

In mild cases it occurred only some time after taking food, and this alone might be brought up in a half-digested state, but when severer it was more or less constant and mucous stuff occasionally coloured with bile, and in a few instances blood-stained, was ejected. In some of our notes the similarity to the vomiting of a tabetic crisis is remarked on.

As in the large majority of cases in which this type of vomiting occurred the lesion lay in the region of the sympathetic outflow to the stomach it might be attributed to irritation or disturbance of the function of these fibres. And there is much evidence that this is its cause. Almost without exception these patients complained of girdle pains around the body, or on one or other side, between the level of the xiphoid and umbilicus, and of great tenderness to light contact, rubbing and other stimuli in the region in which the referred pain and tenderness associated with gastric disease occurs. Further, in several there was a persistent local contraction of a portion of the abdominal muscles between the xiphoid and the umbilicus corresponding to the cutaneous hyperaesthesia, which increased and produced pain when this area of skin was stimulated. In fact, the firm resistance and tenderness of this area to touch occasionally gave rise to the suspicion of a large intra-abdominal lesion. In a few patients the intercostals innervated by the same dorsal roots were also in contraction, and everted the ribs to which these were attached.

Vomiting occasionally occurred after injury to other regions of the cord, too, but in most of these cases it was associated with and probably due to intestinal paralysis, to severe septic infection, or to the cystitis or pyelonephritis which occur so frequently with spinal lesions. In a few cases of cervical injury, however, it was a prominent symptom, and could not be attributed to any of these causes.

When severe and frequent, such vomiting naturally exhausted the patient and induced emaciation. Great loss of flesh also occurs, as might be expected, in severe cases which run a downward course, but it is an interesting fact that it was seen also in patients with relatively slight injuries of the cervical enlargement who took food well and even had excessive appetites. We have observed several patients, for instance, with unilateral lesions of this region producing the Brown-Séquard syndrome, but apparently not affecting their general health, in whom there was extreme emaciation. In some of these the pulse-rate was increased, and there was slight pyrexia, but otherwise the visceral functions seemed unaffected.

PRIAPIST.

Numerous other symptoms occurred as a result of spinal lesions, to which time will not permit reference here. Priapism has been frequently described, especially with lesions in the cervical region, but we have observed it in only a small proportion of our cases, and it seemed to occur relatively as frequently with lesions of the dorsal as of the higher segments. It was usually merely a soft turgescence of the penis. If, as is assumed, it is merely due to vascular engorgement, it is interesting to note that it occurred in two of our patients with low temperature, low blood pressure, and a slow pulse-rate; it was present in one man when the blood pressure was only 73 mm. of mercury.

TROPHIC DISTURBANCES.

Various trophic disturbances were common in the severer cases, especially bullae and blisters in those parts of the paralysed regions which were subjected to any pressure. Irregular patches of red or strawberry-coloured discolouration, which were scarcely modified by pressure and disappeared slowly leaving a slight mottling of the skin, also occurred frequently in the same parts. Joint changes were not common in the early stages, though there was occasionally effusion with the knees or ankles when the legs were completely paralysed, and in a few patients we observed early arthritic affection of the fingers and wrist when the cervical cord was damaged.

HERPES.

Herpes occurred in nine cases, either immediately above or at the upper margin of the sensory loss. It developed between the third and the fifteenth day, and in three instances recurred in the same area. It usually first appeared as a zone of diffuse erythema with small papules which later became vesicular or pustular, generally in a

region in which there was either pain or tenderness. It usually lasted seven to fourteen days and disappeared, leaving some desquamation and brownish discolouration of the skin. Such larger vesicles as are seen in idiopathic herpes were not observed, and in one case there were only papules and vesicles without any erythema of the skin. In two cases in which *post-mortem* examinations were obtained the corresponding spinal ganglia were found bruised by displaced fragments of the vertebral column, and the clinical symptoms or the course of the missile made it probable that a ganglion was damaged in the other cases too; its pathology is consequently allied to that described for idiopathic herpes by Bärensprung, and confirmed by Drs. Head and Campbell.

