bled. After four years the disease has disappeared, only superficial scars being left. Some other patients to whom this ointment was prescribed only benefited slightly. In these, investigation showed that the pain of the application and the slowness of the rate of progress had caused them to neglect its use.

One merit of the acid nitrate of mercury and the phenol methods is that, being applied by the physician himself or under his direction, and only in hospital, there is no question of the thoroughness of the application.

The objections to the caustic nitrate are considerable. Its application is intensely painful and the caustic action is comparatively unselective, so that sound tissue is apt to be destroyed as well as diseased tissue. It is applied in this clinic on cotton-wool pencils or by means of pointed match-sticks dipped in the fluid; the latter are used to perforate and destroy nodules. The value of the method appears to be limited to areas where discrete nodules can be distinctly made out, otherwise destruction is extensive and unsightly scars are left. The pain is so great that it demands considerable fortitude on the part of the patients (local anaesthetics applied to the surface reduce but do not abolish the pain), and they are therefore apt to cease attending before the treatment is completed. Nevertheless the nitrate or some equivalent caustic seems to be indispensable for exuberant or deep-seated nodules, and for dealing with the nodules which survive the phenol treatment.

The application found most generally useful is alkaline phenol followed by a hypertonic dressing. With the co-operation of Mr. J. T. Williams, pharmacist to the infirmary, the following formulae have been worked out. In a 4 c.cm. wide-mouthed sample bottle stoppered by a rubber cap are placed 2.5 c.cm. of a solution of caustic potash (1 part to 2 of water) in which is suspended precipitated chalk (1 part), and 1.5 c.cm. of acidum carbolicum liquefactum. A considerable degree of heat develops. The preparation is made in small amounts because oxidation takes place with resulting brown discoloration after a few days' exposure to the air over the fluid. When the phial is filled this does not occur to any extent, and there is enough of the preparation to treat several patches. It is better, however, to keep the caustic potash preparation separate from the phenol and mix shortly before use. Fresh preparations are thus always conveniently available. A pencil of cotton-wool wrapped round the point of a forceps is dipped in the fluid and the area rubbed. The caustic potash dissolves the epidermis and the abrasive action of the precipitated chalk aids in its removal. As the rubbing is continued the lupus nodules start out as purple spots, and nodules not previously noted can be detected. When these purple spots are well marked the application is stopped; if it is continued the whole area will turn a purplish-black. The colour appears to be due to haematin formation by the alkali.

A piece of unmedicated lint is cut of the size of the area of disease, and on this is placed a fairly thick coating of a paste consisting of equal parts of salicylic acid, sodium salicylate, and cane sugar, with enough glycerin to make a soft paste. This is applied to the area treated and the whole covered in with zinc oxide adhesive plaster, which overlaps for some distance on all sides so as to make an impervious dressing.

There is a good deal of pain during the application of the alkaline phenol, but the anaesthetic action of the phenol soon removes this. Later in the day a fair amount of pain is to be expected, and after a day or two exudation finds its way out from under the dressing. The application is repeated twice a week, in most cases for four weeks, though not so long for superficial cases. On the removal of the first dressing a granulating surface is found, no lupus nodules being visible, but if the wound were allowed to heal some nodules would be found. Repetition of the treatment is therefore necessary, but after the first treatment touching with the alkaline phenol or slight rubbing only is required. After the last treatment the place is allowed to heal up under boric ointment.

Superficial areas are often cured in six weeks, approximately, but when the nodules are deep-seated or the type is exuberant complete cure does not occur so soon. A

great reduction, however, in the amount of the disease takes place. It is usual to repeat the treatment if the nodules left are numerous, so as still further to reduce them; if few and discrete they are treated at once by acid nitrate of mercury.

In spite of the strength of the carbolic acid and the size of the areas treated—in one case both cheeks were under treatment at the same time—no sign of carbolic acid poisoning has occurred; this I attribute to the hypertonic dressing causing the flow of lymph to be outward, not inward.

In two cases excessive destruction took place, producing superficial sloughs. In one there was no indication that this might occur. The other was that of a woman whose leg had been amputated for tuberculosis; her general reaction was poor, and cure has not been obtained. There is, therefore, some risk in the method.

The principle of the treatment appears to be that diseased tissues are less resistant to caustics than healthy, and that therefore, if the proper strength is found, healthy tissues will not be seriously damaged. I have repeatedly seen islands of healthy tissue in the middle of the ulcers produced. Caustic potash alone would act, but the anaesthetic action of the carbolic acid is valuable. The hypertonic dressing might be composed of other substances. I have used a boric acid, magnesium sulphate, and glycerin paste with success.

This is the routine treatment applied in almost every case in this clinic, and disappearance of the disease has been obtained in cases of many years' standing—up to fifteen or more. It fails, however—or at any rate is only partially successful—where the impervious dressing cannot be properly applied—for example, on the nose, or close to the eye. For these places it must be supplemented by acid nitrate of mercury or other powerful caustic, or perhaps by ultra-violet rays. It does, however, prepare the way for these by reducing the number of nodules. It has with the others the great merit that its application does not depend on the patient's perseverance, except so far as concerns his attendance at the clinic, and in this respect there is no difficulty—patients are eager for the treatment. For success personal supervision by the physician himself, attention to details, and experience of the resistance of the skin, which varies in different parts of the body, all appear to be requisite.

