not to be undervalued. Evidence in support of this was obtained by allowing emanation to operate on various parts of the body in the form of compresses and wrappings. This explains the great success often observed on the application of the emanation. Only recently Professor Strassburger of Bonn recorded in the *Münchener Medizinische Wochenschrift* the great success he has obtained, and strongly recommended the application of baths and poultices.

It has been proved beyond doubt from clinical observations in successful cases that cures or considerable improvement, often beginning with a typical reaction, have been observed after drinking radium emanation water. The objection that a part of the emanation enters the lungs and blood by breathing—i.e., that even here inhalation is the effective method—lacks probability at the outset. I have been able to prove, in the case of a dog that had a fistula in the duodenum, that the entire emanation, which was administered in the form of emanation water through a pharyngeal catheter, entered the bowel without any essential loss—i.e., in the same degree of concentration. Also very little emanation was traceable in the faeces. The whole quantity of emanation was therefore absorbed in the bowels and transferred to the tissues. It is traceable indeed in the respiratory air in such cases, and that at a considerable length of time after having been drunk, and even after having been injected into the bowels, during which time it must circulate in the blood. A *dépôt* has been established, so to speak, in the bowels, whence the emanation enters the blood and a pharmacological effect is obtained. The presence of emanation in the blood of those who have drunk emanation water has been successfully demonstrated.

In conclusion, the following experiments which I recently made in the Berlin Pathological Institute ought to be convincing, and to persuade even the sceptical of the extraordinary influence that emanation exercises on the juices of the tissues when taken per os. I injected uric acid crystals into the subcutaneous tissue of rabbits, producing deposits similar to the tophi of those suffering from gout. I administered emanation water through a pharyngeal catheter and a very rapid reabsorption of those deposits took place under the influence of the emanation. Control animals treated with inactive water did not show this rapid result. I studied the effect after 1, 2, 3, and up to 14 days in paraffin sections of the swollen deposits. The differences were very obvious. The changes, by-the-by, were of a similar nature to those found in similar trials at Professor His's clinic. The animals here, however, were in emanatoriums, and the effect of a lengthy stay in the emanatoriums was the same as with my animals after taking every day only one dose of emanation water.

There can therefore be no doubt about the effectiveness of the method in which the emanation water is drunk, and as its application is simpler, cheaper, and more convenient it may, in many instances, be preferable. On the other hand it is not to be disputed that where there exists a possibility of using emanatoriums good results will be obtained. In order to avoid the disadvantages connected with the cost, owing to expensive installation and the apparatus being a fixture and thus preventing many from benefiting from the therapy, I have, in conjunction with Professor Bickel of Berlin and Director Neumann of Kreuznach, constructed a simple inhaler possessing the advantages of being cheap and portable; it is capable of being used by those who are bed-ridden, whilst the therapeutic dose is very exact. If one possesses a Kreuznacher Neumann'schen activator which produces an emanation water of sufficient strength, one can by means of it administer the bath, and supply drink and inhalation cures.

There can be no doubt, according to present views in regard to emanation-therapy, that a combination of all three methods may be desirable in the case of an emanation cure. We allow the patient to take his emanation water two or three times daily, then he takes a lengthy emanation bath, and finally he strengthens the effect by remaining in an emanatorium or by the use of an inhaler. This energetic treatment is applied to patients suffering from general assimilatory diseases, especially in cases of gout. When local disorders are in question poultices are preferred,

as recommended by Strassburger, whereby an extraordinarily intensive effect may be obtained upon a given spot by emanation.

The indications for emanation-therapy have been strengthened by ample experience. The conditions for which the treatment is indicated include gout, chronic rheumatism, sciatica, neuralgia, neuritis, as well as exudates and growths which need energetic means to promote absorption. It is proved by the study of the biological methods of operation that radium emanation especially exerts a very great influence on ferments, such as pancreas-ferment, pepsin, sour-milk fermentation, autolytic ferment, and diastatic ferment. Recently, together with Dr. Wohlgenuth of Berlin, I have succeeded in demonstrating a distinct influence on glycolytic (sugar-destroying) ferment. How far this may be applicable to the group of diseases in connexion with disturbances of sugar secretion we do not attempt to decide, but in any case this result is an interesting addition to the biological effects of this mysterious agent.

