

three to six months is an average time, while some cases, even in skillful hands, may take years, if the disease has obtained a strong foothold. Alder Smith knew of one patient where the disease had resisted all treatment for nine years, the patient still having disseminated ringworm at 18 years of age. Crocker speaks of a woman of 20 who had had the disease since she was 10 years of age, disseminated all over the head.

Before discharging a case of ringworm as cured, every portion of the scalp should be thoroughly looked over with a hand lens of moderate power and with abundance of sunlight. It is well to have the little patient seated on a stool and, beginning with the back of the head, the whole surface is to be carefully searched. To make any satisfactory examination, the hair should be cut to about an inch in length. Commencing at the occiput the hair is turned upward gently with the blades of the forceps or the finger and allowed slowly to fall into place; this should be systematically done in such a manner that every portion of the head can be minutely inspected. As the pale surface of the scalp comes into view, the short, dark stumps will be readily seen. The same method should be employed in examining new cases, where doubtful, and also with children in schools where it is desired to surely detect the disease.

The subject of the treatment of chronic ringworm is a very large one and can hardly be touched upon in this opening of the discussion. It may be premised, however, that the writer quite agrees with the opinion of others that it will often tax the ingenuity and patience of the physician very greatly; and that time is a very essential element in the cure of the disease. The occasional reports of very rapid and certain cures of ringworm of the scalp are to be taken with a great deal of caution; the experience of all who know much about the disease will, I think, confirm that they relate either, 1, to very early cases in very healthy subjects, which yield readily to any well directed treatment; or 2, to cases where previous treatment had largely removed the disease, and, as is often the case, victory comes to the last attendant; or 3, to cases where there was a faulty observation, either in regard to the diagnosis or as to the completeness of the cure. It is not at all uncommon to meet with patients exhibiting chronic ringworm of the scalp who have been regarded as cured by other practitioners.

It would be out of place to dwell here upon the important studies which have been recently made in regard to the fungus of ringworm of the scalp, excited largely by the bold and original work of Sabouraud, at the Hôpital St. Louis, in Paris; while they are of interest and importance from a scientific point of view, as yet they have yielded little, if anything, in regard to the practical management of the disease. They may, however, often have a practical bearing in the direction of prognosis, if careful microscopic studies are made as should be done in every case; for it is pretty well accepted that those exhibiting *microsporon* fungus are more apt to prove rebellious than those presenting only the *megalosporon*.

In regard to the treatment of chronic ringworm of the scalp the remedies which have been advocated at one time and another are so many and varied that the mere enumeration of them would occupy much more time than should be given in the opening of the discussion; they will no doubt be fully considered in the papers and remarks which will follow.

## EXPERIENCE IN THE TREATMENT OF RINGWORM OF THE SCALP IN THE NEW YORK SKIN AND AND CANCER HOSPITAL.

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The materials from which this paper has been constructed, were drawn from the clinical records of seventy-five cases of ringworm of the scalp treated in the wards of the New York Skin and Cancer Hospital during the ten years ending in the spring of 1892. The purpose of the paper being neither to present a brilliant array of suspiciously favorable statistics, nor to puff any one method of treatment, this series of cases has not been subjected to any process of selection or elimination. And if the facts, when allowed to speak for themselves, tell of failure more often than of success, the lesson they teach us is no less valuable on that account.

Of the seventy-five patients who have furnished the facts for this report all were inmates of the hospital during the whole course of their treatment. They were therefore constantly under the care of the resident physicians, under whose supervision all the details of treatment were carried out. The scalps were subjected to frequent examinations, scales and hairs from the diseased areas being examined microscopically, and all changes in the conditions of these areas noted from week to week. In fact all the circumstances were favorable not only to the cure of the patients, but to the accumulation of important data as to the comparative value of the various methods of treatment employed.

Favorable as these circumstances were, it is nevertheless an exceedingly difficult task both to make accurate notes in the records of the cases and to interpret those notes correctly. For after the first cleansing and epilation, the changes in the diseased areas are so slow and trifling that it is often impossible for several weeks to say whether the disease is increasing or diminishing; and, as always happens under such circumstances, the records of the observations and examinations will invariably be modified and colored by the prejudices of the reporter. If, therefore, the inferences drawn from this mass of evidence are to be of any value or significance, due allowance must be made both for all possible errors of observation and for the personal bias of the observers.

