a pill, such as I have just mentioned, once or twice during the week, with manifest advantage.

In chronic rheumatism, gout, and their modifications, we have evidences of constitutional disturbance producing depraved and unhealthy circulating fluid and secretions. The blood becomes loaded with carbon and urea; the bile, perspiration, and urine are altered in their characters; dyspepsia and its concomitants are

prominent symptoms of generally disturbed functional power; depositions result about the teeth, in the muscular and fibrous structures, more particularly of the joints; œdematous swellings take place, from want of tone in the extreme vessels; and the patient is reduced to a condition of general debility, and, from want of nervous energy, sinks into a confirmed cripple.

Gout and rheumatism, however much they may differ, in their causes, localization, and symptoms during the primary and acute stages, imperceptibly approach each other when they become chronic; in fact, it would, in many cases, be extremely difficult to form a correct diagnosis without the aid of chemistry. Cases which, from the mere inspection of the smaller joints, we should at once pronounce gout, are accompanied by enlargements of the knees and stiffness of the shoulders. On the other hand, we meet with cases in which the disease having, in its outset, attacked the larger joints, has gradually involved the minor ones. A good diagnostic mark is the active attack which, in gout, commences in the smaller, and in rheumatism, the larger articulations; where it is general, the term rheumatic gout may be safely employed to indicate the disease. An attack of gout is a common occurrence in those who have previously had acute rheumatism; an attack of

rheumatism not unfrequent in those subject, or hereditarily predisposed, to gout. It is these complications and substitutions, if I may be allowed the term, of the one disease for the other, that have thrown so much difficulty in the way of a true pathological distinction between two similar diseases.

It is in these cases that the Bath waters produce a vast amount of benefit. They surpass any other combination of remedial means in the speed with which they restore impaired function to the cuticular and digestive organs. Their use, however, requires to be very closely watched, and to be modified occasionally, and now and then suspended for a short period.

If I were asked to explain their good effects in arthritic diseases, I should give much value to the thermal heat of the waters themselves, which acts soothingly upon the disordered skin by washing off the diseased secretions which invariably attend upon them,---a peculiar branny scale or disquamation secreted from the skin itself is a prominent symptom, and the good effects of the thermal treatment commence by its removal.

The second effect is upon the extreme vessels, which absorb into the system the thermal fluid, which is thus directly carried through the system by means of the capillaries.

The third is the production of a general per-

spiration, which enables the extreme vessels to discharge the diseased cuticular secretion with rapidity: the effect of the bath being tonic, it performs this office with a strengthening and not a debilitating effect.

But, perhaps, the most important of all is, that the bath improves the volume and strength of the arterial pulse, producing increased action without increased inflammation. This results from the fact that its effects are universal, and that it does not excite one organ at the expense of another, that is to say in all those cases in which there is no internal organic disease.

The above effects arise from the first action of the bath; but in order that we may rightly estimate its value as a remedy to be continued for a certain period of time, it will be necessary to take a cursory view of the solid contents which chemistry has shewn to be contained in the springs of Bath.

Their salts are those which are most grateful to the system, because they supply many of the ingredients which the blood requires for its restoration to perfect health, and their introduction into the system by means of the vessels of the cuticular surface, enables them to be distributed throughout the circulating system, and to become eliminated therefrom in improved secretions from the liver, skin, and kidneys, all which organs are altered in their secreting

function by diseased action, and the altered constitution of the circulating fluid.

But there are two other ingredients in these waters which claim a large share of their merits—the free carbonic acid, and the proto-carbonate of iron.

The free carbonic acid gives to these springs their peculiar balmy feeling, and by its gentle stimulus to the surface, brings into action the vessels more immediately concerned in the disease, and being applied in combination with the salts referred to above, it changes the acid and unhealthy character of the cuticular secretions into healthy perspiration.

The proto-carbonate of iron, although so small in quantity in reference to the bulk of the water, supposing but a quart or gallon is subjected to analysis, exists in large proportion in the bath itself, when we consider that thirteen hogsheads are required to fill a bath for one person—a point which, I think, has been much overlooked by those who have decried the merits of the Bath waters externally administered, in consequence of the minuteness of the quantity of the chalybeate detected in a portion of the waters, necessarily small for the purposes of analysis. We have not to enquire the quantity contained in a gallon of the waters, but to take into consideration the effects of a thermal chalybeate bath, containing many hogsheads of the mineral waters.

In reference to the endermic exhibition of iron, the city of Bath affords the only instance in this kingdom where this valuable mineral may be applied through thermal agency. The baths of this city have been celebrated for countless ages for their peculiar virtues in arthritic diseases, so that panegyric is not required to bring them into notice, as in the instance of a newly-discovered spring.

As I have already pointed out the peculiar effects of the Bath waters internally administered, I need not dwell upon their internal use in the diseases now under consideration; suffice it to say that in all cases of gout and rheumatism, where their external exhibition is productive of benefit, their internal effects will contribute materially to the advantages derived from the thermal treatment. Care must, however, be taken lest we overstimulate, in which case we shall have to suspend our treatment and re-commence that which is applicable to the acute and active stages of these diseases.

The Bath waters, indeed, seem to be imbued with just that proportion of iron which may be taken up and conveyed usefully into the system; at the same time that they increase the number of the red corpuscles of the blood, they alter the circulating fluid from a carbonized sizzly state, presenting a small amount of coagulum and fibrine in what Dr. Cheyne called an

“ocean of serum,” into a florid healthy condition.

“That there must be,” says he, “a larger proportion of steel in the Bath waters than is manifested to the senses, or discovered by any experiment hitherto made, is evident from their healing effects, which no known medicine but steel can bring about, or account for; none but those who have seen it can believe the wonderful efficacy it has in most chronical cases. What but steel in a few weeks can make the blood from a white, blueish, or tallow hue, resisting the knife like glue, swimming in its serum like an island amidst the ocean, look all of a piece of a scarlet color, and a due proportion between its nourishing and watery parts? Nothing but steel can make a pale ash-colored countenance, hollow and deep eyes, no appetite, little strength, and less sleep; eat and drink, and sleep, look gay and sleek, like the best health. Thousands of such instances may be seen every season at these healthful springs.”*

Every week of my residence at the Mineral Water Hospital brought under my notice instances of this change in the circulating fluid, so that I am justified in producing the testimony

* An Essay of the true nature and due method of treating the Gout, together with an account of the nature and quality of the Bath Waters, the manner of using them, and the diseases in which they are proper. By George Cheyne, M. D., F. R. S. London, 1720.

of one of my most distinguished predecessors to bear witness to the fact, that the Bath waters do, in cases of gout and rheumatism, produce an organic change in the elements of the blood, and that it is to this property we are to attribute their value in the relief of diseases characterized by depraved secretions.