The state of sensation in the herpetic zone was variable; in some cases there was only excessive tenderness to contact, rubbing, cold, and other stimuli, associated with spontaneous pain; in other there were the symptoms of a root-lesion, that is, a band of insensitiveness to pin-prick and to moderate degrees of temperature, with loss or diminution of tactility within it. In those cases in which there was definite sensory loss it was found that this was not coterminous or did not correspond with the area of the eruption; Sherrington has shown that the dermatomeres are not superimposed in the myomeres, and it is obvious, too, that the peripheral distribution of the radicular fibres, which, when injured, are concerned in the production of herpes, do not coincide accurately with either.

REFERENCES.

¹ Oliver and Winfield, BRITISH MEDICAL JOURNAL, 1915, vol. i, p. 247.
² Parkin, Guy's Hospital Reports, 1891, vol. xlvi, p. 107. ³ Nieden, Trans. Clin. Soc. London, 1873, vol. vi, p. 75. ⁴ Shorten, BRITISH MEDICAL JOURNAL, 1915, vol. i, p. 801. ⁵ Hutchinson, Lancet, 1872, vol. i, p. 714. ⁶ Weber, Trans. Clin. Soc. London, 1868, vol. i, p. 163.

Memoranda: MEDICAL, SURGICAL, OBSTETRICAL.

CONGENITAL ABSENCE OF RADII.

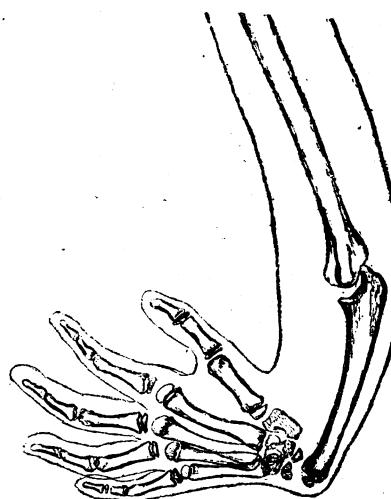
The publication in the JOURNAL of September 11th, by Major Mansel Sympon, of a case of congenital dislocation of the right foot with almost complete absence of the fibula tempts me to put forward a somewhat similar case, in which, however, both upper limbs are affected.

The patient, E. H., aged 16 years, an inmate of Dr. Barnardo's Homes, is, an intelligent child whose father, however, is insane and an epileptic.

Both hands are dislocated to the ulnar side, and are at right angles to the forearms; the radiograms—a drawing from one of which is reproduced—show that there is complete absence of both radii. The radiographs were taken by Dr. G. Gushue-Taylor in November, 1910.

In spite of her deformity she can write distinctly, and is being taught to do various kinds of embroidery, which she does very well.

JAMES A. MILNE, M.D., Lond.,
M.R.C.S., D.P.H.



"CHLORINE WATER" AS A DRESSING.

In the JOURNAL of May 8th I published an article on the "Sterilization of Water by Chlorine." It occurred to me over two years ago, when working at this subject, that in addition to using my method for water purification, one might also use the "chlorine water" thus prepared as an antiseptic lotion. By doing this one would have on

service an unlimited supply of antiseptic always at hand. I accordingly brought the use of chlorine as a wash and moist dressing into use in my regimental hospital and had every reason to be satisfied with the results obtained.

The strength of chlorine used by me is somewhat weaker than that used by Captain Fraser. My method of preparing chlorine is by acting on potassium chlorate with concentrated hydrochloric acid, the gas going into solution as it bubbles through water, as described in the article referred to above. In this way a solution of a strength of 1 in 500 of chlorine in water is obtained. As a wash it is used undiluted. As a moist dressing I dilute it 1 in 3, as if used in greater strength it causes irritation, which may even go on to vesication.

Prior to the war it was in general use in my regimental hospital for various septic conditions, such as ulcers, boot-bites, lacerated wounds, boils, etc., and as a gargle for septic throats (1 in 5) and a mouth wash in pyorrhoea alveolaris, it proved most efficacious. Since going on service a year ago I have continued to use it in these conditions, and also as an antiseptic wash and dressing for shrapnel and small arms wounds, no other antiseptic being used by me. The results obtained have fully justified its adoption, and, as already stated, the fact that the water sterilizing outfit is also an unfailing source of supply of so useful a lotion has proved a great boon. Many cases of flesh wounds have not needed to be sent to the field ambulances, and all have healed by first intention. The fate of the more serious cases, which have had to be evacuated, I am unable to write about, but the large proportion who were very quickly discharged from hospital and returned to the firing line indicates that their wounds also followed an aseptic course.