The comparative value of different methods of treatment could probably have been more satisfactorily determined if, in addition to the microscopic examinations, systematic cultures had been made of the hairs and scales taken from the diseased spots. Such cultures if properly made, would give us valuable indications, not only of the parasitical properties of a remedy, but also of its ability to penetrate to the depths of the hair follicle.

It is to be regretted that at the time these hospital records were taken, Sabouraud had not yet published the results of his investigations of the mycology of the ringworm, nor emphasized the striking clinical differences between the two varieties of ringworm of the scalp. Although some of the house physicians possibly noticed the differences between the small-spored fungus external to the hair shaft, and the large

spored "trichophyton," infiltrating the hair-shaft, none of them having made any notes of such observations, it is impossible to arrive at any conclusions either as to the relative frequency of the two types of disease, or as to their relative resistance to the various methods of treatment employed.

The results of treatment in these seventy-five cases can scarcely be called brilliant. Of this number only twenty were discharged cured. This is certainly a very small percentage. But in judging the results of treatment in these diseases, it must be borne in mind that long continued treatment is almost invariably required to accomplish a permanent cure. Unna, it is true, has reported cases of ringworm cured by chrysophanic acid in two or three weeks, but few, if any other, physicians have had as happy results with this or with any other remedies. Wickham,<sup>1</sup> using another method of treatment, cured only from 40 to 60 per cent. of his patients in the course of fifteen months. Pottevin,<sup>2</sup> after using applications of formic aldehyde for more than three months, reports his cases as still very far from being cured. It is not surprising, therefore, that of these cases, in which the duration of treatment averaged twenty-two weeks, only about 25 per cent. were cured. Indeed, the chief obstacle to the cure of these cases lay in the impatience of the parents or guardians, who in many instances could not be induced to leave their children in the hospital long enough to permit the complete eradication of the disease.

Of the many physicians who report their cures of ringworm of the scalp very few tell us upon what grounds they base their assumptions of cure. The fact that a patient whom you have discharged as cured from a hospital or from your office, does not return to you, is by no means proof positive that his "cure" is permanent. If, in spite of your dictum, the disease returns at the end of a few weeks, the patient naturally discredits your knowledge and skill, and applies elsewhere for advice and treatment. In these cases we should be very skeptical of results, especially of brilliant results—when the reporter neglects to tell us how he determines that the disease is finally eradicated. Wickham<sup>1</sup> advises that no case be reported cured until the following examination has failed to reveal the parasite: The hair having been cut short and the scalp thoroughly washed, the head is left absolutely undisturbed for a week; then the scalp is carefully examined for evidences of disease. If none are found the hair is cut again, the scalp washed, and the head left undisturbed for another week, when the second examination is made. If that also proves negative the head, after hair-cutting and washing, is left untouched for two weeks, at end of which period the final examination should be made. Although all the details of this excellent method of examination were not carried out in the New York Skin and Cancer Hospital, our patients were not discharged as cured until they had passed through a similar ordeal. The essentials of this method—repeated examinations of the scalp at short intervals during which all treatment was stopped—were strictly carried out in all cases.

As has often been stated, the best cure for ringworm of the scalp is puberty. It is therefore important in considering the effects of treatment upon a series of cases of this disease, to bear in mind that it is really a self-limited malady, and not to give to remedies credit for improvement which is really due to the increasing age of the patient. There is no doubt

that in many of the cases here reported the advent of puberty has had more to do with the cures than has the application of drugs. Yet our ringworm patients have as a rule been so young, their average age at the time of treatment being only 7½ years, that the element of puberty can certainly be disregarded in the case of most of their number.

In all of our cases the preparatory treatment has been practically uniform. The hair has been cut close, usually with the clipping machine, and the scalp has been freed from crusts and scales by scrubbing with green soap, preceded when necessary by a preliminary soaking in oil or petrolatum. In some cases, especially when such preparations as collodion or plasters were to be used, the whole scalp was shaved. In all cases the hair was kept conveniently short throughout the course of treatment.