Bad Kreuznach.

INSTITUTIONAL HYDROPATHIC TREATMENT AS COMPARED WITH SPA TREATMENT FOR CERTAIN TYPES OF INVALIDS.¹

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AROUND the word "hydropathic" there has always existed a certain amount of opprobrium, from its very initiation, more particularly in the eyes of the profession. At the very beginning of hydropathic treatment in this country so much was claimed for "the cold water cure," which had been made famous by the publication of Captain Claridge's book on Grafenberg, that a certain section of the public became so affected with the craze as to carry the whole matter to extremes. This is often the case with new methods of treatment, not only with the public, but, one regrets to say, with the medical profession. The result was that the entire system was laughed at throughout the country and was caricatured in *Punch* and the other illustrated journals of the day. We have seen much the same happen in the more recent "sour milk craze."

Some large establishments were erected, however, in various parts of the country, such as the Ben Rhydding Hydropathic, where Dr. R. McLeod flourished and made a fortune. Dr. W. C. Gully, the late Speaker's father, achieved some success at Malvern, while under the very eccentric direction of its lay founder—John Smedley—the institution still bearing his name commenced its career of almost uninterrupted prosperity. Another more modest establishment was Dr. Rayner's at St. Anne's Hill, near Cork. These establishments were all more or less seriously conducted as places for treatment. During the past 30 or 40 years, however, there has sprung up all over the country a certain class of establishment—really of the unlicensed hotel or boarding-house type—which has done nothing but perpetuate the prejudice against the word "hydro." While the rates for accommodation are distinctly lower than the average provincial hotel, the accommodation offered is not so good, and no claim is made to offer any real therapeutic facilities to visitors unless change of air and a Turkish bath be so considered.

The introduction of amusements of the frivolous sort in and out of season does little but irritate the seeker of health, whose inner man, moreover, is usually not satisfied but disappointed. There are, indeed, very few establishments in this country which in any way resemble the "kur-anstalten" of Germany—general sanatoriums not admitting consumptives such as Dettweiler's establishments, in which, though hydrotherapy is employed it is combined without reserve with all known and tried therapeutic measures; where, in short, the treatment is eclectic, and so long as the patients are cured, anything furthering that end from psychotherapy to quinine is employed.

¹ A paper read at the annual meeting of the Edinburgh Branch of the British Medical Association on June 24th, 1911.

That there is room, and, indeed, a demand, for establishments of this nature in Great Britain, there can be little doubt. Of course, the financial side has to be carefully considered, and we have probably not been sufficiently educated up to this class of treatment to ensure a *large* establishment for purely and simply health purposes being carried on at a profit. For business purposes guests other than invalids have to be admitted and catered for in an establishment of any pretensions, but provided the serious purpose of the institution is for treatment these people will but help to keep the atmosphere healthy and from being unduly oppressed with invalidism! Moreover, invalids often prefer to have some relative with them, so that a general sanatorium of this description can scarcely be run on the strict disciplinary lines of a consumptive cure place. At Smedley's the proportion of invalids under treatment varies from 50 to 70 per cent., the latter being quite high enough a proportion for the preservation of a cheerful atmosphere in an establishment where the patients are not segregated in wards but mix with one another freely.

There has been a great deal of outcry of late as to the excessive and unnecessary extent to which patients are sent abroad to Aix, to Vichy, or to Plombières, rather than to our own Bath, Harrogate, or Cheltenham. It is pleasant to know that to some extent our own watering-places are gaining a foothold, that municipal enterprise and good management, with adequate capital outlay, are leading to increasing prosperity. Some of them are now afforded an ample patronage, and in the season an embarrassing one. Nevertheless, one cannot help feeling that this patriotism and discrimination exercised in advising patients where to take "the cure" might go a step further. There is no question but that a large section of patients remain chronic invalids at home and do not regain their health at a spa simply because the whole circumstances and *ménage* of a spa are entirely unsuited to them. One is compelled to think that too often, when selecting a "cure" place for a patient, medical men do not take into account with sufficient care the respective physical and mental capacities or incapacities of the patients themselves. Of the mental incapacity I had recently a striking instance. An old gentleman came to me with a minor skin ailment of gouty origin, who had been advised to go to Harrogate by a consulting physician. His memory was absolutely non-existent, and even in the comparatively limited confines of the institution to which I am attached he was perpetually losing his way or his hat. Too often there seems rather a rule-of-thumb method of saying, "Harrogate for the gouty and over-eating folk, and Buxton or Bath for the rheumatic."

