resigned to his lot, felt no genital stimulus, and was only anxious to be sent home.

P. C., of Rome (Fig. 2), of the 8th Battalion Infantry, received six sword cuts on the head, of which one severed in two the auricle of the left ear, and another caused necrosis of the outer table of the left parietal bone. He states that the sword cuts rendered him unconscious, and on recovering his senses he found that he had been eviscerated. He also remained unaided for a week on the battle field, keeping life and body together by a few sips of water that he got from a rivulet. His case was very similar to the other—the same huge granulating triangular surface, with a sort of overhanging flap of skin near the base. The evil with him was that micturition was very difficult on account of contraction of the opening of the urethra, and that there was constant slight dribbling of urine. Maggiore Ferrero thought the case a suitable one for an autoplasmic operation, but C. had been so unnerved by his previous sufferings that he declined it for the present; so all we could do was to keep the urethra patent by means of bougies pending his removal to Naples.

The third case seen was that of a black soldier, T. M., of the 8th Battalion Native Troops. In retiring with the horse of his dead lieutenant he received a gunshot wound in his left arm, causing fracture of the humerus in the upper third. He fell, and some Gallas horsemen rushed on him and proceeded to eviscerate him. He was quite conscious, but offered no resistance for fear of being killed. In this case the penis only was removed. The scrotum and testes have remained intact. Asked if there was bleeding at the time, he answers that "blood flowed like running water." Asked if he had sexual desire, replied "No," and did not care for the company of women or men; wished only to remain alone. Amongst the whole lot of eviscerated who have turned up so far there have been only four blacks, one a Mahomedan, the other three Abyssinians.

In concluding these brief notes I wish to record the very perfect manner in which all the arrangements connected with the Italian military medical service have been conducted in this unfortunate campaign, right through the long line of operations, from Massowah to Kassala. No medical service was ever more sorely tried than the Italian in this expedition.

The base hospital at Abdel Kader near Massowah in February last had only three brick buildings capable of 300 beds. By the end of March, in spite of every endeavour to ship off to Naples all the sick and wounded capable of removal, no fewer than 1,700 patients, partly wounded, partly cases of typhoid and malarial fever, had accumulated in Massowah. All these, thanks to the forethought and activity of the principal medical officer, Colonnello-Medico Mosci, had found suitable accommodation. Ably seconded by the Corps of Engineers, the principal medical officer had got ready 18 huge wooden barracks, with double roofings, and so planned as to minimise, as far as possible, the intense heat at Massowah. Altogether the 21 barracks covered an area of a square kilometer, through which the railway line ran; so that the patients coming by rail from Saati were shifted straight away from the railway car into their bed. In spite of all this mass of patients thrown suddenly on the hands of the *Legione di Sanità Militare* (Medical Service), there never was lack of surgical dressings or drugs, either in Massowah or any of the other base or field hospitals; this notwithstanding the fact that all the ambulance material of Baratieri's corps had been seized by the Abyssinians at Abba-Carima.

I was fortunate to see at the Asmara the surgery done by Maggiore Ferrero, Captains Tavazzani and Mozetti, Lieutenants Martinelli, Lacava, and others, and the medical work of Captains Bozzolo and Schizzi. The skill, power of adaptation to unfavourable circumstances, attention and paternal devotion to their patients, whether black or white, and perennial good humour of these gentlemen, are beyond praise, and shall never be forgotten by me. Truly, considering the number of officers of the *Italian Servizio di Sanità Militare* who were killed or taken prisoners, and the excellent and abundant surgical and medical work done by it, both on the field where the Geneva Cross was a sign for bullets rather than for respect, and in hospital after, I believe that this corps have well deserved of their country, and are entitled to the good opinion of the ambulance services of all civilised countries.

FORMIC ALDEHYDE IN THE TREATMENT OF RINGWORM OF THE SCALP.

BY ALFRED SALTER, M.B., B.S.LOND.,
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THE intensely bactericidal properties of formaldehyde, not only in solution but of the vapour itself, coupled with its remarkable powers of penetration, suggested to me that in this substance we probably possessed a therapeutic agent of infinitely greater value than any of the antiseptic preparations which have hitherto been employed in the treatment of ringworm of the scalp. The experimental evidence detailed below would indicate that formaldehyde is not open to the vital objections which apply to nearly all the germicides in common use in this complaint.

EXPLANATIONS FOR THE FAILURE OF ORDINARY REMEDIES.

In the first place the agent never reaches the fungus at all, or at any rate only superficially-placed portions, as the masses of mycelial and conidial growth, deeply situated in the substance of the hair, and particularly in that part below the level of the scalp, are not affected by the application, be it ointment or solution. Such failure to destroy the organism results partly because the natural sebaceous secretion enwraps and protects it, but largely because the trichophyton filaments, being insinuated between the fibrillæ of the hair structure, are thus ensheathed by a sort of keratinous envelope. A second objection exists in the fact that the conidia, like the spores of bacteria, appear to be exceptionally resistant to ordinary germicides.