The hair-cutting and cleansing was in most cases followed by the careful epilation of the diseased areas. This was done, in the first place to remove from the scalp as thoroughly as possible all the brittle diseased hairs, and in the second place with the view of isolating infected areas by epilating a fringe of healthy hairs about their margins. The epilation of the diseased hairs themselves I consider an eminently proper procedure and an important detail in the management of these cases. The extraction of the diseased hairs, if properly done, is not at all painful; but if it is done hastily and carelessly, is painful and ineffectual. It needs no argument to convince one who is acquainted with the pathology of the disease, that the removal of as much as possible of the infected hair-shaft is a great desideratum. By careful and patient work with epilating forceps and magnifying glass it is usually possible in a comparatively short time to remove the greater part of every diseased hair.

On the other hand I have always had doubts as to the wisdom of epilating the healthy hairs on the verge of diseased areas. The object of this procedure presumably is the isolation of each center from which the disease may spread; but what assurance is there that such epilation prevents the spreading of the disease? It is well known that both varieties of the fungus are capable of growing in the superficial layers of the epidermis, while only the trichophyton megalosporon actually infiltrates the shafts of the hairs. It is therefore only reasonable to suppose that in either form of ringworm the extraction of the healthy hairs about the diseased areas will not only fail to check the spread of the disease, but, by making the mouths of the follicles more patent to the entrance of the spores, will actually encourage the extension of the growth into the lacerated epidermis of the unprotected hair follicles. If there be any force in such reasoning as this, we should be very careful in epilating to spare all the healthy hairs, trusting to cleanliness and antiseptic applications to hold the disease in check.

However this may be, the greater part of the epilating to which the patients at the Skin and Cancer Hospital have been subjected, was of the indiscriminating sort. It was carried out in such a way as to remove all hairs, both healthy and diseased, from the infected spots and from a liberal zone surrounding them. That the disease actually did spread in several instances in spite of this wholesale epilation, the hospital records clearly assert. That it did not spread in more cases, was doubtless due to the vigorous use of antiseptics. Since these considerations impelled me to give up the practice of "isolating" areas of ring-

worm by epilating healthy hairs, I have never had cause to regret it. The proper antiseptic applications will protect the healthy hair follicles better than the removal of hairs can possibly do so.

The average duration of treatment in all cases was five and a half months. In the twenty cases that were cured the duration of treatment averaged seven and a half months. It is probable that could all the seventy-five cases have been subjected to a course of treatment lasting eight months, which according to Wickham<sup>1</sup> is the shortest time in which a cure can be obtained, a much larger proportion would have been relieved. Yet we are obliged to confess that in the case of six of our little patients a vigorous treatment was carried out for periods varying from thirteen to seventeen months without eradicating the disease. It is difficult to tell just what is the cause of the obstinacy met with in such cases. As our hospital records throw no light upon this question, we are almost forced to the conclusion that some idiosyncrasy on the part of the patients themselves makes their scalps peculiarly suitable to the growth and luxuriance of the fungus.

The general method of treatment in all these cases has been, in addition to repeated cutting of the hair and epilation, the application to the diseased portions of the scalp of substances which, either by their chemic properties or by the manner in which they were applied, might be expected to destroy the parasite. Some of these remedies, such as bichlorid of mercury, iodine and carbolic acid, are supposed to act simply as poisons fatal to the fungus; others, like collodion, the various plasters and the zinc and gelatin paint, owe what efficacy they possess probably to their exclusion of the air; croton oil and other similar irritants cure the disease only by causing a suppurative process in the invaded hair follicle which, destroying the follicle, leaves a minute scar in its place.

The preparations of mercury have all been thoroughly tried upon our patients. The bichlorid in particular has been constantly used in various solutions, mixtures and combinations. The treatment of all the vegetable parasitic diseases of the scalp by the extraction of the diseased hairs and the subsequent application of a strong solution of this substance is by no means new, having been introduced by Bazin forty years ago; and it is questionable if this classic treatment does not give as good results in the first stages of the cure, as any more modern method. Upon our cases the solutions used have varied in strength from .5 to 2 per cent. In all cases improvement followed the application of the remedy, but for some reason the treatment was never continued sufficiently long to work a cure. It apparently made no difference what solvent was used for the mercury salt. Solutions in alcohol and solutions containing ether seemed to possess no greater efficacy than aqueous solutions. A 1 per cent. solution containing ether was used for three months without effecting a cure. A solution of the same strength, but containing in addition 30 per cent. of oil of cade, was used for the same length of time with the same result. A 1 per cent. solution in the compound tincture of benzoin proved no more efficacious than the other solutions.