“Iron,” says Dr. Edwin Lee, “the predominance of which in mineral springs constitutes an important class, is an essential component of the animal economy. It is found in the chyle, lymph, and blood, in the muscles and bones, in the secretions, including milk. The quantity of iron which exists in the blood bears an exact proportion to its red globules; by the abstraction of blood, the quantity of fibrin is diminished; by the exhibition of this metal, the quantity of fibrin is increased, and the blood assumes a bright red color. It has, however, been demonstrated by experiments on rabbits, that iron can only be absorbed into the blood in a limited quantity, whatever the amount given, the remainder passing off by the bowels.” *

I have made repeated observations upon the quantities of iron necessary for the production of its constitutional effects, and can truly affirm that the Bath waters produce all the benefits expected from chalybeate treatment; and al-

* Practical observations on Mineral Waters and Baths, with notices of some Continental Climates. By Edwin Lee, M.D.

though their use may be continued for a long period both externally and internally, they do not discolour the alvine excretions like the ordinary preparations of the metal,—a sure proof that Nature takes up the whole of the iron contained in the waters and transfers it directly to the circulation.

That Dr. Cheyne's opinion that the waters contain a larger portion of iron than is manifest to the senses, or discovered by experiment, is correct, the following experiments will prove:— If you fill a large bath in a close room and pass through it, the taste of iron is quite perceptible in the respired steam; and if a cloth be steeped in tincture of galls, dried and placed in the bath, it will not discolor, but if it be suspended immediately over the water, it speedily becomes black; thus we draw the inference that, during the bath, the lungs inhale the ferruginous particles.

The mode of employing the thermal treatment will depend upon the circumstances of the individual case. The period, also, during which it is to be persevered in, can only be regulated by the practitioner in attendance. Thus, in some cases, bathing only will be prescribed; in others, the douche will be alternated with the bath; in some, drinking will accompany the endermic employment; and in others, certain adjuvants both externally and internally may be used.

I have seen so many hundreds of instances, even in severe cases, where the Bath waters of themselves have produced so much benefit, that I should feel disposed, in all ordinary uncomplicated cases to accord to them a full trial. It, however, sometimes becomes our duty, when mobility of joints is in danger of becoming altogether impeded, to employ the resources of the medical art in the same way as we should do were we at a distance from the springs, in order that our patients may derive the benefits of all the means which experience justifies us in using.

The drinking of the Bath waters in simple cases, with a mild aperient pill occasionally administered, will fulfil all the indications we desire, when accompanied by a steady course of bathing. We, however, occasionally see cases in which severe erratic pains occur at night, preventing the sleep of the patient, in which the iodide of potassium in combination with bathing, affords great relief. These cases present no swelling: occasionally they attack the bones and nerves, and, in many, seem to be rheumatism of the vascular apparatus. In these cases a course both of the iodide and of the Bath waters, separately employed, fail to cure, when their combination speedily restores to health.

The endermic application of a saturated

tincture of iodine is of the utmost value in combination with the bath for the reduction of enlarged joints. This tincture should be applied in the morning of the day succeeding the bath, not on the day in which the bath is employed. The benefits derivable from this plan are very great, and tumefied joints are speedily reduced in size by their united agency.

The galvanic bath, with the application of electro-magnetism on the alternate days, has, in many cases, been a most useful adjuvant; and I have seen great power imparted to almost motionless limbs by its careful employment.

In concluding this Chapter, I may observe that the Bath waters fulfil all our indications. It is desirable that they should be employed as early after the acute stage as possible, because when immobility of joints has been allowed to continue for any length of time, the case admits but of partial relief: but in all cases that I have seen, in which no organic mischief was present, although, from the severity and long-continuance of the disease, the patient derived but little advantage from their use, as far as the special complaint was concerned; I never knew a single instance in which the general health was not improved in every respect, and many patients have written me to say that they enjoyed better health, and greater immunity from active attacks,—the result of the thermal treatment,

—than they could possibly have anticipated prior to their employment.

In all cases where the heart has not been involved, and where no metastasis has occurred, the patient being in good general health, a trial of the Bath waters should be recommended before the disease assumes a form which renders the implicated joints incapable of motion.

CHAPTER XI.

CEREBRAL AND SPINAL PALSIES.

HEMIPLEGIA.

I HAVE now to point out the benefits derivable from the thermal treatment in paralysis dependent upon organic lesions of the brain and spinal marrow, in which the loss of nervous and muscular power is more or less complete.

There are varieties of hemiplegia. In some there is loss of voluntary motion and sensation; in others sensation remains perfect: in some there is undue sensibility with extreme pain, without perfect voluntary motion; while in others we have spasmodic contractions of the fingers upon the palm—cases which are less under the control of the thermal treatment than the other varieties.

A good diagnostic mark between cerebral and spinal palsies is, that, in the former, the spasm amounts to permanent rigidity, in the latter, occasional exacerbations occur, while both are distinguished from local and mineral palsies by the flacidity which attends upon the latter variety.

In hemiplegia, too, there is a great distinction to be drawn at the outset of the case. It may depend upon excitement and plethora, when

veni-section and antiphlogistics are absolutely necessary, or upon diminished arterial action, when ammonia and stimulants are required. It frequently occurs as the sequela of an apoplectic fit, and, as frequently, is gradual in its approach, several days elapsing before complete loss of power occurs, so that it is necessary to be very careful in our diagnosis before we adopt any active measures. Upon our judgment alone the safety of the patient rests, and before we proceed to abstract blood, it is necessary to enquire into the circumstances preceding the attack.

The practitioner is sent for in a hurry to a patient in an apoplectic fit. It is right that he should understand that opposite causes produce similar effects,—that debility and excitement in persons predisposed to apoplexy will both produce hemiplegia. Of this, during my residence in the Bath Hospital, I had abundant proof. I was frequently called to visit patients attacked with secondary apoplexy, which term I use to express an attack occurring subsequently to the accession of hemiplegia: in some I was required to bleed freely, and to apply strong antiphlogistic measures; in others it was necessary to employ stimulants and sinapisms; yet in both, insensibility was perfect, and the only indication for the guidance of treatment was the state of the pulse and breathing.

Hysteria will frequently simulate hemiplegia, in which case we have nothing to guide us but the previous history of the patient; and here the converging of the pupils of the eyes towards the nose will afford a good diagnostic mark as to the nature of the fit.

Chorea in young women not unfrequently produces partial hemiplegia. Of this I have seen two remarkable cases: in both, the left arm and hand were affected; in both, I observed involuntary twitchings of the sound hand, for when I directed any attempt at motion of the palsied member, the right hand seemed, unconsciously to the patient, to be endeavouring to assist it; and though both patients had been previously treated for a cerebral affection, I was enabled, by this one diagnostic mark, to pronounce upon the true nature of the case, and both perfectly recovered by the thermal treatment.