PARASITICIDAL AND PENETRATING POWER OF FORMALDEHYDE.

Pure cultures both of trichophyton megalosporon and microsporon are effectually killed by a short exposure merely to the vapour. Twenty minutes usually suffices to destroy the microsporon, though a rather longer time is necessary for the megalosporon, the difference being dependent upon the fact that the former species does not spore upon artificial media. The following observations distinctly indicate that the envelopment of the fungus either by sebum or keratin offers no pronounced obstacle to the permeation of the infiltrated hair by this drug. If the surface of an ordinary gelatin-culture medium be covered with a thin layer of oil or lanolin, and exposed to formalin vapour, the gelatin will become so changed that it can be boiled without fusing, just the same as if nothing had been interposed. Hairs epilated from the scalp, and subjected both to the vapour and to the direct action of the solution, showed very emphatic results. In all cases the hairs were previously examined microscopically (without caustic potash), and only those which were swarming with conidia were employed. In one series of observations sixteen hairs were laid in a capsule, and placed in a closed vessel containing the vapour derived from formalin-saturated wool. In half an hour they were removed, lifted with sterile forceps into maltose-agar culture tubes, and incubated. Growth occurred only from one hair, though every one of sixteen other affected hairs from the same patch, which were used for purposes of control, showed abundant growth of microsporon. It was subsequently found that if the stumps were moistened or laid on wet filter-paper during exposure, no growth ever occurred.

The following contrast experiments were also made: With hairs dipped for 5 minutes in 40 per cent. formalin, and kept under the fluid by manipulation with a needle, no subsequent growth could ever be obtained. Similar treatment for an equal time with carbolic acid, 1 in 20 (aqueous), glyc. acid. carbol. B.P., aqueous solutions of hydrarg. perchlor., 1 in 1,000, 1 in 200, 1 in 50, and alcoholic solutions, 1 in 250, seldom or never had the slightest effect in sterilising the hair, as evidenced by successful culture. The alcoholic mercurial solution appeared to be the most potent, but its action was inconstant and uncertain.

FORMALDEHYDE CLINICALLY.

Experience in actual practice has amply justified the expectations raised by such experimental results. Dr. Perry kindly allowed me to treat 40 cases of ringworm of the scalp from his out-patient department at Guy's Hospital. The preparation most used was Scheeling's "formalin" in full 40 per

cent. strength, though in the later cases formaldehyde of English manufacture was employed. The fluid was vigorously rubbed in with a largish brush or mop for ten minutes, the hair having been shaved round the margin of the patches. The application was repeated every other day on four occasions and then entirely discontinued. In some patients the head was painted every day for four successive days. Of the 40 cases only 5 required repainting from non-eradication of the disease, and in these the fault lay not with the remedy, but in the fact that, owing to the struggles of the child, no proper application could be made. The ages of the children treated ranged from 4 to 12, and the extent of the disease varied from a small strictly localised patch to areas which were practically co-extensive with the whole scalp. Microscopical examination was always made before commencing the treatment, and the actual presence of the trichophyton verified, whilst before pronouncing any case cured microscopical examination was again made. In 38 of the cases the fungus presented the characters of trichophyton microsporon.

Formalin thus applied induces discomfort and irritation of very brief duration rather than actual pain, and does not vesiculate the scalp as it does the skin elsewhere. Only 3 cases showed any suppuration after its use, and in these the process was slight, and did not destroy any of the follicles. It produces, however, a thick crust, just as weaker solutions cause desquamation upon the skin of the arm, and the subsequent application of some emollient is advisable to accelerate the removal of this exudation. Growth of healthy hair commences immediately, and in three or four weeks the denuded patch is covered with hairs $\frac{1}{2}$ in. long.

Before concluding, allusion must be made to a remarkable occasional complication of the treatment. In 6 cases oedema of the face was noted some hours after the painting. In one boy this was so extensive as to completely prevent vision from swelling of the eyelids, and the forehead pitted $\frac{1}{2}$ in. on pressure. The skin, however, was neither hot nor red, and there was no pain or constitutional disturbance. The oedema only occurred when the area treated was very large, and the condition is probably analogous to that produced by a nettle sting on a big scale.

It is interesting in this connection to remember that the active toxic agent in the nettle is formic acid, and that it is thus closely related to the substance now under discussion. The occurrence of this oedema renders it advisable either to deal with limited areas at a time, or to warn the parents of the possible result if the whole scalp is to be attempted at once.

