within the incision and the granulation tissue in the cavity were thoroughly removed with a sharp spoon till healthy hard bone was reached all round. From the upper and lower extremities of the wound vertical incisions were made, terminating at the levels of the roof and floor of the cavity, and what remained of the bony part of the anterior wall of the cavity was removed. A transverse incision was now made at the upper, and a corresponding one at the lower, end of the wound reaching down to the bone, care being taken at the same time to avoid injury to the tibialis anticus muscle. Each incision was $3\frac{1}{2}$ in. in length, and reached on either side to the junction of the lateral with the posterior wall of the cavity. Through these incisions the attachments of the lateral walls to the roof and floor were now severed by means of a small saw. The lateral walls, consisting of skin, subcutaneous tissue and bone, now remained attached only to the posterior wall, and the next step consisted in severing the bony attachments. This was done by means of a chisel and mallet, working from the inside of the cavity, the last part of the separation being completed by using the chisel as a lever and breaking through the outer shell, in order to preserve the periosteum intact. The lateral walls could thus be turned outwards as two flaps. Sufficient bone had now to be chiselled away from them and from the posterior wall to allow the flaps to lie against the posterior wall and their edges to be brought together. Unfortunately, before this step was quite finished the condition of

Diagram of transverse section through cavity in tibia. Shaded part represents bone removed to allow flaps *a* and *b* to come together; *c* = periosteum, *d* = tibia.

of the patient, who had all along been taking the anaesthetic badly, became so unsatisfactory that the operation had to be completed rapidly. The flaps were stitched together with silkworm gut through skin and periosteum, but the edges remained separated by about a quarter of an inch. The transverse incisions also could only be closed in part. Dressings and a back splint were applied and the tourniquet removed. The leg was dressed next morning as blood had appeared through the dressing, and

was again dressed on the seventh day, when the stitches were removed.

The wound healed partly by first but mainly by second intention, and with the exception of two small sinuses, one at either end, which admitted a probe and led down to small points of bare bone, had entirely healed by the seventh week. Three weeks later the sinuses had disappeared, the bony flaps had joined solidly to the shaft, and the patient was walking about. The resulting scar consisted of a vertical part with a transverse piece at either end.

Two points worthy of note arose during the operation. The first was that the amount of bone which had to be removed before the flaps could be brought into apposition was much greater than I had anticipated, and the other that before the edges of the transverse incisions could be brought together it was necessary to bevel down the edges of the overhanging bone at the roof and floor of the obliterated cavity.

Had the condition of the patient under the anaesthetic permitted of sufficient bone being removed to bring the flaps accurately together recovery should have been more rapid.

REFERENCE.

¹ *Archiv f. klin. Chir.*, lii, 145.

THE Prefect of Police in Berlin has notified the German medical profession that the authorities are disquieted by the great fall in the number of pathological specimens sent to the laboratories for investigation. He points out that this slackness on the part of medical men greatly increases the chances of epidemics. However much the ranks of the medical men may be depleted by the demands of the army, the authorities, he declares, cannot allow practitioners to neglect one of the most important measures for the early detection and localization of infectious diseases.

THE TREATMENT OF SEPTIC WOUNDS BY THE ELECTROLYTIC BATH.

BY

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THERE has lately been much discussion of the possibility of sterilizing wounds by antiseptic lotions. A weak solution will not kill the septic organisms, and a strong solution will kill those it can reach, but produces a slough, which provides excellent culture material for those deeper in the tissues. The question asked was: "How can we attack those germs which remain in the tissues?" Bacteriologists have had some success in this direction with vaccines and serums, utilizing and fortifying the natural resistance of the body to the infection.

It did not occur to any one to ask, How can these germs be induced to leave the deep parts? The idea that a Pied Piper should arise to call them from their fastnesses to be destroyed seems fantastic; yet it appears that this is not only possible but in many cases easy. The credit for the discovery belongs to Dr. Charles Russ,¹ who found that nearly all germs are carried towards the positive pole of an electric current passing through a solution of sodium chloride, and that the small current required is lethal to the bacteria without the need for any aid from the ionization of various drugs, such as the salts of zinc and copper, which have been much used for the purpose of introducing an antiseptic into the cell's.