A CASE OF ERYTHROEDEMA OR "PINK DISEASE."

BY

DONALD I. CURRIE, F.R.C.S.,

HONORARY SURGEON, COLWYN BAY AND WEST DENBIGHSHIRE HOSPITAL.

SINCE the clinical picture known as erythroedema, erythroedema polyneuritis, or "pink disease," is seemingly, from the available literature,¹ a somewhat rare condition, I have taken detailed notes of a case which came under my care lately.

An only child, a boy aged 2 years and 8 months, was brought to Colwyn Bay in July for a holiday from Lancashire. His parents, who are both quite healthy, said that he was an active and normally healthy child until a fortnight or so before they left home. He then seemed to lose appetite, would not play by himself, wanted "petting and coaxing," and often asked to be carried. He had one or two attacks of vomiting, but there were no marked symptoms, and the parents thought that he was "a little run down" and that the holiday would soon put him right.

On the day of his arrival he asked for an ice-cream; this was given to him and there seemed to be no immediate ill effects. On the next day he complained of severe abdominal pain and vomited once, and when I saw him for the first time he presented the usual picture of intestinal colic in children. He had spasmodic abdominal pain, and the temperature and pulse rate were slightly raised. Examination of chest and abdomen was negative, but on rectal examination constipated faeces could be detected. He was given a small dose of calomel, a small olive oil enema, which had a good result, and ordered boiled water only.

The next morning (July 22nd), after a good night, the abdominal pain had gone, the bowels had been moved with a slightly greenish stool, the temperature was 101°, and respirations between 40 and 50; the alae nasi were active, and although on examination the chest still seemed healthy, his condition suggested early pneumonia without physical signs, as is common in a child.

A mild diaphoretic mixture was prescribed, and powders containing a sixth of a grain each of calomel and Dover's powder were

given every four hours. He was kept on boiled water with the occasional addition of a little brandy.

The two following days saw him steadily going downhill; there were no physical signs in chest or abdomen, no cough, no vomiting; the bowels were opened two or three times daily, and the motion, although not offensive, looked like cooked spinach. On chest and abdomen were a few patches of erythema, which I took to be "sweat rash," and there was a ring of erythema round the umbilicus. He was passing urine normally, and it showed nothing unusual on examination. His temperature ranged from 102° to 103°, pulse rate 140, respiration rate 30 to 40. There were photophobia and conjunctival injection, and his tongue and lips were dry and sore. He was completely hypotonic and the tendon reflexes were absent. The tips of his fingers and toes were now slightly reddened, swollen, and painful to touch, and owing to general weakness and the condition of the mouth he began to refuse fluids, which up to this time he had taken in large quantities. These had consisted of secway, boiled water, brandy and water, and a little orange juice.

On July 25th he was semi-comatose with a temperature of 103°. His fingers and toes and the greater part of his hands and feet were bright red, swollen, and acutely tender. They looked as if the boy had been playing with a wet coloured toy and the dye had come off on to his hands. His motions were still like cooked spinach, not too frequent and not offensive, and, more with the idea of increasing his fluid intake than washing away any poisonous bowel contents, I commenced giving him regular large bowel irrigations with normal saline, leaving a few ounces in the colon each time. He was also given an ounce or two of normal saline with a little brandy by the rectum at regular intervals, and as much fluid by the mouth as possible. All other medication was stopped.

On July 26th and 27th this treatment was continued, and a slight but definite improvement was noted. He was having up to 2 oz. of brandy daily and as much fluid as possible. He had wasted rapidly in spite of fluid intake, and was and looked very ill, taking no interest in his surroundings and occasionally making a feeble cry and holding up his hands for treatment. They were being wiped with spirit and dusted with powder. His temperature still ranged between 102° and 103° and his mouth required constant attention.

On July 28th he was much better; his temperature was 101°, his hands and feet were less red and painful, and the motions a better colour. He began to take more by the mouth again, and Valentine's meat juice and albumin water were added to the diet. The next day his temperature was 99.5°, his motions were formed and a greenish-yellow colour, and as he was taking plenty of fluid by the mouth the rectal washouts and instillations were stopped, and a dilute Nestlé's milk mixture was given in addition.

From this time he improved daily, his temperature fell to normal, his diet was gradually increased, and his hands and feet became less red, swollen, and painful, and commenced to peel in large patches, complete casts of some of the fingers being shed in one piece.

In another week he was up in a chair, and a few days later out in a perambulator. His appetite was enormous; he constantly called for more food, and as his tongue was clean and his bowels normal he was indulged within reason. When last seen, three weeks after the commencement of the acute stage of the illness, he was seemingly quite well except for the wasted and flabby condition of the leg muscles. He had no motor or sensory paralysis, but the tendon reflexes were still absent, and although he was pronounced fit to return home his parents were warned against a too rapid convalescence, with special reference to the use of his legs.