The chief cause of failure in this and in other methods of treatment seems to be the difficulty of making any remedy penetrate to the depths of the diseased hair follicles. This difficulty has long been realized by all physicians who have had much to do

with ringworm of the scalp, and as a result many methods have been proposed with a view to overcoming it. One of them, suggested by Harrison some years ago, consists in the successive application of an alkaline solution of iodid of potassium and a solution of bichlorid of mercury. The idea seems to be that the iodid solution, being more penetrating than the bichlorid, prepares the way for it and by the power of chemic affinity carries it deeper into the follicles than it could go unaided. The method has been thoroughly tried upon some of our cases with mercurial solutions varying in strength from 2 to 4 per cent. The bichlorid being changed to the biniodid upon the scalp, the treatment is naturally a severe one, producing considerable pustulation. For this reason it is difficult to use it for a long period of time. In two cases, however, it was continued for about five months without effecting a cure.

The use of the galvanic current to favor the penetration of parasitocides was suggested by Ambrosi<sup>4</sup> in Italy and by Cantell<sup>5</sup> in this country in 1888. Upon our cases the method has been employed in connection with an aqueous solution of bichlorid. A sheet of lint saturated in a 1 to 1,500 solution was placed upon the scalp and pressed in contact with the diseased area by the positive pole of the battery. The other pole was placed upon an indifferent spot and the current allowed to flow for fifteen or twenty minutes twice daily. Unfortunately, the records give no information whatever as to the strength of the current. This treatment was tried upon three cases for two months, but with no greater improvement than would have resulted had the same solution been thoroughly rubbed into the scalp.

Still another method of promoting the penetration of bichlorid was suggested by Dr. A. C. Lewis, one of the resident physicians of the hospital, who first used it early in 1890. In the *New York Medical Journal* for Oct. 10, 1891, Dr. C. G. Kerley reports brilliant results from the use of the same prescription, an emulsion made by adding a saturated alcoholic solution of bichlorid to kerosene oil. The emulsions used upon our cases have varied in strength from .5 to 4 per cent. The capillarity of these petroleum oils is well known, and the microscope shows that in all probability they penetrate deeply into the hair follicles; but it is a question if the oil can carry with it the fine particles of bichlorid which it holds in suspension. This emulsion has been used in the hospital upon sixteen cases, with improvement in all cases upon which the treatment was continued longer than a week or two. Although the average duration of treatment in the cases Dr. Kerley reported as cured was six and a half weeks, we have treated several patients for periods varying from six to ten weeks without effecting a single cure.

The oleate of mercury, one of the most popular remedies for ringworm, has been used upon about fifty of these cases. It has been used diluted with various oils, ointment bases and solvents, the strength of which varied from 2.5 to 20 per cent. One case which had already undergone a long course of treatment with other remedies was cured after ten days' use of a 10 per cent. solution of this substance. Two other cases were cured after three and four weeks' treatment with equal parts of the 10 per cent. oleate and lanolin. Two more cases yielded after six and nine weeks' use of a strong ethereal solution of the oleate. In several instances, however, similar appli-

cations, although causing undoubted improvement, failed to eradicate the disease and were given up after two or three months' trial.

Closely resembling the oleate of mercury in its penetrating qualities is the ointment of the nitrate of mercury. This vigorous agent has been used diluted with simple ointment bases and as the most active ingredient of several prescriptions upon eight cases. It is probably as effective a remedy as the oleate; but as it is too irritating for long-continued use, it is practically of far less value. None of our cases were cured while applications of any preparation or combination of this substance were being used. The long-continued use of this and similar irritating remedies fails to accomplish a cure for this reason; the effect of the remedy upon the epidermis is to transform its superficial layers into a thin, horny pellicle, which acting like a varnish upon the surface of the scalp, in itself forms an efficient obstacle to the penetration of subsequent applications. It is only after this pellicle is carefully peeled off that any parasiticide can be expected to reach the hair follicles.

A mixture of equal parts of iodine ointment and mercurial ointment diluted and undiluted has been used upon nine cases with varying results. One of these cases was cured after five weeks' treatment with the full-strength mixture, but two similar cases after being treated with the same prescription for six months still showed signs of active disease. In another scalp under the same treatment for ten weeks the disease actually spread.