In deciding which place is likely to benefit any special patient it would seem wise to run over the various factors in "a cure" which do a patient good. Perhaps we would put first of all the change from the normal and usual environment of the patient, and the importance of this can scarcely be overestimated. This being, on all hands, recognised in the taking of an annual holiday, seems to need no amplification. It is invariably found by the laity, whether they invest in vibrators, in high-frequency outfits, or in electric-light baths, or if they take to drinking sulphur waters to satiety, that they do not—nor will they ever—derive the benefit from such combined treatment as they have possibly done previously from similar measures at a spa or hydropathic. For one reason the applications are made without the guidance of a trained physician or special attendants, and the patients get no better results than they would by dosing themselves with drugs—though possibly running the risk of less harm. But quite apart from this they are probably carrying on their usual avocations, and very likely perpetuating bad habits, dietetic or otherwise, which are the very first origin of the indisposition. Moreover, they have none of the distractions and amusements afforded by a watering-place, nor do they meet with the new and often interesting acquaintances, and so be in a position to while away the time and forget physical disabilities. For there can surely be no better anæsthetic or more wholesome restorative for the neurasthenic than exchanging ideas on a subject of really keen mutual interest with another man or woman. I submit that the benefit derived from a visit to a "cure place" or sanatorium is in a large measure due to the proper regulation of the patients' lives as directed by the physician in whose care they have placed themselves, and, one may add, to a willingness on

their part to do some things and not to do others in a way which would be quite impossible or irksome to them when at home. Many people ordinarily intolerant of any sort of restraint are rather tickled by the novelty of the thing *for a time*, and there is a certain type of man who takes a pride in the severity of the restriction which is imposed upon him by the new doctor, which he considers to be but in keeping with the size of the fee charged for the advice!

A fashion has got about of late, more especially since radium has been in vogue, to attribute the benefit above referred to to physical rather than psychical influence—viz., to radio-activity in the waters. This, indeed, has the support of no less an authority than Dr. A. P. Luff. Personally I think such ideas should be accepted with the gravest scepticism as really resting on pure conjecture. Dr. Luff says: "If the efficacy of any mineral water depended solely on its watery constituent I do not for one moment think that the resort of sufferers to the various mineral water springs would have so successfully stood the test of centuries as it undoubtedly has. The fact is that in judging the effect of mineral waters we have been under the domination of the analytical chemist, and our deductions have been biased and cramped. I am satisfied that analysis is unable to convince us of the state of the salts dissolved in the waters. Most of the natural mineral waters have been found distinctly radio-active, and the lower the mineralisation the greater the radio-activity. A natural mineral water at the moment of its discharge from the earth is radio-active, whereas ordinary drinking water is not possessed of this property in any appreciable degree. Hence the desirability of drinking the water at its source, since in bottling and keeping its radio-activity may in great measure be lost. When we consider the influence of radio-active emanations on new growths and various morbid tissues, is it too remarkable to conceive a radio-active mineral water will exercise a potent effect on those morbid changes within the body which are connected with abnormal tissue metabolism?"

With all respect I must differ from these conclusions. Surely we have more ground for attributing the cures to psychical effects and change of habit than anything like radio-activity? All we know of radium is very imperfect. While more convenient than X rays its efficacy is in many ways no greater, and at the recent Brussels congress it has been much discredited as a therapeutic agent. Looking back on past fashions one does not feel too bold in saying that in a few years' time it will have found its niche in therapy, and possibly be considered to be too dangerous to the patient and operator to use to any extent. Its efficacy is based on the production of a marked local reaction on morbid tissues, especially in new growths. Is it not the wildest imagination to think that an atonic stomach, a passively congested liver, exhausted neurons, or granular kidneys can derive the smallest degree of benefit from this very radio-active power contained in a water? Is it not conceivable, indeed, that such conditions might be hurtfully influenced, and just as probably—if they are influenced at all?