Tight lacing is a common cause of hemiplegia in young women. Of this I have seen several cases, two of which were fatal.

But I am forgetting my subject, which is, how far are the Bath waters useful in cases of hemiplegia? I must candidly acknowledge that, as far as the special complaint is concerned, where loss of power has gone to a great extent, where the arm and leg remain below the natural temperature, where the hand remains clenched

upon the palm, and the foot, dragging along the ground, moves forward solely by the strength of the sound limb, the intellect at the same time being blunted, memory deficient, articulation and deglutition difficult, but little or no benefit accrues; at the same time it must be admitted that a carefully conducted course of the waters will materially benefit the general health, restore the appetite, and improve the secretions, and do all that can be expected from any plan of treatment, namely, render life more tolerable, and afford the satisfaction to the poor afflicted invalid that every means has been employed for his relief. These are melancholy cases: patients hearing of the great success of these waters in the cure and relief of paralytic cases, do not inquire whether their particular disorder comes within the category of cases relievable, but come to Bath buoyed up with the hope of a cure, and returning home disappointed, bring discredit upon the waters in those cases in which they are especially applicable. It is this that has caused me in this treatise to separate as far as possible diseases which, under the name of palsies, have been confounded together, although differing greatly in their causes and progress; and equally so in their applicability for the Bath thermal treatment.

The cases of hemiplegia relievable by the Bath waters are those in which the disease has

been gradual in its accession and progress, those, in fact, which are not immediately preceded by a distinct apoplectic seizure. In these cases we see a gradual loss of power taking place, and then a gradual attempt at recovery; in some the lower extremity entirely recovers, in others the upper—or both may begin gradually to improve. In these cases the thermal treatment carefully conducted, produces very beneficial effects, and gradually but surely effects a great improvement, not only in the general health but also in the power over the limbs.

The state of the patient's general health will afford us a guide in our selection of cases for the thermal treatment. I am most desirous that I should be fully understood that I have endeavoured to speak of the waters as an article of the *Materia Medica*, only to be employed in cases where they are indicated, and where their use fulfils some object necessary for the patient's relief,—in fine, where the circulation is steady and regular below the natural standard—where the brain betrays no symptom of undue excitement—where the digestive organs are sluggish, and assimilation badly performed from functional derangement—where partial immobility still exists, although motion is observed progressively to improve, and the patient requires change of air and scene, the thermal springs of Bath, judiciously superintended, will supply a means

of relief which it is the practitioner's duty to advise, and which may produce incalculable benefit.

In these diseases, we have to consider two effects : first, loss of general health ; and, secondly, loss of power. The latter is more or less complete, and the health is more or less affected. The Bath waters possess great power in strengthening the system, and by this means afford all the relief they are capable of to the special disease. Unfortunately, these cases do not resort to the springs until immobility, whether complete or partial, is firmly established. What, then, is to be done ? The state of general health is our first object, and we direct all our remedial means to its re-establishment, hoping that the limbs may recover their power as the general health improves.

It will be seen by these observations that the stimulating effects of a thermal chalybeate spring require to be closely watched, lest cerebral excitement should be re-induced by their employment. Thus the practitioner will be cautious in his employment of the baths, and trust more to the internal exhibition of the waters, with the douche bath once or twice a week to the palsied side.

Sometimes the waters accelerate the circulation, and symptoms of cerebral excitement come on. In these cases the application of a blister

to the neck, or sinapisms on alternate days, afford speedy relief, and where our object is to relieve the brain without great loss of blood, leeches, varying in number according to the exigencies of the case, may be applied behind the ears, the relief produced by them being very great and immediate.

Should this acceleration of circulation, and undue excitement of brain continue, it is better to suspend altogether the thermal treatment than to hold out hopes of improvement which may never be realized.

The adjuvant remedies in these cases are few. Friction with passive motion of the upper extremity, walking exercise where it can be indulged in, and the application of the galvanic hand-bath of a moderate degree of power, are the most likely to be useful.

The Bath waters alone act better than when they are combined with other treatment, and it is but justice to our patients to give them a fair trial in all cases where their use is not contra-indicated.

PARAPLEGIA.

It must be observed that ideopathic paraplegia is of comparatively rare occurrence, excepting in those cases which we can clearly refer to the direct application of cold to the extremities of the nerves of the feet. These have been

already described in Chapter VI.; they are referred to here merely to point out the value of a correct diagnosis as a guide to practice in cases of slow progress from perfect motion to complete loss of power.

True paraplegia presents the following marks by which it may be distinguished from all other diseases: loss of voluntary muscular power, with severe spasmodic twitchings of the limbs, usually both at the same time; loss of control over the sphincter muscles, with priapismus sine cupidine: the pulse, also, is very peculiar, it is thready, jerking, sometimes irregular, and at others intermittent; and the pupils of the eyes are contracted.

These symptoms indicate spinal lesion, either the result of irritation and inflammation, or of direct violence to the spine itself.

It were well if the results of the ordinary modes of treatment were collected together, in order that we might compare them. My own experience of chronic cases convinces me that the usual modes of treatment fail altogether. I am very much inclined to the belief that they are too violent, too heroic, and that inflammatory conditions of the spinal cord and its membranes should be treated upon general rather than upon specific principles. I am perfectly satisfied, from an inspection of numerous relations of cases which intelligent patients have written for me,

that moxas, issues, and setons rarely, if ever, produce any benefit, and that the mercurial treatment adds to, rather than diminishes, the paralytic condition.

These are decidedly the most melancholy cases sent to Bath; the patient with his intelligence perfect, remains for life a burden upon his attendants, the relaxation of the sphincters renders the case peculiarly troublesome and offensive, and the thermal treatment rarely produces benefit.

Far be it from me to say that the waters do not produce great benefit and frequently a cure in cases of paraplegia, such as I have enumerated under the head of local and mineral palsies, the difficulty is to diagnosticate between the two affections.

Where paraplegia occurs in women we frequently find it to depend upon hysteria, and before we proceed with active depletory treatment, it were well to ascertain whether it depends upon structural lesion of the cord and its membranes, or upon functional derangement of the uterine system.

CHAPTER XII.

DISEASES IN WHICH THE BATH WATERS ARE OCCASIONALLY
BENEFICIAL WHEN OTHER MEANS HAVE FAILED.

DIABETES.

DURING my seven years residence at the Hospital, I saw six cases of this formidable disease subjected to the thermal treatment; the results were, that one was cured, two greatly relieved, and three derived no benefit whatever.