Ointments containing white precipitate and the red oxide of mercury have been used upon many of these cases. All that can be said in their favor is that they cause some improvement at first and later hold the disease in check, and prevent extension to healthy hair follicles. The following prescription has been used in several cases for long periods of time, and although it can scarcely be expected to eradicate the disease, it is an excellent application to use when we wish simply to guard against contagion and auto-infection.

R Unguenti hydrargyri oxidi rubri . . . ʒ iii 12  
 Unguenti sulphuris . . . ʒ v 20  
 Unguenti zinci oxidi . . . ʒ i 32  
 Misce et fiat unguentum. Sig.: Apply once or twice daily.

Except in such prescriptions as the above, sulphur has not been very thoroughly tried in the hospital, the results in the few cases upon which it was used not having been sufficiently encouraging to warrant further trials. The same thing is true of sulphurous acid, the sulphites and hyposulphites. Our experience with these substances has been too meagre to enable us to form an estimate of their value. With ichthyol, however, the case is very different. This remedy has been used in many combinations, the one which we have used most frequently being a mixture of equal parts of ichthyol, oil of cade, and either cotton-seed oil or crude petroleum. Most of the patients upon whom this has been tried have been decidedly benefited, but only one of them was cured while using it. In one case, however, it was applied for ten weeks without improvement, and in another the disease spread while it was being used.

Iodine has been used chiefly in the treatment of ringworm of the body, and for occasional application to freshly diseased spots upon the scalp. In cases where the tincture or the solution has been applied as a systematic method of treatment, there has gen-

erally been decided improvement. It is so irritating, however, that even the weaker solutions can not be used for more than a few weeks. In one case the result was exceptional, for after three weeks' treatment with a 4 per cent. solution in crude petroleum the disease was found to be extending.

Carbolic acid has been used upon these cases rather to prevent contagion and the spread of the disease than as an active curative agent. In five cases, however, upon which a 1 or 2 per cent. ointment was employed for this purpose, there was a decided extension of the disease. It is therefore evident that the weaker carbolized ointments are absolutely useless. Where stronger ointments have been applied with the object of eradicating the trouble, they have brought about a moderate amount of improvement. Pure carbolic acid, systematically applied to the diseased spots in six cases, improved the condition in only two of them. It is evidently too irritating a remedy to penetrate deeply.

Naphthalin in 20 per cent. ointment has given encouraging results, two cases having been cured after five and five and a half weeks' treatment. As these were the only cases in which this remedy was used it certainly seems worthy of a further trial. A similar substance, hydronaphthol, has been tried in ointment and plaster upon several cases, with varying results. In one case in which the scalp having been shaved, the diseased areas were covered with the plaster, there was a manifest spread of the disease.

Oil of cade offers no especial advantages as a therapeutic agent in this disease. The best that can be said of it is that it holds the disease in check, and, if its use be long enough continued, that it produces moderate improvement.

Veratria has been used in ointments containing from eight to thirty grains to the ounce. Two cures have resulted, one after five and the other after seven weeks' treatment. It would be fallacious, however, to form a high estimate of the value of this drug from these two cases, for they had previously been subjected to long continued vigorous treatment, and in another case a strong ointment used for nine weeks failed to prevent the extension of the disease. It is a question if it is safe to use such a powerful alkaloidal poison as this in the treatment of this disease.

Salicylic acid in solutions and in ointments has been used upward of fifty times with varying results. An ointment containing 12.5 per cent. of this remedy and 30 per cent. of sulphur cured a patient in three months, but other similar applications have been used in vain for periods varying from six weeks to eight months.

Chrysophanic acid, the use of which in the treatment of this disease was suggested by Unna, has been thoroughly tried upon about twenty of our patients. In some of these there was no improvement whatever, and in most of them the improvement was not sufficient to induce us to continue the trial longer than a few weeks. One case, in which the prescription first suggested by Unna was applied, was cured in nine weeks. From the observations made upon these cases, it seems quite evident that chrysophanic acid does not reach far into the follicles, and is powerless against the fungus which grows there. Hairs removed from scalps which have been subject to this treatment, are seen under the microscope to be compact, free from spores and deeply stained only in the extra-follicular portions, while the intra-follicular portions are succu-

lent, unstained and filled with a vigorous growth of fungus.

