data on which this ratio was founded. If it is based on whether or not a patient returned to the same hospital for treatment, it is almost certainly fallacious. Out of my series of 158 cases, I have only had one case returned to hospital with a relapse, but I know of one or two others treated elsewhere. All relapse statistics are unreliable, in my opinion.

No hard-and-fast rule can be laid down for vaccine dosage, as some patients react more than others, and some stock vaccines seem to be more potent than other varieties. Both Lumb and myself, working independently, have found that large and early doses of vaccines tend to shorten the duration of the disease.

Cases in which Vaccine Treatment is Especially Indicated.

In posterior complications especially, one is obliged to fall back on vaccines rather than irrigation. In acute prostatitis, few, if any, patients can tolerate massage in the early stages. Complete irrigation also, in the early stages, is almost impossible, both owing to the tenderness of the prostatic urethra and to the spasmodic contraction of the sphincter when this is inflamed and irritable, as in prostatitis. To pass instruments, such as a catheter for irrigation, is bad practice under these conditions, unless absolutely necessary to relieve retention of urine, and, even then, only as a last resource when belladonna suppositories and hot hip-baths have failed, but these remedies are generally successful.

In acute epididymitis also, complete irrigation generally causes increased pain and swelling of the affected testicle. I have found that glycerine and belladonna (B.P.) is the most soothing application.

In both these cases vaccines are certainly indicated, if only to keep the disease in check until measures such as irrigation and massage can be resorted to, even if vaccines have no curative properties—a theory which I do not hold.

In most cases of epididymitis there is some involvement of the prostate or seminal vesicles, or both. If one considers the close relationship of the openings of the common ejaculatory ducts and those of the prostate round the verumontanum, the involvement of the prostate at the same time as the epididymis seems to point to direct infection of these organs via their ducts, and not to an infection by the bloodstream. In acute articular rheumatism the infection must be via the circulation.

Other Forms of Treatment.

Electrolysis.—With regard to electrolysis as practised by Russ, I have tried this in 17 cases, but find nothing to recommend it. I consider it extremely bad practice to introduce any kind of instrument into an acutely inflamed and purulent urethra, unless absolutely necessary. The cases in which I tried it had passed the acute purulent stage. Out of 17 cases, 3 showed no gonococci in their urine, after treatment, and were dry. In 7 cases I had to stop treatment owing to threatened or commencing complications—viz., 41.2 per cent. These were as follows:—

Three cases complained of acute pain or marked soreness after electrolysis.

Three cases had hæmorrhage or hæmaturia after it.

One case developed orchitis.

No improvement was noticed except in the three cases which finally showed no gonococci, and these were well on the way to cure when this treatment was tried. Lumb, in the paper quoted above, also found no cure in electrolysis.

Ultra-violet rays.—Lieutenant C. N. Lord, Canadian Expeditionary Force, devised an ingenious tube for introducing ultra-violet rays into the urethra, which I tried in a few cases of chronic anterior urethritis, without, however, obtaining any startling results. I was transferred shortly after receiving the instrument and so could not continue my experiments.

Medicines.—With regard to medicines, except for buchu to relieve dysuria and hexamine occasionally for cases of posterior urethritis, I have no faith in internally administered drugs in gonorrhœa, and their uselessness has been shown by Major H. C. Donald and Captain A. M. Davidson, R.A.M.C.,³ who found that medicinal treatment, alone, retards cure, and increases the tendency to relapse. This is certainly opposed to the practice of avoiding local treatment and merely trusting to medicines. The paper quoted above shows the necessity of local treatment.

The urethra itself forms a means of exit for the pus, and so surgical measures are seldom indicated unless one gets

an infected gland with blocked ducts, forming a superficial abscess pointing to the skin. Yet this is no reason for omitting to wash away collections of pus and not trying to kill the organisms inside with local applications of antiseptics. One has sometimes to prescribe santal oil as a placebo, but its only apparent action is to upset the digestion. Finally, one must not neglect the psychic element. Everything in the way of light amusement, and, when the acute stage has passed, outdoor games and exercises should be encouraged, to prevent the patient from brooding over his venereal trouble.

Summary.

The earlier the treatment the better the chance of recovery and the less likelihood of complications.

The ideal is to combine local curative treatment with general treatment to build up the patient's resistance to the disease. For local treatment one should employ irrigations with as non-irritating and at the same time as potent an antiseptic as possible.

Irrigation is to be preferred to syringing, as with an irrigation it is possible not only to use a larger volume of fluid than with a syringe but also to dilate the urethra to a greater extent, and so open out the various folds and crypts in the mucous membrane and drive the entrenched organism from its dug-out. Care should be taken to avoid driving back infective material to the posterior urethra, either by complete irrigations or by the use of instruments, early in the disease. At present the best antiseptic on the market appears to be flavine in strengths of 1/6000 to 1/8000. I am now experimenting with stronger solutions.