The practical results of treatment seem to support Dr. Russ's observations. I have been much impressed by the success obtained in every case that I have treated. I will only describe one, a perforating gunshot wound of the foot, with a crater on the dorsum leading to a tunnel through which the little finger could be passed and which opened on the sole of the foot. The whole wound was welling with pus and it seemed doubtful whether the man's leg could be saved; five days later granulation tissue was level with the skin at both wounds, which were surrounded by a healthy looking ring of new skin.

The action of the current is not confined to carrying bacteria from the wound, but also stimulates the formation of granulation tissue and epithelial growth.

The treatment opens up a wide field for further research in the treatment of many intractable conditions. Dr. Russ reports some cases of chronic cystitis in which it has produced very satisfactory results.

Apparatus.

The only apparatus required is a battery of 20 to 30 dry cells with a current collector and a good milliamperemeter reading to 25 m.a. with a shunt to 250 m.a.

Baths.—A Schnee four-celled bath is very convenient, but any vessel will do if it is long enough to immerse the forearm and hand, or deep enough to cover a wound of the foot or leg, wounds of the other parts can have a local bath applied, such as a glass cylinder made water-tight with plasticine, as suggested by Dr. Russ, and filled with a warm saline solution.

Electrodes.—Two electrodes are necessary—the carbon of a Leclanché cell serves admirably, or they can be cut from sheet zinc. One is immersed in the bath with the wounded limb, and this must be connected with the positive pole of the battery, marked +. The negative pole has to be connected to some (indifferent) part of the body, either in another bath, or the electrode may be placed under the back of the patient, separated from the skin by sixteen thicknesses of lint well soaked in warm salt solution—this pad should be 12 in. square, and must be well washed after use to remove any trace of caustic soda produced by the current.

Method of Treatment.

The wounded limb being placed in the bath and covered with warm normal saline solution, the negative pole connected to some other part of the body, the current should be slowly turned on from zero until the meter registers 20 to 30 milliamperes. This current, which the patient will barely feel, is sufficient for an average bullet wound; for larger wounds the current must be increased proportionately. The patient must be warned not to take the

limb out of the bath until the current is quite turned off, or he will get a shock; for the same reason the turning off of the current at the close of the treatment must be gradual.

Treatment should be given daily, for half an hour on each occasion.

My experience of the method leads me to recommend it as giving excellent results in all septic wounds and ulcers; it needs no expensive outfit and is painless.

REFERENCE.

¹ *Proceedings of the Royal Society of Medicine, Electro-therapeutic Section, vol. viii, No. 5, p. 45.*

A CASE OF HYSTERICAL AMBLYOPIA.

BY

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AN acquaintance with a few elementary principles of psychology is necessary for the proper understanding of the modern views concerning hysteria. Up to the time of Locke (1632-1704) the belief was generally held that all ideas are innate—that is, that the mind has the power of spontaneously drawing from its own depths conceptions and ideas which are quite independent of all experience. It was this philosopher who first taught the now generally accepted doctrine that impressions received from without must precede any ideas in the mind, that no ideas exist antecedently to experience. Locke likened the mind at birth to a sheet of white paper upon which the environment prints its messages.

There are reasons for thinking that each of us possesses a dual mental life—(a) the ordinary life of normal conscious thought, and (b) a subconscious mental life (the “subliminal consciousness”). This in effect means that there are two main planes of consciousness—a higher and a lower—and that impulses flowing into the lower plane are not of such degree of intensity as to excite immediate attention, but, being stored up in the mind as memory images, can, under the influence of certain stimuli, enter the higher plane of conscious thought, and thus be presented to the ego. According to Freud, there is no such thing as chance in the determination of a thought, for he postulates that for every psychic phenomenon there has been an antecedent experience in the life-history of the individual. He illustrates this thesis by the following history of a case: A certain young woman complained of the constant presence of the odour of burnt pudding, concerning which she herself could offer no explanation. By applying his method of psycho-analysis Freud eventually was able to trace the hallucination to its source; at a time of great emotional crisis in her life (a repressed love affair) she had been occupied with a burnt pudding.

Alice K., aged 21, exhibits all the classical symptoms of hysteria. She is highly emotional, self-conscious, of defective will power, keenly desirous of sympathy, and speaks in a whisper (hysterical aphonia). Her life has no satisfying aims.