In the cured case, the patient had laboured under the disease seven months; he drank the waters and bathed thirty-five times; he was taken under treatment on the 18th January, and discharged on the 24th April. The specific gravity of the urine was taken twice a day; on admission, about twelve pints were voided at 1010 degrees; the quantity continued steadily to decrease and the gravity increased; on the 30th March copious perspiration succeeded the bath, and the specific gravity on the next morning was 1025; on the 10th of April a remarkable fluctuation took place, the urine voided at 6 o'clock p.m. was 1005, and that passed twelve hours afterwards was 1030, five pints only being passed: on the 12th the quantity decreased to two pints; on the 13th

the bath having caused faintness was discontinued, and the cure was complete. No sugar was detected in the urine in this case. The diet was that of an ordinary patient, with the exception of a mutton chop on broth days.

MARASMUS.

There can be no doubt that the internal exhibition of the Bath waters produces decided benefit in children labouring under chronic diseases of the mesenteric glands, and other symptoms of strumous diathesis, where there is a general cachectic appearance, loss of appetite, and imperfect assimilation and digestion. Indeed in these cases they fulfil all the indications expected from tonics, and combine at the same time an alterative plan of treatment, a rose douche being applied to the spine twice a week, and a small glass of the waters exhibited twice a day for the period of a month or six weeks, according to the exigencies of the case.

CRITICAL PERIODS.

The Bath waters are extremely useful at both periods of uterine life. Immediately prior to the establishment of the periodic secretion, they invigorate the system and cause it to be more prepared for the coming change; in delicate young women, by altering the cha-

racter and consistence of the circulating fluid, improving the general tone of the whole nervous system, and increasing the appetite, they convert the pallid hue of weakness into the fresh color of health, and frequently prevent debility from terminating in consumption. At the advanced period, they enable the system to throw off the tendency to disordered function in the various organs, which not unfrequently attends upon the cessation of the catamenia, and by invigorating the general health, enable it to combat the disposition to disease.

CHAPTER XIII.

HERMO-GALVANISM ; OR GALVANISM WHEN USED IN CONJUNCTION
WITH THE BATH WATERS.

I HAVE had frequent occasion, in the foregoing pages, to speak of the benefits derived from a combination of galvanism with the thermal treatment, more particularly in local and mineral palsies, and some cases of rheumatism.

I have seen many cases in which galvanism alone, and the Bath waters alone, have been employed without much apparent benefit; but these cases have rapidly recovered when both agents have been employed together. In fact, every case in which electricity is likely to be beneficial, is one which will improve under a concurrent course of the Bath waters.

My attention was directed to this plan by Mr. Tylee, medical electrician, of this city, who has written a work upon the subject.*

Many of the cases treated by Mr. Tylee I have either seen or attended during the period of the thermo-galvanic treatment. Upon his plan, the bath is made to form a portion of the

* Practical Observations on Galvanism, Electricity, and Electro-Magnetism, as employed in the cure of disease, with remarks on the advantages of their application through the medium of Baths, containing full directions relative to the choice and management of apparatus. By John Palmer Tylee. Bath, 1848.

electrical circuit; the patient being placed therein, a copper wire brush, connected with the positive pole of the battery, is approximated by an attendant to the parts affected, and the intensity of the current is regulated by the proximity of the brush.

“There is no place in the universe,” says Mr. Tylee, “so well adapted for the advantageous administration of galvanism as Bath. The curative properties of our waters have been celebrated from time immemorial; the astonishing and unvarying supply of the springs—the elegance and convenience of the baths, fitted with every accommodation that the most fastidious can require—render them superior to any others in the world. And the novel method I have adopted of passing the current through the warm baths, must, I think, give the preference to the water medium for its application, and for the following especial reasons:—First, because it differs from the usual mode, in not producing violent and oft-repeated shocks. In the water its flow is continuous, and is a current rather than a shock. While the dry electro-galvanism influences more particularly the courses of the principal nerves and their primary branches, the water medium enables us to apply this powerful agent to the more sentient extremities, so that the minutest fibres of a muscle or set of muscles are brought into a

pleasurable action, rather than a spasmodic one. By means of a portable disc, we are enabled to produce this effect at will, to regulate the intensity of the current, and by its modification to apply it to any distinct set of muscles, without implicating those which are unaffected by disease, which is not the case with dry electro-magnetism. I conceive its application to be most useful in the various cases in which the lumbar muscles, or those of an entire limb, are deficient in nervous power or energy. It must be remembered that natural and artificial warm baths are means of cure in almost every case in which the application of electro-galvanism is required, so that by its combination with the warm bath, we are using two agents in a useful and not unpleasant manner."

The advantages derivable from this plan of treatment I have repeatedly seen. They are obvious when we consider that, in the water medium, the electric current is diffused over a larger portion of surface—that a succession of severe shocks is not produced—that a larger number of minute nerves are called into action without painful feelings—and that we are enabled to transfer the current to every portion of the body at will. Thus we can produce all the good effects of galvanism in a warm and invigorating medium, itself one of the means of cure; and the poor suffering paralytic, who

is ordered to have his spine galvanized, is not compelled to sit shivering half naked in a chair, but getting into the thermal water, he enjoys the grateful feeling of the bath with the agreeable return of sensation in the affected limbs, produced by a duly regulated electric current. He enters the bath dispirited with his helpless condition; he leaves it with renewed feelings of vigour: a perspiration which invigorates, rather than reduces, breaks out upon his brow, his appetite becomes keen, his strength improves, and he gradually throws off the debilitating disease.

I am not speaking from theory, such as induced Mr. Tylee to believe that this combination of powerful remedies would be efficacious in the removal of severe functional disease, but, judging from facts which daily fall under my notice, I have no hesitation in saying, that I have seen surprising cures effected by thermo-galvanism in diseases attended by loss of muscular power without cerebral mischief—in other words, where loss of power depends upon depressed nervous energy, and not upon arterial excitement acting upon the nervous centres, or upon venous congestion. In the cases which I have submitted to the thermogalvanic treatment, I have usually directed Mr. Tylee to apply the galvanic bath three times a week, and on the alternate days the electro-

magnetic battery, either dry or by the immersion of the affected limbs in a zinc pail or pot connected with the negative pole of the battery. By the ordinary mode of proceeding, patients are directed to grasp the brass handles of the wires attached to the opposite poles, by which means the flexor muscles are called into violent spasmodic action, whereas, in the majority of cases, the loss of power is confined entirely to the extensors.

The strongest power in the air medium is the weakest in the water; and electro-magnetism does not decompose the Bath waters, which retain their integrity throughout the operation.

CHAPTER XIV.

CONCLUSION.