J. J. HARPER NELSON, Captain I.M.S.

SALINE SOLUTION AS A DRESSING.

I AM interested in the good results obtained from irrigating septic wounds with salt solution, for I have used it frequently for the last three or four years, and lately have been in the habit of dressing ordinary flesh wounds with a saline solution with good results.

The method that I have employed for ordinary surface wounds is by dressing them with a piece of surgical lint soaked in a solution of sodium bicarbonate, the lint being then covered over by a layer of oil silk or jaconet. This method promotes healthy granulations and a speedy repair of the damaged tissues.

W. ROUS KEMP, Lieutenant R.A.M.C.
Clipstone Camp, Notts.

Reports of Societies.

GAS POISONING : PHYSIOLOGICAL SYMPTOMS AND CLINICAL TREATMENT.

AT a meeting of the Medical Society of London on November 29th Dr. LEONARD HILL read the paper which will be found in full at page 801.

The President (Dr. W. PASTEUR) related a case of a man who had been gassed three times with chlorine, and who arrived in England apparently well, but who every two or three days suffered from attacks of dyspnoea and lividity. It was as yet undetermined whether these attacks were the result of organic causes or were of the nature of a neurosis.

Professor BENJAMIN MOORE said that an investigation of the effects of gas poisoning opened up experimental channels for the elucidation of respiratory diseases. The use by the Germans of the asphyxiating gases must have been premeditated and arranged by previous researches, and it must be our object to prepare offensive and defensive means of counteracting it. Fortunately, the gas used lent itself readily to means of defence. The oedema produced by it was profound; it was a protective reaction which was overdone, and the exudate practically drowned the patient. The first aim of treatment should be to drain off the exuded fluid; if a means could be devised to keep up the discharge of the fluid and at the same time to leave sufficient lung active much might be achieved. Nearly all the severe cases in animals, if not immediately

fatal, ultimately terminated fatally from septic bronchopneumonia. The attention of clinicians should be drawn to this, so that the risk might be prevented if possible.

Dr. WILLIAM HILL suggested that possibly a combination of tracheotomy and the use of exhaust bottle might allow both of regular drainage and the administration of oxygen. In civilian work it had been found that a drop or two of ether relieved the surface tension of the fluid at once, and the foam about the mucus disappeared.

Mr. C. V. CARGILL referred to a case of retinal haemorrhages in each eye which had followed "gassing." It had cleared up in a few weeks.

Dr. NEWTON PITT pointed out that the effect of obstruction of bronchi was first pulmonary collapse but afterwards over-distension. This had an important bearing on the intense dyspnoea. The lung became more and more over-distended, and air was sucked to its superficial parts while the fluid collected in the deeper. An important factor in treatment was to lower the patient's head and to compress the chest to get the fluid to pass out. Permanent changes seemed to be produced in certain cases. In oedema of the lung and serous exudation in the lung, such as occurred after tapping the pleura, atropine had been found distinctly useful. There was also some evidence in favour of the use of adrenalin and pituitary extract. He disapproved of the use of the term "emphysema" for over-distension produced by mechanical means.

Dr. LEONARD HILL, in reply, said that he could not agree that fluid collected in the most dependent parts of the lungs. Its distribution was somewhat peculiar, and possibly due to the action of the bronchial muscle, which allowed fluid to enter some parts while it prevented it in others. He had restricted his remarks concerning atropine to severe cases; there was no reason why it should not prove beneficial in milder ones.

Reviews.

MATHEMATICAL BIOCHEMISTRY.

IN its earliest days chemistry was a purely qualitative science, a matter of tests, colour-reactions, precipitates, and explosions. Towards the end of the eighteenth century it took on a quantitative cast, and proportions by weight or volume came to be regarded as of increasing importance. As a further step in the same direction, physical chemistry became more and more a matter of mathematical analysis and expression in the last quarter of the nineteenth century. It is now the turn of biological chemistry and the chemistry of immunity to be annexed and elucidated by the mathematicians. Eighteen months ago Dr. SVANTE ARRHENIUS delivered the Tyndall lectures at the Royal Institution, choosing for his subject the mathematical treatment of biochemistry. He has now amplified these lectures, and published them in the form of a book¹ containing six chapters. These are cast in the rigid lines of physical chemistry, and deal with various aspects of chemical reactions and chemical equilibrium in their particular applications to the living body and immunization. The author is at pains throughout to show that life is after all a matter of mathematics, and that living processes, like the processes of inorganic nature, are amenable to mathematical treatment by means of graphical representation, logarithms, coefficients, integration, and the like. The book is one for biologists and chemists with mathematical turns of mind; for example, the author expresses (p. 88) the whole progress of the digestion of meat by dogs in the formula:

$$dx : dt = 125 (1 - e^{-0.008t})$$

in which x is the quantity of undigested flesh in grams.