Fuchsin, another powerful staining agent which has been tried upon these cases, may be dismissed with a few words. One case was cured which under treatment with a 1 per cent. aqueous solution, but as it had previously been subjected to a prolonged and vigorous treatment with oleate of mercury, it is not improbable that the disease was actually eradicated before the fuchsin was tried. That the remedy is useless in these cases, seems to be demonstrated by the fact that there is absolutely no staining either of spore or of mycelium, however vigorous and protracted the treatment may have been.

Croton oil has been used only upon four or five of these cases. The remedy was in all cases applied frequently to the diseased spots until it produced a localized dermatitis with more or less follicular suppuration. In all cases this treatment was followed by some improvement, but is very severe and likely to cause extensive atrophy of the hair follicles. Probably the true value of this remedy is in the last stages of treatment, when it is introduced into isolated follicles on the point of an electrolysis needle in order to destroy the last lurking places of the disease.

From the foregoing analysis we may conclude that of all the remedies used upon these seventy-five cases, the preparations of mercury have proved the most efficient. Of the others, iodine, naphthalin, salicylic acid and chrysophanic acid seem worthy of further trial, while croton oil, properly used, is as valuable as electrolysis in eradicating the last traces of the disease. The results obtained at the New York Skin and Cancer Hospital in the treatment of ringworm of the scalp, finally, give full corroboration to the recent dictum of Wickham: "No matter what methods are employed, the duration of treatment necessary to the thorough cure of ringworm of the scalp can not practically be reduced to less than eight months."<sup>1</sup>

#### REFERENCES.

- <sup>1</sup> "Une Epidémie de Teigne Tondante à l'Asile Mambrechts," par M. Louis Wickham, *Annales de Dermatologie et Syphilographie*, 1894, p. 629 et seq.
- <sup>2</sup> "Essai de Traitement des Teignes, par L'Aldehyde Formique," par M. Pottevin, *Annales de Dermatologie et Syphilographie*, 1894, p. 808.
- <sup>3</sup> "Treatment of Tinea Tonsurans," J. Harrison. *British Medical Journal*, 1889-90.
- <sup>4</sup> Article by A. Ambrosi in *Raccogliatore Medico*, Farli, 1888.
- <sup>5</sup> "Electrolysis in Herpes Tonsurans," by Cantell. *The Polyclinic*, Philadelphia, 1888.

#### DISCUSSION.

Dr. WOLFF of Atlanta considered that in connection with the care of patients in institutions suffering from ringworm of the scalp that isolation was very difficult to obtain; and then there were the factors of the playground, of towels and of the wash bowls. As far as treatment was concerned he had tried almost everything. The plan which he had learned in Unna's clinic in Hamburg he had perhaps found to be the best, and this was that the head was to be shorn, then washed with soap and then the following ointment to be applied with considerable friction twice a day, and used for several weeks:

R Chrysarobin. . . . . 5 parts  
 Acid Salicylic. . . . . 2 parts  
 Ichthyol . . . . . 5 parts  
 Vaseline. . . . . 88 parts

Then if much irritation resulted, a milder salve such as

R Zinci oxidi . . . . . 6 parts  
 Sulph. precip. . . . . 4 parts  
 Lard. . . . . 20 parts

This was used until the irritation was reduced. Caps were to be worn by the patients all the time, except when being treated. Dr. Wolff remarked that he had never seen such rapid cures as in Unna's clinic, where this plan was adopted.

Dr. M. B. HUTCHINS of Atlanta confirmed Dr. Bulkley's

observation since he had been his assistant at the New York Skin and Cancer Hospital. He had tried, where there was only single patches of ringworm of the scalp, a mixture of corrosive sublimate, 1 to 4 grs., with kerosene oil, one ounce, until a thick scaly condition was produced, when the application was changed to an ointment which contained the following:

R Ichthyol. . . . . 20 grs. 120  
 Acid salicylic. . . . . 20 grs. 120  
 Zinci oxid. . . . . 3 i 32.00

until the scales were removed. He had seen cases get well in three months under this treatment.

Dr. SWARTZ of Providence, R. I., had seen about six cases in institutions, and he thought that mercurial ointments were too astringent, hardened the tissues and did not kill the spores. One thing had not so far been mentioned, and that was the special penetrating power of formol, which did not thicken the tissues and ought to be tried. Since the parasite spread only by contact it seemed astonishing that was not easily able to destroy the spores.