I have now brought this treatise to an end, and have only to add that a course of Bath waters requires to be entered upon with confidence, and to be conducted with caution. I have endeavoured in the foregoing pages calmly to inquire into their efficacy in the various diseases in which they are more generally recommended. I have shown that functional and not structural diseases are those most likely to be benefitted, and that an absence of inflammatory action or arterial excitement is essential to their safe employment.

The medical officers of the Bath Mineral Water Hospital possess an advantage which private practitioners cannot have. Each case must be reported by the medical attendant at home, and its suitability for thermal treatment is decided on in the absence of the patient by the medical board of the hospital, who reject all those that appear to be improper, or apply for further information where the case is obscure. In private practice, on the other hand, patients arrive, and frequently commence the use of the waters by the advice of their own medical attendant re-

siding at a distance from the springs. These cases seldom do well, and the waters receive discredit, when a proper course, judiciously superintended, would be attended with advantage.

I hold it to be our duty in this city to give every suitable case a fair trial; and where the waters are inapplicable, to give the patient the option of returning home. It were well, indeed, if practitioners at a distance would take the opinion of a medical friend on the spot, prior to putting an invalid to the expense of a fruitless journey to Bath, of which I have seen many melancholy instances.

In concluding a treatise on the waters of Bath, I think a few observations upon the advantages of the city as a residence may not be unacceptable to my readers.

First of all, the position of Bath, in an extensive valley, through which a river above the tidal influence constantly flows, preserves a current of air, which removes all tendency to unhealthy exhalations, even in her lowest situations; for which reason the city is singularly free from febrile and other diseases which, in various other localities, rage epidemically at particular seasons.

Its geological position is also favourable to health: ascending from the lias through the oolitic series, the porosity of her soil speedily imbibes the superabundant moisture, which,

from the gradual descent of the neighbouring hills to the river, is carried away in a few hours: thus, it possesses the three essential requisites of life—good air, good water, and a soil singularly healthy.

With regard to climate, Bath has, from observations continued for many years, been found to be on an average five degrees of Fahrenheit's thermometer warmer than any inland town in England during the winter months; but, although this be the case with the city in its limited sense, the extent of its suburbs, ascending, as they do, the hills in every direction, and proceeding along the sheltered valleys, offers for selection a variety of climate and aspect, by which all the advantages of a number of places, usually recommended for a residence, are combined with the comforts and economy which attend the vicinity of a wealthy and populous city.

It has been attempted to be shewn that the highly-favourable position of Bath, in reference to the mortality of the empire, and the great age attained by many who die in her sheltered vale, arises from the number of elderly persons who are, to use the popular phrase, "sent to die there." This is a fallacy: for many in the very meridian of their days retire thither from the more active duties of life, to pass, in dignified retirement and the active exercise of

benevolence, the years allotted for their earthly pilgrimage.

Another variety of climate is frequently perceived, arising from the prevalence of westerly winds, these being impregnated with saline particles from the Atlantic ocean, diffuse health and spirits to all within range of their influence; and here, I may remark, that the fertility of Ireland and the West of England is to be attributed, in a great measure, to the prevalence of these westerly winds.

The more populous parts of the city have a southern aspect, descending from Lansdown to the banks of the Avon; with a prevailing westerly breeze, the river has an under-current of air proceeding from the eastward; thus combined causes are constantly in action to purify the city.

The various natural advantages which this city presents, in comparison with others, might be dilated upon until my readers were weary of the subject; but one great beauty must be noticed. From the variety presented by the environs of the city, we can always choose an interesting and healthy walk: the hills, the vales, and the pretty sequestered villages, with their varied views, exceed in picturesqueness and subdued grandeur those presented by any other celebrated locality in England.

Bath presents great advantages in reference

to comfort and economy. The Great Western Railway has made it almost a suburb of London, and, by its various branches, brought it within an easy distance of the watering-places on the South Coast; besides which, it has a direct railway communication with the North of England, Scotland, and Wales; whilst the steam navigation between Bristol and Ireland is increasing in efficiency and importance every day. Its houses are not the mere lath-and-plaster erections of yesterday, run up to last out a building lease, but are substantial residences of freestone. Erected without regard to expense, when Bath was the chosen city of gaiety and fashion, they astonish the stranger with their magnificence and comfort; no meretricious ornament is obtruded on our notice: their quiet air of gentility and moderate rental are their best recommendation.

No city in the kingdom has a better or cheaper market than Bath. Its railway communication with the coast supplies it with a profusion of fresh fish of all kinds; poultry of every variety is raised in the neighbourhood, and also brought direct from Ireland; and the pasture lands of Gloucester, Somerset, and Wiltshire, produce a constant supply of meat of the first quality and breed. Nor is it alone in the article of food that Bath is an economical residence. Proximity to the Somersetshire coal fields re-

duces the price of fuel one-third, when compared with the metropolis and other inland towns.

As a place of education, it is unrivalled; professors of celebrity have always made it their residence; and a well endowed grammar school, proprietary colleges—Church of England and Dissenting, and various private scholastic establishments of the highest class, are among its advantages.

It has always been considered the cradle of musical talent, an accomplishment cultivated with great care both in public and in the very agreeable *re-unions* of private society, which are distinguished by an ease and urbanity unknown in other places frequented for the season of a mere temporary sojourn.

The Horticultural Fetes form one of the special features of Bath summer amusements. They are generally acknowledged as superior to any in the provinces, and are attended by growers and exhibitors from all parts.

Its theatre, too, is the most elegant out of London, and not only do the “stars” visit Bath more, perhaps, than any other provincial theatre, but the dramatic company is generally one worthy of an intellectual and critical audience.

To dilate upon the amusements which are provided for rank and fashion, and for which Bath has been so long celebrated, would be to repeat a twice-told tale. The expenses of the

assemblies and other fashionable amusements are so moderate, as to be within the reach of these who have but a very limited income.

In rides and drives Bath is also pre-eminent. The Victoria Park was laid out with an earnest desire that while the beautiful was carefully cultivated, the useful should have its share of attention, so that it has in a few years become both a fashionable and health-improving promenade; connected by means of the Freeman's estate with the heights of Sion Hill and Lansdown, it combines every variety of town and country walk, with views of the rich undulating country which lies between Bath and Bristol.

Bathwick has its Cleveland Walk, from which a most beautiful view of the city is to be obtained; while the Sydney Gardens form a delightful promenade, combining both privacy and comfort.

I refrain from enumerating other advantages, lest my readers should think I have a personal motive for my panegyric; but I do not think my work upon the Bath waters would be complete unless I made some allusions to the advantages presented to those who, being obliged to accompany invalids for protracted residence, require amusement and intellectual society for themselves, and the advantages of a good and cheap education for their children.

TABLE OF THE MODERN QUANTITATIVE ANALYSES OF THE BATH WATERS.
 KING'S BATH SPRING—TEMPERATURE, 115°, SPECIFIC GRAVITY, 1.0025.