The best way of building up the resistance is with vaccines, given in large and constantly increasing doses. Medicines are useless, except to alleviate certain symptoms, such as dysuria, when they occur.

WAR INJURY FROM SIGNAL LIGHTS.

By W. J. RUTHERFURD, M.C., M.D., CH.B. GLASG.,
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AN article has appeared in a German publication, epitomised in the *British Medical Journal* for Sept. 29th, 1917, on wounds due to the discharge of Verey lights, or their German equivalent, and other forms of signal lights discharged from a pistol. The author, who describes the condition as rare, gives 1 case from his own experience, notes of 10 others, and reference is made to 19 more reported from the German Navy.¹ The impression gained is that these missiles, fired at close range, inflict grave injuries, the mortality from which is high, the 30 cases collected by Kessler in the paper referred to having a mortality of nearly 27 per cent.

Nature of Injuries.

It is evident that an incandescent missile, fired at close range, may, if it lodges on a situation such as the face or the pit of the stomach, cause grave injuries, the shock from which might have serious consequences; or the superficial lesions caused by which might afford opportunity for the onset of tetanus or other infection.

In the case recorded by the German author the patient was burnt and wounded on the upper part of the right lower limb, and was in a state of coma and collapse when seen in the field dressing station two hours after receipt of his injury. Surgical emphysema was already present locally, gangrene speedily supervened in both lower limbs and the patient died within 24 hours.

The evidence points to death having been due to an extremely rapid infection of the wound by a gas-producing organism, such as the bacillus of Welch; but Kessler appears to consider the surgical emphysema as having been caused by gases of combustion generated by the star-shell and forced into the tissues locally, while he concludes that death was due to carbon monoxide poisoning, since a sample of blood examined during life was said to present the spectroscopic characters found in this form of gas poisoning.

That CO-hæmoglobin was really present it is almost impossible to credit, and it is probable that a grave error of observation, combined with the *cacoethes Teutonicus*, has been responsible for his opinion. It is well known that

³ Brit. Med. Jour., 1917, ii., 512.

¹ Volkmann's Samml. klin. Vorträge, 729, Chir. 199, 1917.

previous to the addition of a reducing agent, such as a solution of ammonium sulphide, the spectra of oxy-hæmoglobin and of CO-hæmoglobin are not unlike one another.

Notes of Case.

If this condition is as rare as would appear from this German war publication, it may be of interest to place an observation of my own on record, if only for the sake of coördinating knowledge of this subject.

In the early part of 1916 I was on duty in Loos, and one day an N.C.O. in an infantry regiment came to my aid-post with the following story. The previous night he had got up on the fire-step of the front-line trench in order to fire a Verey light. While leaning over the parapet his foot slipped as he was in the act of pulling the trigger of the Verey pistol; he brought his arm down suddenly, and before he could recover himself the light was shot up the sleeve of his left arm. The missile lodged in his clothing at the bend of the elbow, burnt through shirt, tunic, and great coat, and then fell out into the trench, where it continued burning. Although these lights are composed of a metallic mixture, it had shown no tendency to adhere to his flesh in the way a splash of molten lead sometimes does, or in the way that particles of thermite appear to do, from what I can gather. The burn, which did not extend deeply and was of the first and second degree, was not extensive, and the patient carried on until daylight, being an Irishman and possessing the national characteristic of unwillingness to cause trouble of a certain type—"Sure, and he thought I would be needing my rest." There was absolutely no indication of surgical emphysema due to gases forced into the tissues. The projectile had evidently shown no tendency to disintegrate and cause multiple injury, but had burnt as a whole, and was sufficiently heavy to drop out through the hole it made whenever the clothing had burnt through sufficiently to let it do so. Of course, the patient had required to extinguish the fire in his clothing when he had got rid of the cause of the trouble.

This was an entirely favourable case, though it is possible that the Boche star-shells are more powerful than ours, as they give a brighter light. It is possibly indicative of the "windiness" of the German Navy that 63 per cent. of the cases collected by Kessler are from that branch of the service. The condition resulting from an injury of this sort, however deep the lesions may be, is just a burn, and must be considered and treated as such, although when occurring in the trenches it would be wise to regard it as a potentially infected burn, and to give the patient the benefit of a dose of antitetanic serum, in the same way as cases of "trench feet" with broken skin require to be treated, and as has for some years been done in the United States in the case of injuries from fireworks and rockets during their Independence Day celebrations. In short, in the Army this should be a matter of routine, even if it were not considered so obligatory in the Navy, which does not stay permanently at home; the organisms of tetanus do not multiply on decks swept by the salt seas.

Signal Lights used as Missiles.