Dr. A. RAVOGLI of Cincinnati, who had had considerable experience with ringworm of the scalp in children's homes containing from 600 to 900 inmates, had met with only nine cases of ringworm of the scalp last year and three cases this year. As soon as the disease was discovered the patient was sent at once to the Cincinnati Hospital. For treatment he had used all the remedies which had been recommended, but was not satisfied with any one of them, and he had again returned to the older methods. The course which he therefore adopted was as follows: The hair was cut close, then the scalp was washed with green soap and water, after which the diseased areas were rubbed with Hebra's modification of Wilkinson's ointment. This treatment was carried out twice a day until desquamation began, when a rest was allowed. The same treatment was then renewed. In two or three months the child was cured and returned to the institution, and up to the present no case had been returned.

Dr. A. W. BRAYTON of Indianapolis recommended the use of an old depilatory, called Boettger's paste, which he said was an excellent remedy for removing hairs. The treatment of a case of ringworm of the scalp would then be as follows: The hair to be cut close to the scalp; the Boettger's paste (prepared by passing sulphuretted hydrogen into thin milk of lime till the mass assumes a bluish-gray color) to be applied to the thickness of a line and scraped off after a minute or two with a blunt knife, when the hair would easily come away; then the scalp is rubbed with the parasiticide.

Dr. T. C. GILCHRIST of Baltimore referred to the prevalence of ringworm of the scalp in colored children in public schools. The appearance presented was often not that of typical ringworm, but rather of a profuse grayish scaliness of various portions of the scalp. On account of the method of living of the negro population, it was almost impossible to treat these cases thoroughly. Since the hair is so short and curly in many colored children, Dr. Brayton's suggestion of using Boettger's paste as a depilatory would be a valuable one in these cases. Yet with all the disadvantages, the ringworm in colored children appeared to be more easily cured in a few months with somewhat simple treatment than the white children. The treatment recommended was the following: The scalp was washed twice a day with the tincture of green soap and water, and an ointment consisting of hydrarg. ammon. 1 dram, and lanolin 1 oz., was well rubbed in twice a day. In a fair number of the cases tinea kerion developed, showing that the spores had penetrated much deeper, as was shown by microscopic sections. Dr. Gilchrist also remarked that this disease was a very prevalent one in Baltimore, and particular care was taken that a child should be thoroughly cured before it was allowed to go to school.

Dr. BULKLEY of New York remarked that the clippers could



be used just as well as the depilatory and the instrument could be boiled for half an hour after it had been used on each child. He had seen shaving spread the disease, and so he had abandoned it. When ordering the tincture of soap he had added corrosive sublimate, two to four grains to the ounce, if there was no irritation of the scalp. He thought that Dr. Brayton's suggestion of using Boettger's paste was still a good one, since the parasiticide applied afterward would have a deeper penetrating power. The suggestion also of using formaldehyde was a good one, and he intended trying it. In the chronic cases he recommended internal treatment with tonics and also rigid dietary, because unless the soil was altered the case of ringworm was never cured until puberty. He recommended that all children who had any scaly condition of the scalp should be examined for ringworm, *i. e.*, by examining the scales microscopically before entering institutions. He mentioned that the microsporon was the cause of the chronic form, whereas the megalosporon was the cause of the acute.

Dr. C. W. ALLEN of New York said he had cured one case of ringworm in one week. It was an acute case and the ring was partly on the forehead and partly on the scalp. Infant's ringworm was easily cured and was not to be confounded with chronic ringworm of the scalp.

Dr. W. T. ALLEN of Davenport, Iowa, remarked that in an institution containing 500 inmates there was an outbreak of ringworm of the scalp. There were 40 cases at first, which increased later to 80. At the end of the first year only 6 to 8 cases were left, but during the second year there were again 80 children affected. Eight of the original patients had the disease even after three years. None of the cases had been isolated until this last autumn (1895). In the first outbreak 1.5 per cent. of corrosive sublimate with red biniodid of mercury was used as a wash every day. Later much stronger applications were used, even up to 30 grains of corrosive sublimate to one ounce of water. In some cases the effects were serious, and one child, 5 years old, died during the treatment, but in others it was not so severe. The ages of the patients varied from 2 to 16 years of age. There were yet 46 cases under observation. New children entering the institution were attacked with the disease in about six weeks. Boys were more attacked than girls.