A NOTE ON PICRIC ACID IN THE TREATMENT OF SUPERFICIAL BURNS AND SCALDS.

By D'ARCY POWER, M.B., F.R.C.S. ENG.,
Surgeon to the Victoria Hospital for Children, Chelsea.

THE treatment of superficial burns and scalds has long seemed to be most unsatisfactory, for these injuries are attended with an unnecessary amount of inflammation, whilst the act of renewing the dressings is unduly painful. From time to time I have tried various methods of treatment, and I have come to the conclusion that the picric acid treatment is by far the simplest and the most satisfactory. The method is well known in France, where it has been extensively used by Professor Thiéry, whilst Dr. Filleul and Dr. Papazoglou have done their best to disseminate a knowledge of its value. I do not therefore claim the least merit for myself, but I find that so few practitioners know of it that it is perhaps worth while to draw attention to it in England.

The solution of picric acid is made by dissolving a drachm and a-half of picric acid in 3 ounces of alcohol, which is then diluted with two pints of distilled water, or more accurately: Picric acid, 5g.; alcohol, 80g.; dissolve; add 1,000g. of distilled water. This is a saturated solution of picric acid.

The clothing over the injured part should be gently removed, and the burnt or scalded portion should be cleaned as thoroughly as possible with a piece of absorbent cotton wool soaked in the lotion. Blisters should be pricked, and the serum should be allowed to escape, care being taken not

to destroy the epithelial surfaces. Strips of sterilised gauze are then soaked in the solution of picric acid, and are so applied as to cover the whole of the injured surface. A thin layer of absorbent cotton wool is put over the gauze, and the dressing is kept in place by a light linen bandage. The moist dressing soon dries, and it may be left in place for three or four days. It must then be changed, the gauze being thoroughly well moistened with the picric acid solution, for it adheres very closely to the skin. The second dressing is applied in exactly the same manner as the first, and it may be left on for a week.

The great advantages of this method of treatment are: First, that the picric acid seems to deaden the sense of pain; and, secondly, that it limits the tendency to suppuration, for it coagulates the albuminous exudations, and healing takes place under a scab consisting of epithelial cells hardened by picric acid. A smooth and supple cicatrix remains, which is as much superior to the ordinary scar from a burn as our present surgical scar is superior to that obtained by our predecessors, who allowed their wounds to granulate.

I have used this method for more than a year in hospital practice both amongst out-patients and in-patients, and I have every reason to be thoroughly satisfied with the results I have obtained. It is not an ideal method, for it stains the clothes and discolours the hands of the surgeon, but it is a great improvement upon anything else I know of.

CEREBRAL HÆMORRHAGE DUE TO WHOOPING-COUGH.

By R. G. McKERRON, M.A., M.B.,
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THE case of facial paralysis occurring in a patient with whooping-cough, which was recorded by Dr. Craig in the BRITISH MEDICAL JOURNAL of June 13th, recalls to my mind a somewhat similar instance which came under my observation some time ago.

I. L., aged 5 $\frac{1}{2}$, was first seen on March 29th, 1893. For over three weeks she had been suffering from an attack of whooping-cough of moderate severity. For nearly two weeks she had been troubled with occasional attacks of headache and earache, at times very severe. These attacks were attributed to injuries of the face and head sustained in falling downstairs a few days before.

On the afternoon of March 28th she came in complaining of headache and severe sickness. When put to bed, she vomited once. During the night she became worse, and was said to be stupid, and at times unconscious. Next morning I found her apathetic and partially comatose; irritable when interfered with. There was right hemiplegia, paralysis of the arm being absolute, of the leg incomplete. The head was turned slightly towards the right. The pupils were normal and equal, reacting slowly to light. The pulse was regular, 96; the temperature 98.2°. The heart sounds were normal. There were no indications in personal or family history of a tuberculous disposition or of syphilis.

I expressed the opinion that the condition was the result of a hæmorrhage due to the strain imposed on the cerebral vessels by the paroxysms of coughing.

On March 30th the coma had increased, but she could still be roused. The pulse was 114, the temperature 101°. Two or three times during the night she had emitted a cephalic cry. During the evening and night there were repeated right unilateral convulsions, said to begin in the thumb and then to pass on to the arm and leg. Each attack lasted 3 to 5 minutes.

On the morning of March 31st coma was complete; the head was turned more to the right, the face looking over the right shoulder. It was not rigid, but always reassumed the oblique position. The pupils were normal, but reacted very slowly. The temperature was normal; pulse 98, unequal and retarded. During the night the convulsions continued to recur, and when seen on April 1st, with Dr. Riddell, the general condition was unchanged. The child had a convulsion. The movements began in the right thumb, were confined to it for a few seconds, and then passed rapidly in suc-