I understand that there have been cases during fights in the air when an airman has exhausted his ammunition, or jammed his gun, and has then taken to firing signal lights into his enemy as missiles. The *Gazette*, for instance, in connexion with the award of the D.S.O. to Second-Lieutenant C. W. Warman, M.C., D.S.O., records that—

"On one occasion, when separated from his patrol and surrounded by 20 hostile machines, he fought his way through, although his machine-gun was useless, by attacking them with his Verey pistol."

I know nothing as to what injuries, if any, have been caused by such means in these cases.

The following, from the *Scotsman* of Nov. 29th, 1917, gives further information on the same subject. Under the heading of "Officer's Accidental Death," a short paragraph proceeds:

"A verdict of accidental death during necessary military operations under active service conditions was returned at an inquest at Middlesbrough yesterday upon Second Lieutenant Alfred Lewis Ilsley (26), of Chelmsford. The evidence showed that Ilsley, who had served ten months in France, was taking part in night operations at a north-east camp. He was leading an attacking platoon and had got through the opposing lines when he observed a defending officer in the act of discharging a Verey light pistol. He seized his arm, but could not arrest the accident, and he received the charge full in the face, dying in hospital from concussion."

LUNG-PUNCTURE IN THE TREATMENT OF INFLUENZAL PNEUMONIA.

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THE comparative inefficiency of all vaccines hitherto used in cases of pneumonic influenza makes any new therapeutic measure which affords a chance of saving life worthy of trial. The treatment here described has been employed in the above hospital during the last two months in a series of 41 patients, many very seriously ill. Their ages ranged from 10 months to 68 years and the patients showed all degrees of resistance. It is well known that the infective agent attacks with peculiar preference the most robust, among whom the death-rate is particularly high.

Whether the causal organism be the filter passer originally described by Nicolle and Lebaillly,¹ confirmed later by Gibson, Bowman, and Connor,² and still later by Bradford, Bashford, and Wilson,³ or that described as organism "D" by Donaldson⁴ (which may turn out to be the visible form of the first-named filter passer), is a matter for investigation and does not invalidate the efficiency of the new method. If latter possesses any real value we might expect the most striking results in the severer types.

Rationale of method.—This treatment aims at determining a local accumulation of polymorphonuclear leucocytes, and so stimulating phagocytosis, by setting up a focus of irritation in the pneumonic areas. It is an application to the lung of the principle advocated by Kraske, in the local treatment of erysipelas. His method is to make superficial cutaneous incision all round the affected portion of the skin about an inch or two from the spreading margin. It may be considered analogous to laparotomy in the ascitic variety of tuberculous peritonitis.

Technique.—The first step is to determine accurately, by means of percussion and auscultation, the situation and area of the consolidated patches. A hollow needle or trocar about 2 inches long is then introduced in the direction of the patch and allowed to remain in the lung for about 30 seconds. If more than one patch has been detected it is preferable to select the largest and to neglect the others. If the base is entirely affected, as in lobar pneumonia, or several patches of considerable size are present, a second puncture may be necessary. It was rarely needed to repeat the puncture in the above series of cases, and then only for exacerbation of the morbid process. Strict asepsis is essential. As regards the seat of election, the axillary or scapula lines are, if possible, to be preferred.

Specimen Cases.

Space only allows of brief reference to a few characteristic cases, but it may be stated that all patients treated by lung puncture recovered, except one in whom there were septicæmic complications, with very prominent pericardial and endocardial signs and but few lung symptoms. The following cases illustrate the effect of lung puncture.

A police-constable, strongly built, aged 36, was taken ill on Jan. 4th, 1919, with pain in the right side, troublesome cough, and high temperature. He went to work but collapsed in street. His doctor diagnosed fulminating pneumonia. The patient was admitted to hospital on Jan. 8th with T. 102.8° F., R. 32, P. 116. Tongue very dry and coated with dirty brown substance, gums septic, and teeth in bad condition. The face, lips, and auricles were very much injected and cyanotic; marked dyspnoea. Lungs: limited expansion on right side, definite dullness of a circumscribed portion of the right base, tubular and distant breath sounds over the affected area; numerous crepitations with increased vocal resonance and fremitus. The heart was neither displaced nor hypertrophied, while the pulse was easily compressible. Abdominal viscera were normal. Expectoration was very abundant and hæmorrhagic (not rusty). His general condition was very unsatisfactory. This was the peculiar type of influenzal pneumonia in this hospital usually ending in death after an illness of 2-4 days. Without delay the needle was introduced in manner described and left *in situ* for

¹ Brit. Med. Jour., Nov. 2nd, 1918.

² Ibid., Dec. 14th, 1918.

³ THE LANCET, Feb. 1st, 1919.

⁴ THE LANCET, Nov. 23rd, 1918, and Feb. 15th, 1919; Brit. Med. Jour., Dec. 21st, 1918.