With astonishment we read some months ago in the reports of a speech by the chairman of a mining company very sanguine remarks as to the high degree of radio-activity of the water running into a particular mine—that it was twice or more as radio-active as the Harrogate water: *ergo*, must be more valuable therapeutically. The suggestion was accordingly brought forward that the vicinity of the mine, where pitchblende was being sought and obtained, should be turned into a spa. I have not yet seen a prospectus of such a new concern, but it may still appear, and when such theories are brought forward can we wonder if the enterprising company promoter grasps the opportunity for personal gain?

I have a great respect for some spas, and feel certain that their reputation rests on something less nebulous than *radio-activity*. It rests on the fact that alkalis neutralise acids—a very old bit of chemistry; on the efficacy of sulphur, well known to our grandparents as "a safe family remedy"; on the efficacy of heat, moist and dry, in relieving chronic and acute pain; on the admirable organisation of spas by the bath committee or manager of the various municipalities; and last, but not least, on the number of able scientific physicians who practise in the best-known watering-places in this country and abroad.

Whatever advantages there may be about a spa—and there are many—there can be no disguising the fact that there are

at least two very obvious drawbacks. The first is the risk of the patient catching cold while returning from the pump-room after a Vichy douche or some kind of hot bath. This especially applies to English spas in spring and winter time. At Vichy, as is well known, the greatest care is taken of patients in this respect, and they are carried back to their hotels or rooms well wrapped in blankets. However, in our climate it is different: the patient, from motives of economy, either walks back or goes in a draughty cab. Serious chills have been taken in this way, and when patients suggest coming for treatment by train and returning the same day I strongly advise them against it; for very often the good obtained is much overbalanced by catching a severe chill. Another tangible objection to going out for baths is the added fatigue where the patient is at the start run down and overtired.

All hydropathic treatment—packs, douches, and sweating baths, for some time at any rate, rather “take it out” of the patient, as it is expressed. Add to this the fatigue of changing clothes three or four times a day, including dressing for dinner at the hotel, and quite apart from any walking which the patient is ordered or may take, a heavy day's work is put in. It would seem very ill-advised that the Harrogate municipality has passed a by-law prohibiting the use of any medicated bath in a hydropathic within the town boundary, and so compelling patients to go to the Royal Baths for their treatment, and interfering with any private enterprise. The policy seems a very shortsighted one, and the treatment of big ratepayers arbitrary in the extreme.

A walk before breakfast to the pump-room for their sulphur water, and a later visit for more water, for massage, or gymnastics, or liver packs can do nothing but good to an over-fed and over-drinking gourmand and the like. But the case is markedly different with other types of patients. One or two instances will make the point more clear.

In June, 1910, Dr. H. Garnett Wilson, Glasgow, asked me to see a patient with him in Glasgow with a view to her coming to Peebles for treatment if at all fit. She was a maiden lady of some 54 summers, in a very wretched condition, practically living in bed, who had spent her life as an invalid. She was thin to emaciation—white haired, haggard, and hysterical, with a rapid pulse of 90, often running up to 120 or more. She suffered from marked mucous colitis with severe constipation, and had dieted herself down to slops and toast, and very little of that. She had only been outside the house about three times in the preceding year. She was a difficulty to her medical adviser, as well as to her relatives, being querulous and morbid to a high degree. A long journey was out of the question, but about a fortnight after I saw her she came under treatment at Peebles. She arrived more dead than alive and looked so very ill that she was supposed to be dying by the maids. She was one of the most difficult patients I ever had to do with. Beginning treatment very carefully and gradually, increasing massage, with a more liberal diet, which she took at the sword's point practically, she was slowly brought back to a degree of health. In a three months' stay she gained 16 lb., the mucous colitis and the associated pain were subdued, and the patient's general condition was so vastly improved that before she left she was able to take an interest in amusements and to take short walks.