It is very satisfactory to find explained in this book the way in which mathematical analysis has pulverized the "poison spectrum" attributed to certain toxins, such as diphtheria toxin, by Ehrlich. It is only a few years ago that Ehrlich and Sachs, analysing as experimental pathologists the toxicity of various mixtures of toxin and anti-toxin, came to the conclusion that diphtheria poison contained within itself as many as ten varieties of "toxins"

¹ *Quantitative Laws in Biological Chemistry*. By S. Arrhenius, Ph.D., M.D., LL.D., F.R.S. London: G. Bell and Sons, Ltd. 1915. Demy 8vo, pp. 175; 36 figures. 6s. net.)

Universities and Colleges.

UNIVERSITY OF EDINBURGH.

AT the recent medical preliminary examination 54 candidates passed and 21 failed in English, and in mathematics the numbers of those who passed and failed were the same. In Latin 48 passed and 39 failed; in Greek 5 passed and 2 failed; in French 42 passed and 32 failed; in German 3 passed and 3 failed. All those who were examined in Gaelic, Malayalam, Urdu, Sanskrit, Persian, and Yoruba passed.

The number who completed the preliminary examination in the Faculty of Medicine was 133, as against 119 in January, 1914. The total number of first year students, including women, is 188; the number of extra-academical women students is 111. (The total number of women students in connexion with the university is 613, as compared with 621 last year.)

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Annual Meeting of Fellows.

LIEUTENANT-COLONEL JOSIAH OLDFIELD, R.A.M.C.(T.) writes: Please allow me to correct the report in your last issue as to the meeting of the Royal College of Surgeons. You state: "After some further discussion, in which Lieutenant-Colonel Oldfield took part, this motion was carried." I regret that, owing to my military duties, I was not present at the meeting, and therefore did not take any part in the discussion. My views on the question of admitting Members to a share in the government of the College are wholly opposed to those of Sir Watson Cheyne. What I have claimed time and again at the annual meeting is not that the College should be transformed into "a political institution," but that it should become a real *alma mater*, on scientific, ethical, and protective lines, to all its members. At present it does but the barest minimum instead of seeking to do the highest maximum possible for them. A Council keen on the educational and scientific side would provide a better library; so draughty and wanting is it in the essentials of what a library should be, that wherever possible I go to study at the Lincoln's Inn rather than at the College of Surgeons Library, and it is because this latter library is used for banquets that it cannot be fitted up as a library for study should be fitted up, and yet Sir Watson Cheyne claims he is working for "an educational and a scientific institution." The College has failed in its functions, too, on ethical and protective lines. In the great fight on insurance, in the great struggle of members to be allowed to use the title of doctor (that is, *doctus*, or learned in the art of healing), in the important questions of equalizing examinations and unifying degrees—to give a few instances of non-political problems which gravely affect the wellbeing of members—the College has given no lead nor taken any care of its members. Surely the Council should be scientific enough to know that the appreciation of evolution is quite different from the fear of revolution, and yet the latter is the annual plea put forward for perpetuating ineptitude.

The Services.

EXCHANGE DESIRED.

CAPTAIN, Field Ambulance, wishes exchange with another Captain, Base Hospital. Address No. 5790, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

DR. GEORGE MINTO JOHNSTON has been added to the Commission of the Peace for Leith.

AN electro-therapeutic department for the treatment of gonorrhoea has been established at the Male Lock Hospital, Dean Street, W., and placed in charge of Mr. C. Russ, M.B.Lond.

THE Hunterian Society held a clinical meeting on November 24th at the Heart Hospital, Westmoreland Street, London, W., the plans of which were explained by the secretary. A series of cases were shown by members of the hospital staff, and Dr. Hamill and Dr. Strickland Goodall demonstrated the working of the electrocardiograph and explained the interpretation of electrocardiograms.