INGREDIENTS IN THE IMPERIAL GALLON.	PHILLIPS. 1806.	SCUDAMORE 1820.	WALCKER. 1829.	HERAPATH. 1836.	NOAD. 1844.	MERCK AND GALLOWAY. 1848.
Carbonate of Lime	7.680	5.280	10.667	8.152	.. ..	8.820
Carbonate of Magnesia .....	.. ..	.. ..	.. ..	trace.	.. ..	0.329
Carbonate of Soda .....	.. ..	.. ..	.. ..	.. ..	5.760	.. ..
Carbonate of Oxide of Iron ..	0.274	0.200	0.243	0.240	0.521	1.071
Sulphate of Lime	86.400	98.320	81.624	90.480	96.240	80.052
Sulphate of Potassa .....	.. ..	.. ..	2.927	.. ..	.. ..	4.641
Sulphate of Soda	14.400	1.520	19.371	10.672	.. ..	19.229
Sulphate of Magnesia .....	.. ..	.. ..	.. ..	7.456	.. ..	.. ..
Chloride of Sodium	31.680	12.240	15.122	16.848	27.456	12.642
Chloride of Magnesium .....	.. ..	15.360	13.339	5.976	7.142	14.581
Alumina .....	.. ..	.. ..	.150	.. ..	.. ..	.. ..
Silicia Acid	1.960	1.920	3.233	1.760	3.360	2.982
	142.394	134.840	146.676	141.584	140.479	144.018
Carbonic Acid in cubic inches	11.52		7.60			26.45

Microscopic Examination of the Sediment from the King's Bath, by Professor Quekett, F.R.C.S.

“I FOUND the sides of the bath covered with an ochreous or rust-like sediment and a large quantity of fine sand was brought up by the water and deposited in a reservoir, into which the springs open, about four feet below the surface. In a specimen, I noticed fragments of wood, seeds, nutshells, and minute portions of charcoal. Some of the shells were covered with a well-marked coating of iron pyrites, whilst many pieces of the wood appeared to be pyritic throughout; others were quite black and firm like bog oak; a few fragments were as black and as brittle as charcoal. I submitted samples of the water, sediment, and sand to a microscopic examination, with the following results:—The water contained no trace of animal or vegetable life, but in the ochreous sediment I recognized specimens of a recent *navicula*: the sediment itself consisted principally of granules of two kinds, one very minute, of a brown colour, formed the greater portion, the other was larger and more transparent, evidently siliceous, probably arising from minute particles of sand suspended in the water. The sand consisted of nearly equal sized grains of very transparent silex, mixed with vegetable remains, easily recognised by their black colour, and of a few rather larger grains which were semi-opaque; when acted on by boiling nitric acid, a copious effervescence took place, the semi-opaque grains, most probably calcareous, disappeared, leaving the silex unaltered; by continuous boiling the woody matter was also destroyed, leaving a sand remarkable for its transparency and brilliancy. Many of the vegetable fragments were more than half an inch square, and those most free from pyrites exhibited their structure well; I was enabled by section to recognise the oak and hazel. the presence of the latter was to be expected, as portions of nutshells were not only numerous, but the best to exhibit structure; most of these fragments abounded in pyrites, and an inky taste was very perceptible when they were applied to the tongue. The seeds were not numerous, but were coated with pyrites, looking as if they were bronzed; they were of two kinds, one smooth like a grain of wheat, the other streaked like the carraway; when I inspected the sand and vegetable remains, I was reminded of what I had seen in the peat bogs in another part of Somerset, and I hazard the opinion, that the water in its course passes through a stratum of peat, that from it the sand and some of the vegetable remains are derived, and that a portion of the heat of the water might be due to the action of that agent upon pyrites.”

APPENDIX.

THE BATH MINERAL WATER HOSPITAL.

THIS National Charity is a Corporation founded by Act of Parliament in 1739, managed by a President and Governors, the Medical Staff consisting of Three Physicians, Three Surgeons, and a resident Medical Officer. It was opened in 1742. No Subscriber's recommendation is required, the Hospital having been founded expressly for those who were unable to avail themselves of the use of the Bath waters without charitable assistance, no others being admitted.

Those only are admissible whose diseases are deemed capable of being benefitted by the Bath Waters, and which are—palsy, gout, rheumatism; certain nervous derangements, in which the brain is not materially affected, among which St. Vitus's dance may be particularly noticed; leprosy, and other chronic diseases of the skin; dropped hands from lead, poisonous effects of mercury or other minerals; pain, weakness, or contraction of limbs; dyspeptic complaints, biliary and visceral obstructions, &c.

It should also be particularly noticed, that when these complaints are accompanied with pain of the chest, cough, or spitting of blood; palpitation or other disturbance of the heart; evidence of too great a determination of blood to the head; acute inflammation in any part, or general fever; abscess, suppuration of the joints, or ulcer of any kind; or if epileptic fits have occurred; the waters are

not applicable. And in cases of apoplectic palsy, it is deemed necessary that six months shall elapse after the attack before the patients are admissible.

The eligibility of each case can be ascertained only by such circumstantial report as may enable the physicians and surgeons of the hospital to determine how far the patient is likely to derive benefit by the use of the Bath Waters; for which reason the report of each case must contain—

1. The name, age, and parish of the applicant.
2. A brief history of the disease, comprising its origin, date, progress, and present symptoms, mentioning the parts principally affected, and to what extent.
3. A correct representation of the state of general health, particularly certifying the absence of all disorders which render the Bath Waters inapplicable, as above enumerated.

A blank form for making the report may be obtained of the Registrar, when practicable, such statement should be made by a medical man acquainted with the case, and sent to the Registrar, who will submit it to the medical board, who meet weekly.

Accuracy of reports is important; for when, from defective or erroneous statements, improper cases are sent to Bath, they are immediately returned, to the great inconvenience of patients; and, when sent from a distance, with considerable expense.

In a few days notice will be given to the party applying, whether the application will be admitted or rejected.

If admitted, the letter to that effect will be accompanied by a blank certificate, relating to the parish settlement and poverty of the patient, to be signed by the minister, churchwardens, and overseers of the parish to which the patient belongs; but the patient is enjoined to remain at the usual place of residence until notice is received that a vacancy has occurred.

On receipt of the notice of vacancy, the patient should proceed, without delay, to the Hospital, bringing the letters of notice, and the certificate duly executed, as well as the caution-money, which is three pounds for patients coming from any part of England or Wales, or five pounds for those from Scotland or Ireland.

The object of the caution-money is to ensure the means of returning patients to their respective homes, when discharged from the Hospital; or to defray the costs of interment, in the event of death. When not required for these purposes, or for supplies of necessary clothing, when this is greatly deficient, the whole of the caution-money is returned to the party who provided it.