## MASSAGE.

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Having had a number of years of personal experience in the application of massage; having seen massage applied by so-called professors of massage; also having read all available literature on the subject, I was amazed at the diversity of opinion and often utter lack of knowledge of the subject, as to what constitutes scientific massage. On the other hand there are a few books in the English language that treat the subject in an able and scientific manner. I was therefore prompted to write this article in order that the general practitioner may become better acquainted with the indications, contraindications, physiologic action, etc., of massage. I have for this reason taken up the subject in a scientific manner, hoping that the use of massage be thereby elevated and placed in the hands of physicians, where it belongs.

### DEFINITION OF MASSAGE.

Dunglison, 1860—Massage; massement; massing—all have the same meaning<sup>1</sup>—shampooing.

<sup>1</sup> The definition as given in Dunglison's, 1860, is wrong, as will be seen by a comparison of its manipulations:

TABLE OF MANIPULATIONS OF MASSAGE.	Effleurage, with subdivisions meaning Stroking.			
	Frictions, “ “ “	“ “ “	“ “ “	Semicircular, circular and to and fro motions.
	Petrissage, “ “ “	“ “ “	“ “ “	Kneading and pinching.
	Tapotement, “ “ “	“ “ “	“ “ “	Tapping or percussing.

Webster's Unabridged Dictionary, 1890—Mass; masse; massa—and meaning dough, mortar, etc. These words seem to belong to the root of the Greek word *μασσω*—meaning to beat, or pound, or knead. The same word is also found in the Arabic language—mass—where its meaning is to press softly.

Quoting Tom Cecil, who in 1888 published a book, and who claims to have been masseur to several London hospitals, he took the following definition from the “*Medicales Sciences*,” Paris:

“It is that action of pressing with the hands the muscular parts of the human body; to exercise traction on the juncture of bones and muscles in order to give them their flexibility or pliability.”

According to Dr. Metzger of Amsterdam, massage is a scientific treatment, *i. e.*, based upon the anatomy and physiology of the human body; its manipulations are certain, that is, given or fixed; it is an art that can not be self-acquired; all manipulations are passive, *i. e.*, applied to the patient without his assistance or resistance; the manipulations are arranged so as to act systematically upon the different tissues of the human body.

Gould's Medical Dictionary, 1891, gives the following: Massage (Fr. from *μασσω*—the Greek, to knead). A method of effecting changes in the local and general nutrition, action, etc., of the body, by rubbing, kneading, etc., the superficial parts of the body by the hand or an instrument. Effleurage, a stroking movement made in a centripetal direction. M. Frictions, superficial rubbing. Petrissage, a portion of a muscle or tissue is picked up, subjected to firm pressure and rolled from below upward. Tapotement, percussion by the hand or an instrument devised for the purpose.

Hare's System of Practical Therapeutics, Vol. 1, devotes 100 pages to Swedish movements and massage. On page 261 is the following definition: “Massage may be defined to be the communication of motion to the tissues of the body from an external source for therapeutic purposes.” This at once distinguishes it from movements in which, as already said, the motion takes place through the joints and is extended to the entire extremities, or the trunk. And it also separates it from general exercise, which implies in addition volition, and therefore the communication of motion from an internal source.

It is not egotism which prompts me in adding another to the already too numerous definitions. The following definition defines massage in fewer words than any of the foregoing: Massage is a process of passive, systematic manipulations upon the soft parts of the body, generally without water. I say generally without water, because if these various manipulations be applied to a person while bathing it is still massage. A female operator is a “*masseuse*,” a male operator is a “*masseur*,” while the patient is masseed (pronounced massayed).

The ancient history of massage condensed.—Rubbing, friction and pressing of the soft tissues for certain painful and diseased conditions, undoubtedly existed in the customs of all nations, civilized, semi-

Is generally given without soap and water. Object—To cause a tissue change, to act as a sedative or stimulant or alterative, according to application.

TABLE OF MANIPULATIONS OF SHAMPOO. { Effleurage, a Stroking. { Semicircular, circular or to and fro motions. { Frictions, { tions. { Slapping, with the flat hand or “hollow” palm.

Is always given with soap and water, with a brush, loofahs, soft rag or glove, etc.; most always preceded by a “sweat” in the hot room. Object—General cleanliness.