THE drawing-room sale in aid of the funds of the Royal Medical Benevolent Fund Guild, to which the attention of readers was called in the BRITISH MEDICAL JOURNAL of November 20th, took place at Crewe House on November 24th, and attracted a crowd of visitors. They showed their sympathy with the cause in aid of which the sale was arranged in a very practical form, with the result that a sum amounting to just over £1,000 has been added to the funds of the guild. It is highly gratifying that the public

should have come to the help of a medical charity in so generous a spirit, and we are sure that the whole profession will join with us in congratulating Lady Tweedy and her fellow workers on the success of their efforts.

AN action for damages, laid at £40,000, was recently brought against the New York Rockefeller Institute for Medical Research and three members of its staff by two former employees at the institute, who alleged that the doctors sued had persuaded them to submit to the injection of a serum, and that as a result of carelessness and negligence they had become infected with an incurable disease. The case came before the United States District Court on November 4th, and was dismissed on the ground that the facts stated were insufficient to constitute a cause of action.

THE committee of the Heritage Craft Schools at Chailey, Sussex, reports that seven old boys, once crippled, are now serving abroad, four of them as transport drivers. Since the outbreak of war the boys' workshops have been wholly occupied in the making of war equipment, furniture, and appliances for hospitals. The Princess Louise Military Wards have been established as a relief hospital, in connexion with the London Hospital, for the reception of wounded soldiers. The enterprise is in need of funds, owing to the increase in the cost of provisions and material and to other causes. A handicraft sale of objects made by the children will be held at the Girls' Heritage, Chailey Clump, on Saturday, December 4th.

I. MARZINOWSKY (*Medizinskoye Obozrenie*, No. 20-21) relates that Dr. N., in order to investigate the infectivity of the scarlatinal desquamation, carried out upon himself the following experiment: Having made several incisions over the skin of the shoulder, he applied to the scarified surface a thick layer of an emulsion made of a mass of desquamating cuticle, triturated in a physiological solution, but no infection followed. He then performed the same experiment upon himself with the desquamation of two adults in the second and third weeks of scarlet fever and upon his son, aged 15, who had never had scarlet fever, by applying the emulsion directly to the nose and tonsils with a negative result. Denying the infectivity of the scarlatinal desquamation, the author is of the opinion that the vehicle of contagion is derived from the mouth and nares, and that it is transmitted through "carriers" of scarlet fever as well as through those who suffer from it.

IN the course of his address to the Röntgen Society the new President, Mr. J. H. Gardiner, F.C.S., referred to the suggestion that it might be possible for the medical man of the future to be provided with a set of *x*-ray tubes, duly labelled for the production of any desired kind of rays. Such a project appeared very enticing, but he doubted whether it would be possible or even desirable. There were too many conditions involved to enable *x* rays to be put up in bottles like drugs, and for the purpose of exact research such a plan was unthinkable. Nevertheless, it was now possible to produce and maintain rays of any desired value, and if the immense differences in the effects produced by luminous radiations differing only slightly in their wave-lengths were considered, it did not seem unreasonable to expect that similar special reactions might be due to shorter rays of some definite quality. The investigation called for very great refinement, and the man who was going to make the desired advance would have to combine the qualifications of a pathologist with a thorough knowledge of the physics involved in the passage of electricity through gases. It was now practically certain that Roentgen rays differed from the familiar electro-magnetic disturbances of light, heat, and electricity only in the extreme shortness of their waves, which ranged from about one twenty-millionth to one five-millionth of a millimetre. In the purely physical sphere of investigation the field was equally interesting, but the vacuum tube had not yielded up all its secrets. Vision for most people ended in the blue-violet. Shorter waves than these belonged to the ultra-violet and Schumann region, where chemical and ionizing actions reached a maximum. Beyond this and before the softest radiations were reached there occurred a hiatus, a dark continent of the deepest interest for the physicist, for in that region took place the profound changes which distinguished luminous radiations from those produced in a vacuum tube. At the other side of the vacuum tube rays, beyond what the radiologist called hard rays, and before the gamma rays of radio-active substances were reached, there occurred another small gap. Here much work was being done at present, and there was reason to believe that before long it would be possible to construct tubes which would give rays closely approaching, if not corresponding to, gamma rays in wave-length.