Soldiers may, instead of parish certificates, bring certificates from the officers commanding their respective corps, acknowledging them to belong to such corps, and agreeing to receive them back when discharged, in whatever state of health they may be. The same regulation applies to pensioners of Chelsea and Greenwich. With respect to all these, however, reports are to be transmitted, and caution-money provided, as in ordinary cases.

The facility of railway communication and the increasing repute of the Bath waters, of late years, have so augmented the number of applicants, that the Hospital could not accommodate them; the governors determined, therefore, to enlarge the building by adding a new wing, to contain separate day-rooms for each sex, a chapel, board-room, dispensary, and other offices and rooms, and effecting other improvements, in accordance with the requirements of sanitary science; besides increasing the number of beds, which at present amount to 132. Attached to the new building there will also be an exercising ground, with cloisters, thus ensuring the patient fresh air in all weathers (when desirable). The estimated cost of these improvements is £13,000, besides £5,000 paid for the site and old buildings thereon. Towards this

amount only £10,350 has yet been raised, but looking to the increased benefits the Hospital would thereby afford, and the national character of the institution, the governors rely upon the contributions of the charitable to supply the deficiency, as well as the annual expenditure, which is even now dependant (beyond its permanent income) upon annual benefactors to the extent of £1,070, and which will of course be increased when the number of patients is larger. As a proof of the benefits already afforded, the Hospital has, since its opening, received upwards of *thirty-nine thousand* persons; most of them being cases on whom other methods of cure had been tried in vain. Of these, 11,535 have been cured, and 19,293 relieved. The number received last year was 531, and under the improved arrangements, when the new buildings are finished, it is anticipated that nearly double that number will be passed through each year.

The Governors wish to impress on parishes, that as this Hospital admits patients from all parts of the kingdom, and is continually the means of relieving parishes from expense in the maintenance of paupers, it has a claim to parochial subscriptions (which are sanctioned by Act of Parliament) wherever its benefits are extended. Those persons who have the management of parochial affairs will, therefore, it is hoped, see the propriety of contributing somewhat to its support, and thus assist in enabling it to continue the widely-extended relief which it has afforded to the suffering poor of the kingdom for upwards of a century.

BELLOTT'S HOSPITAL.

THIS Hospital was founded in the reign of King James the First, for the relief, lodging, and harbouring of poor men, being diseased (but not infected with any contagious disease), who should resort to Bath, for the benefit of the

waters. It is open from Lady Day to Michaelmas. Not more than twelve can be lodged at one time, and the period of each person's stay is limited to twenty-eight days, unless (upon the certificate of the medical officer that a longer residence would be beneficial to the patient) the trustees should see fit to grant an extension of the time. Fourpence a day is allowed to each patient during the time he remains in the Hospital.

Applications for admission must be addressed to the Secretary, Mr. Fisher, 3, Union Street, Bath, accompanied by a certificate, similar to the one required at the Bath Mineral Water Hospital. The caution-money required to be deposited is One Pound.

THE CITY BATHS AND PUMP ROOMS.

THE City Baths and Pump Rooms are the property of the Corporation, who have recently made extensive improvements, with a view to render the Hot Mineral Springs more generally available.

THE KING'S AND QUEEN'S BATHS

Are attached the the Grand Pump Room; the Baths on the ground floor are one shilling and sixpence, with dressing rooms and every accommodation; on the basement floor, sixpence, and one shilling.

THE ROYAL BATHS,

To which is attached the Hetling Pump Room, have a Tepid Swimming Bath, the charge for which, with the use of a public dressing room, is sixpence; or with private dressing room, one shilling. The Private Baths are one shilling and sixpence and two shillings; all are provided with dressing rooms. Douche, Shower, Vapour, and Medicated Baths, with all the most modern appliances are provided.

THE CROSS BATH

Is provided for the use of the poorer classes, servants, and others. The charge is threepence, with a towel, or twopence if the batlers find their own.

The whole of the Baths are supplied entirely from the Mineral Springs. The temperature of the Private Baths is regulated by means of extensive reservoirs, into which the hot Mineral Water is pumped for the purpose of cooling.

GRAND PUMP ROOM.

At the Grand Pump Room, for drinking the Waters, the Water is supplied from a marble vase, in a continuous stream, at a temperature of 114°; no charge is made for tasting these Waters. The terms for drinking them at either the Grand Pump Room or the Hetling Pump Room are—Per week, 1s. 6d.; per month, 5s.; three months, 10s.; six months, 15s.; per annum, £1.

THE OLD ROMAN BATHS.

THESE Baths are the property of Earl Manvers, and are under the superintendence of the lessee, Mr. Belville Penley. Considerable improvements have lately been made in these ancient Baths, and they are replete with every comfort. The following is a list of the prices:—Warm Bath, with hot linen and attendance, 1s.; douche, 1s.; shower, 1s.; ozonized, 2s.; sulphur, 2s.; vapour, 2s.; hot air, 2s. 6d.; fumigating, 3s. There is a Pump Room attached, where the Waters can be drank at one penny the glass, or by subscription at one shilling per week. Mr. Penley has lately introduced the Mineral Waters in an effervescing form, which, retaining the medicinal properties, enables invalids at a distance to participate in the benefits of these springs.