The features of the case which impressed me most were, first, the prodromal history, which made me suspect meningitis; then the symptoms suggestive of early pneumonia which did not develop, and later the complete hypotonic state, and the striking condition of the extremities, which is a marked feature of the clinical picture.

Except for the rise in temperature and the acuteness of the illness this case seems to have been fairly typical, and leads me to suggest that the origin of the toxæmia causing the "polyneuritis" is intestinal.

REFERENCE.

¹ *Medical Annual*, 1924.

A SERIES OF CONSECUTIVE OPERATIONS ON THE MASTOID.

BY

J. ALDINGTON GIBB, M.D., C.M.,

HONORARY SURGEON, KENT COUNTY OPHTHALMIC AND AURAL HOSPITAL,
MAIDSTONE.

DURING the past eight years I have performed close on 400 mastoid operations; those recorded here have been performed during the last three years and nine months, and comprise both private and hospital patients. I am greatly indebted to Mr. Bolton, the house-surgeon, and Mr. Lynch, the acting house-surgeon, for extracting and tabulating the cases in the hospital record—a somewhat difficult task. Any case of otorrhoea of over two months' duration has been considered chronic.

The operations may be classified as follows: (1) for primary acute mastoiditis, in which the mastoid and the otorrhoea are simultaneous, or the otorrhoea has lasted for a few days only; (2) for acute secondary mastoiditis, an acute condition grafted on to chronic otorrhoea; (3) for chronic otorrhoea, performed for the cure of the discharge and to improve hearing and relieve vertigo. The type of operation adopted for the acute uncomplicated cases was a modification of the Schwartz operation.

In my early cases after the ordinary Schwartz operation there was a sagging inward of the posterior conchal portion of the membranous meatus. This caused a blurring in hearing power; to overcome this I remove a fair amount of the posterior bony wall and place a suture in such a position as to make traction. Unless the tissues are very much damaged in the acute cases the wound is partially sutured and the antrum drained by gauze for twenty-four to forty-eight hours. Opinion at the Annual Meeting of the British Medical Association at Nottingham was opposed to this and favoured the open granulation method. I am unrepentant. It sometimes happens that an acute case is so severe that a more radical operation than the modified Schwartz has to be done. In such a case a flap is made in the membranous meatus and the whole of the posterior bony wall is removed. In the chronic cases the modified radical operation was invariably done unless there was much destruction of the tympanic membrane; the complete radical operation was then performed. In the radical operation the posterior wall of the tympanum was never touched.

The modified radical operation, which is based on Bondy's operation, consists in the complete removal of the posterior wall and roof of the external meatus and attic. It is tedious but well worth while. The aim of the conservative operation is not only to cure the discharge but to improve hearing. This is invariably attained; with a large resonance chamber and ossicles and membrane untouched the hearing power should be improved. After the acute operation healing was usually complete in a fortnight; after the modified acute operation healing usually took a month; after the modified radical operation epidermization in my recent cases, blessed by good nursing, has been extraordinarily rapid—frequently a month, sometimes six or eight weeks. Any underlying constitutional disability, such as syphilis or tuberculosis, delays healing, as does eczema occasionally.

Among the acute primary cases there were one cerebral abscess, two lateral sinus infections with thrombosis, and two without. In the acute secondary mastoid cases there were three instances of cerebral abscesses, eight of lateral sinus infection with thrombosis, and three without. Among the acute cases was one septic pneumonia and one diagnosed as pulmonary embolism. The age varied from 1 year and 2 months to 67 years.

No case of labyrinthitis occurred in this series. Some of the cases had labyrinthine symptoms, which cleared up after the mastoid operations. All cases of serous meningitis recovered.

There was one case of secondary acute mastoiditis in a patient aged 17, admitted with definite signs of cerebral pressure—that is, a high temperature (103°), pulse 56, and marked mental hebetude and vomiting. Mastoid signs were not typical, but the mastoid operation was decided upon. On opening up the antrum pus came away under pressure. There was a considerable destruction of bone, and the dura was exposed. There was a large cholesteatoma occupying the antrum and middle ear. I trephined over the temporo-sphenoidal lobe. There was no pulsation of the membrane; the dura was carefully opened, and pus sought for in vain. Next day the symptoms were better, the mind was clearer, and the temperature was down, but the pulse was slower. There was no papilloedema, and no homolateral hemianopia. I asked him how he was. He said, "Better, nurse." "Have you got any headache?" He answered, "No, nurse." I said, "I'm not the nurse, I'm the doctor." He replied, "Yes, nurse." This I took to be due to my having explored the anterior part of his temporo-sphenoidal lobe (Ballance). The following day his pulse was 46. His answers were normal. There was induced nystagmus in the left eye—the operated side—of the cerebellar type. I therefore decided to trephine over the posterior fossa, and an inch and a half of bone was removed above the lateral sinus. There was no bulging and no pulsation. The dura was incised, the brain exposed, and the venules were seen to be engorged but silent. Pus was sought for in vain.

After this second operation he made a complete recovery, and left the hospital with quite good hearing