Now, to such a case, a change from the home environment is undoubtedly essential if good is to be obtained, and the discipline of an institution and immediate touch with the medical attendant are almost as essential. The fatigue of treatment, especially the Plombières douche, was very trying to her, and anything like going outside would have made it impossible. To such a patient I submit sanatorium or hydropathic institution treatment makes all the difference between going down the hill and regaining health, and a spa would be out of the question. In a well-conducted sanatorium the physician spends the day in and among the patients, more or less, and sees them in various ways, and hears a great deal about them from nurses and attendants, which throws valuable sidelights on each case, and gives him a knowledge which even a family medical attendant calling day by day might find it difficult to obtain.

Another patient of the same class was sent to me in June, 1909, by Dr. W. A. Stephen, Loftus-in-Cleveland, Yorkshire. Her age was 34 years. For some time she had been in a very anæmic condition and suffering from a certain

amount of pyrexia. There was a morning and evening elevation of from half to one degree, but without any notable perspiration. The patient was apathetic to a marked degree and very shy and silent. It was difficult to get very much out of her, and she spent a great deal of time lying about in her room, being unable to take more than a little exercise. The anæmia was pretty intense, the reds counting about 1,800,000, and the hæmoglobin about 40 per cent. The chest was thoroughly overhauled by myself and by the physician of a sanatorium for consumption who happened to be staying with me at the time, and we both considered it clear of any mischief. On careful examination of the mouth I found that the patient had very bad teeth; indeed, they were carious and covered with tartar. The breath also was bad. I strongly urged the removal of the whole of her teeth, with a view to improving her digestion and the elimination of any degree of oral sepsis. This was accordingly done by a dentist, and from that day the patient steadily improved. The temperature ceased to rise both at night and in the morning, and the blood condition changed for the better. The patient was put on a liberal diet, kept in an open-air chalet, and given “Carnine Lefranc.” At the end of August, on my advice, she went up to the Speyside district and returned home in September perfectly well, having gained over a stone in weight.

Other cases could be cited, but these two will serve to demonstrate my point. In both instances, only by keeping in very close touch with the patients was it possible to get them out of the “slough of despond” of misery and ill-health into which they had sunk. To patients so gravely ill I submit that a spa—and a spa in the season of all places—is in no way adapted, with residence in rooms or hotel. Hydrotherapy has its disadvantages even when administered under skilled direction. In cases of this nature one never knows how patients will stand any special treatment. This being so, in the first place, special treatment should not be given except with the medical man within call, so that a report can be made to him at once of any untoward effect. For instance, in the case just cited, as the patient improved she was put on to a rain bath and Scotch douches for the anæmia. The effect of the first one was to make her faint and to induce a condition of considerable collapse. I was sent for immediately and got her around, and in spite of the first unpleasant experience she persevered with a little coaxing, with the best results. But, as a rule, patients of this class do not flourish if simply prescribed for and handed over to the tender or other mercies of the bath attendants until they see their medical adviser again. They are, in short, cases for *institutional* treatment rather than for a visit to a spa.

There can be no question but that the poorer classes who become hospital patients have a great advantage in some ways over better-class paying patients. Chaffingly I said to a medical friend recently—a hospital physician—that nowadays the thing seems to be to *keep patients under observation*, rather than treat them in hospitals, more particularly teaching hospitals. Now, it is just this careful observation which is in many cases of the greatest value to the patient, especially the chronically ill person. The house physician and the senior and assistant physicians all examine the case, overhaul the patient, and an accurate diagnosis is made. Every system of the body is investigated, the blood-pressure repeatedly estimated, and blood counts are made.

Thus there would seem to be really a call for institutions of the above type for better-class people in this country—not nursing homes, but general sanatoriums where patients can be observed and investigated in like manner. Such establishments in no way constitute themselves a rival to the family medical adviser, to consultants, or to spa physicians. From the spas they should be differentiated as treating a different type of case. So far as the former are concerned, the physician to such an establishment should be simply a useful colleague, his duty being to treat the patients by methods which for one reason or another have not previously been available, to report progress from time to time to the home practitioner, and to shed any light which can be shed on obscure cases by close personal observation, to the end that the patient may regain his or her health, and that the much-tried medical attendant may be relieved of what often becomes an intolerable plague—an uncured chronically ailing nervous patient.

Peebles.