Visual acuity varies within wide limits. Sometimes it is as low as $\frac{1}{60}$; at other times, particularly when her attention is distracted, it is as high as $\frac{1}{5}$. Retinoscopy shows +2 D. of correction. That there is no element of malingering is proved by the fact that she will unintentionally hurt herself by stumbling over a chair or knocking against a post. Just as visual acuity varies, so does the visual field vary, at times being reduced to a small area around the fixing point. On ophthalmoscopic examination the media are found to be transparent and the fundus normal. There are no signs of disease in any of the viscera. The blood pressure is not raised and the urine is free from albumin. The condition of the kidneys is very important, inasmuch as many cases of amblyopia are uraemic in origin.

Following Freud's method of endeavouring to trace every particular symptom to its source—some antecedent experience in the life-history of the individual—it was revealed that a short time prior to the onset of the visual defect the eyesight of the patient's father had begun to fail. This preyed considerably on her mind, and from then dates the beginning of the amblyopia. Having now traced the condition to its source, the next thing was to

get the patient frankly to acknowledge its nature, to face it bravely, and to bring the entire circumstances of it under the criticism of the mind. This line of treatment, combined with measures adopted to improve the general health, effected a cure by the end of nine months.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

HYPOCHLORITE SOLUTIONS IN THE TREATMENT OF WOUNDS.

SINCE reading the experimental observations of Professor Lorrain Smith and others on the use of hypochlorous acid as an antiseptic I have used a solution of hypochlorous acid, made by diluting the liquor sodae chlorinatae B.P. with water (one to four of water), extensively in the treatment of industrial injuries in the casualty department of the Bradford Royal Infirmary (at present under my charge). It has exceeded my expectations in every way, although, like many others, I have used it for many years in septic throat conditions with great advantage.

The liquor sodae chlorinatae has the advantage over “eupad” in that it is much more stable, and does not lose its gaseous contents so readily. It is also much more convenient—in civil hospitals, at all events—than the solid “eupad,” and its solution is less troublesome to prepare than “eusol”; also its hypochlorous acid content as demonstrated by its power of liberating iodine from a solution of potassium iodide, is greater than that of “eusol.” After over twenty years' experience of various antiseptics, I have no hesitation in saying that it is better than any other I know. It is cheaper even than mercury perchloride; it is non-poisonous, is non-irritating to the deep tissues and skin, being almost a neutral solution or only slightly alkaline; it does not either discolour or irritate the surgeon's hands, or destroy his instruments. I have done a number of amputations in badly lacerated hands, where there was every chance of sepsis arising, and even when the full strength of the liquor sodae chlorinatae was used primary union of the flaps was obtained. I have not worked out the lowest effective strength of dilution, but in all probability it can be used effectively in much weaker solution than I have employed. In several cases of previously septic wounds I have used the full strength with most gratifying results. My apology for writing this is that probably many medical men do not realize that they have at hand an old preparation which gives them the benefits of the most recent researches on the antiseptic treatment of wounds when the conditions are such that aseptic methods cannot be applied.

Bradford.

WILLIAM MITCHELL.

LOCALIZATION OF FOREIGN BODIES.

I HAVE been asked if my “ladder” localizer, described in the BRITISH MEDICAL JOURNAL of July 3rd, could not be adapted for the localization of foreign bodies by the fluorescent screen. The following method is quite simple and accurate: With the usual arrangement, the screen above the patient and the tube below, the latter is first set so that the vertical ray is in the plane of the ladder. The shadows of the wire rungs are thus superposed, forming one black line on the screen. This line is marked conveniently by placing over it on the lead glass of the screen a thin knitting needle, with a small piece of adhesive strapping at each end. The shadow of the chosen point of the foreign body is also marked by the point of an ordinary pin, similarly furnished with a bit of strapping. The tube is then moved so that the vertical ray passes through the chosen point of the foreign body. The ladder shadow is now, of course, spread out, the rungs appearing separately. The dividers are next brought into play, one point set on the former shadow of the foreign body (the pin point) and the other on the present shadow. The dividers are then moved to the ladder shadow (the line joining their points being kept parallel to its original direction) and moved along with one point kept lightly pressed against the knitting needle until the second point of the compasses falls on the shadow of a rung, let us say a quarter of the