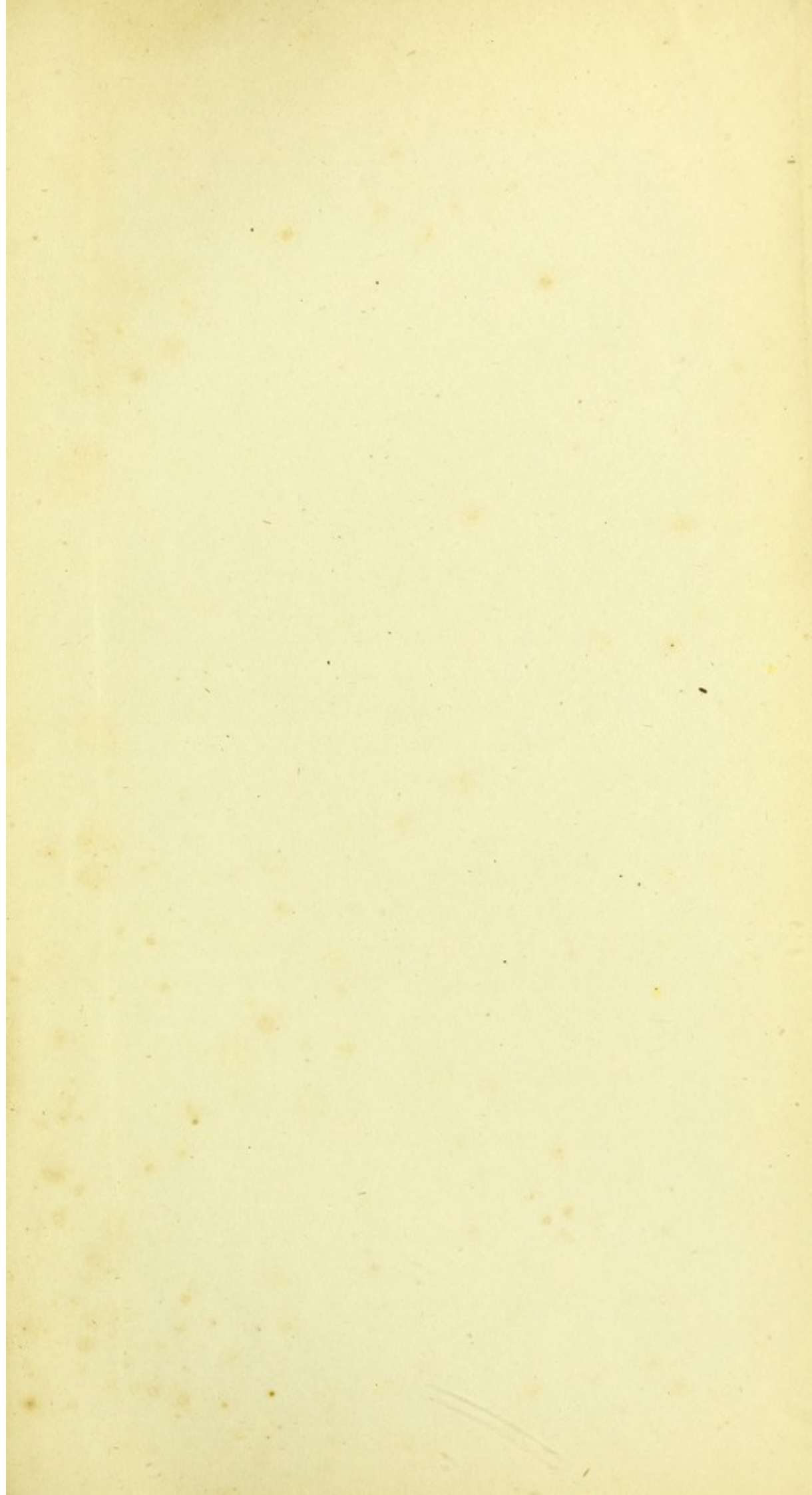
It is provided that the water of the Grand Rapids, current, and
 outlet of the Grand Rapids, in the Grand Rapids, shall be
 pumped to the Grand Rapids, and the water of the Grand Rapids,
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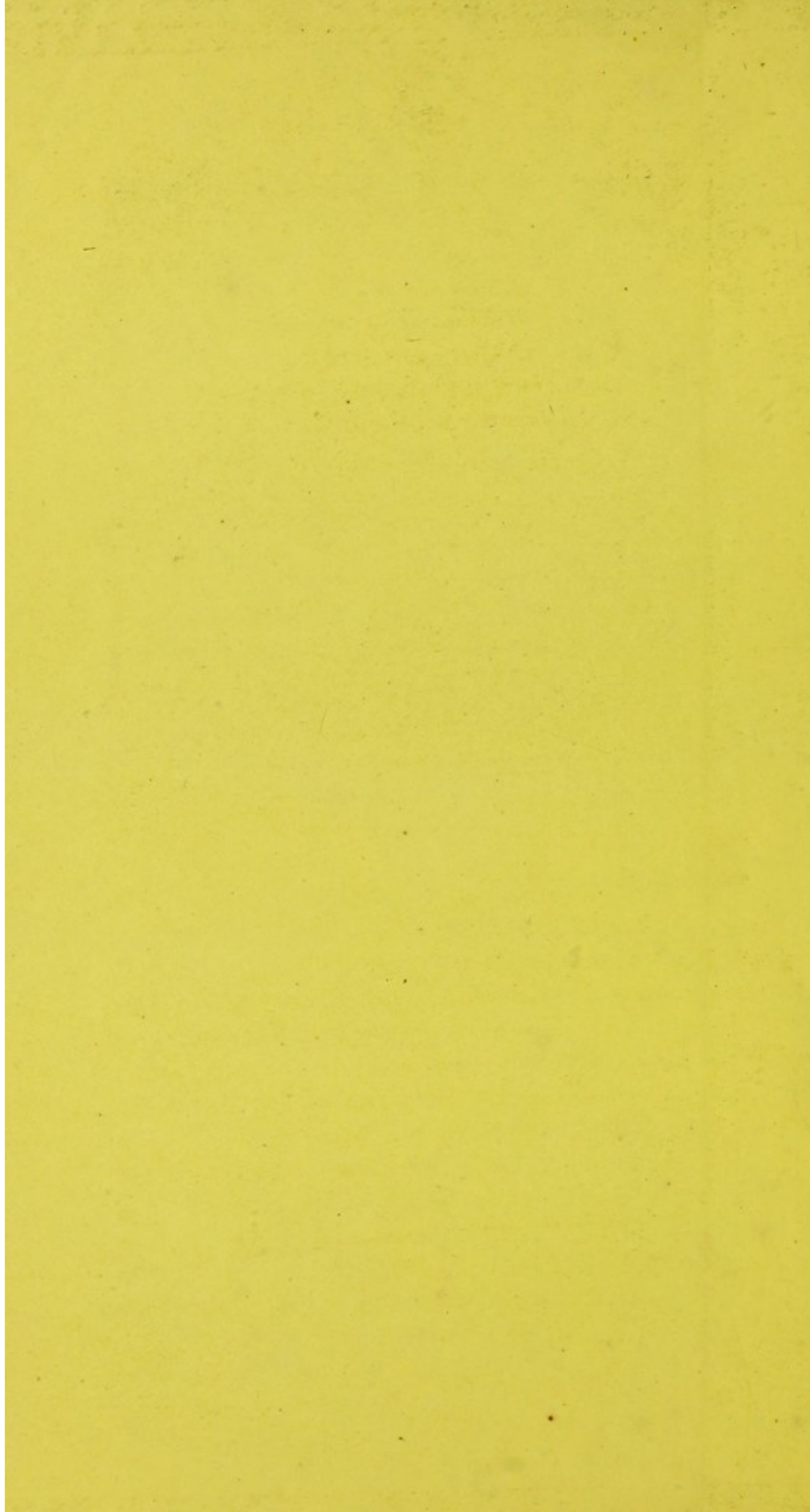
GRAND RAPIDS ROOM

At the Grand Rapids Room, for the purpose of the Grand Rapids,
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