often since, and for the last time on May 31st. He is now walking about freely, and has nothing, except a trace of the same numbness in the calf, to indicate that anything had been the matter, the aching in the knee having disappeared. The tibials cannot yet be felt to pulsate, but the warmth of the limb is hardly at all different from its fellow. On the whole, it is difficult to imagine a better result in every way.

ON PULMONARY CONSUMPTION AND INFECTION.*

By WILLIAM DALE, M.D.Lond.

IN presuming to address a few remarks to you on certain new views on pulmonary consumption as a basis for discussion, I hope to learn far more than I profess to teach. I shall therefore attempt nothing further in this paper than the recalling these views to your remembrance, with some brief comments thereon as I proceed; and, since they occupy so large a space in current medical literature, and have been adopted—I think hastily adopted—by many of our medical brethren, their introduction here cannot be considered out of place.

First, then, I judge we must admit that the parasitic micro-organism bacillus is almost invariably present in pulmonary consumption (Koch, Dr. Theodore Williams), notwithstanding that its nature has been questioned, and mainly, I believe, on the ground that aniline dyes, to whose aid we owe its discovery, are, chemically, very uncertain bodies.† But, on the other hand, our present knowledge does not, I submit, entitle us to the inference that this bacterian form is the essential cause of that disease,‡ for it has been well said: "It is quite possible that the evolution and involution of the bacteria in the sputa may proceed without there being necessarily a total causal relationship between the germs and the disease, just as the noise from a cataract may increase or decrease merely as a companion to the varying mass of water rolling, without having anything to do with the cause of the variation in the quantity of water."

Further, Dr. Koch professes to have inoculated this bacillus separately, and produced tubercle in the rodentia; but one may fairly question if he has done so, for other careful observers have made trial of the cultivations and inoculations after Koch's method, and have utterly failed.§

Again, for many years, it has been believed that, by the inoculation of brain, cheese, pus, putrid liver, etc., and even inorganic substances, similar results have been obtained as when tubercle itself was used.

In a letter of mine inserted in the *Medical Times and Gazette*, and transcribed into Braithwaite's *Retrospect*, vol. 86, p. 104, the question is thus raised. "It has long been known that certain bacteria, vibrios, etc., find a proper nidus in the degenerations of tubercle; but they have always been regarded as effects and not causes of pulmonary consumption, so that, in Koch's finding a parasite 'vegetable or animal' in tubercular matter, there is no new thing, though it may have a new form, and has certainly been honoured with a new name.

"Further, it is well known to physiologists and others who have given special attention to the subject before us, that brain, pus, cheese, putrid muscle, etc., when inoculated, will produce morbid results in various organs, which cannot be distinguished from those produced by the inoculation of tuberculous matter. How, then, can the morbid products of the inoculation of tubercle be considered as in any sense specific?"||

I have nothing to add to these words, for I contend that the questions they raise are still moot questions; and that, despite the alleged discoveries of Villemin and Koch, we cannot at present say that parasitism is the essential cause of pulmonary consumption. But the chief problem on the question of infection, I judge, to be this: let it be granted that tubercle will produce tubercle in the rodentia, and

* Read before the East Anglian Branch.

† Dr. Schmidt, of New Orleans, asserts that bacilli are merely fatty crystals soluble in boiling water. Rollin Gregg suggests that they are really only fibrin filaments.

‡ "Bacillus of Tubercle," *Medical Times and Gazette*, November 18th, 1882. Discussion at Medical Society of London, January, 1883.

§ Professor Feltz in a note to the *Gazette Hebdomadaire*, March 2nd, 1883, etc.

|| Dr. Satterthwaite of New York says: "By inoculation of indifferent substances, artificial tuberculosis may be produced" (*Medical Times and Gazette*, January 20th, 1883). See recent controversy between Spina and Stricker on the one side, and Koch on the other; also the experiments of Burdon Sanderson, Wilson Fox, and Andrew Clark, against Villemin, in medical periodicals some years since.

perhaps in other animals by inoculation, and that none of the substances mentioned above will do so, does this prove that consumption is infectious? I think not; for cow-pock produces cow-pock by inoculation, and in no other way; that is, in no sense can it be said to be infectious. An analogy, though more remote, may be seen in the poison of the snake and the rabid dog.

Finally, it appears to me that both the strong heredity in consumption, and clinical observation, are against the view that it is an infectious disease. For instance, when a family of fine-grown children, to the number of six or seven, or more, living apart and often far separated, are cut off by this disease—say at ages from fifteen to twenty-five—with terrible certainty, all being the victims of an hereditary predisposition or taint, to tell me that this fatality is the result of bacilli, either latent in the system or received from without, is simply to mystify my thoughts of hereditary descent in this matter, and not to enlighten me.

I believe, further, that the question as to the infection of consumption can be answered in no other way than by clinical observation, and that at present it must be answered in the negative; and, moreover—a point of some importance—the most enlightened people of the present day disbelieve it.

An instructive investigation on the subject was undertaken lately by the Cambridge Medical Society; and to the question, "Have you known any instances of consumption being communicated from one person to another?" not only did almost the whole of the members give a negative reply, but the principal medical men of Cambridge—men of large experience—stated, as a comment upon these replies, that they had no experience of the infection of consumption to record. At the same meeting, Mr. Lawrence Humphrey quoted some statistics of the Brompton Consumption Hospital, which I have also seen and quoted elsewhere, referring to the honorary physicians, house-physicians, matrons, dispensers, nurses, and attendants generally, which showed that these attendants were as free from consumption as those of any general hospital in the kingdom, and proved, I think beyond dispute, that the disease cannot be infectious, in the ordinary sense of the term; and truly, if experience on this subject is to be accounted of any value, it points rather to the dread predisposition to consumption, which so widely prevails, as the one essential pre-requisite of the disease, and not to the micro-organism in question—not, in fact, "to the theory which (as Dr. Pollock observes in the Croonian Lectures of this year) has its avowed basis in experiment, and not in clinical observation, and which is yet rather the fruit of the laboratory than of the hospital."

GUNSHOT-WOUND.

By D. J. G. CRAWFORD, M.B.,
Surgeon, Indian Medical Department.

THE patient, Naik (corporal) Ram Sing, was brought into hospital about 5 P.M. on April 6th, 1883, suffering from a gunshot-wound, and was seen within ten minutes.

History.—He was out shooting near the old fort, about two miles from Delhi, with a havildar (sergeant) of the same regiment. The latter states that he was some distance off, and did not see the gun fired, but, on hearing the report, looked round, saw the patient lying on the ground, and ran to help him. The patient states that he was moving about under a tree, looking up into the branches, trying to get a good sitting shot at a dove which he saw, when his foot caught in a root or stone, and he fell, dropping the gun, which was on full cock, and went off. Five pellets struck him, inflicting the following wounds.

(a) One pellet entered the thorax, over the eighth left rib, one inch external to the mammillary line.

(b) c Two others entered the abdomen, one above the other, in the same line, three inches lower down.

(d) One pellet entered the left arm at the outer side of the lower end of the belly of the biceps, half an inch above the bend of the elbow in the flexed arm. At the opposite side of the arm, two inches internal to the middle line of the supinated arm, was a large bruise, but no wound of exit.

(e) One pellet entered the right forearm over the radius, half-way between wrist and elbow.

The gun was loaded with, I think, No. 6 shot. With the help of his companion, he walked back to the regimental hospital, a distance of at least two miles.

When seen, immediately after admission, he was much excited, tossing about from side to side, and complaining of pain in the

abdomen, which was somewhat swelled; but was quite able to give a connected account of the accident.

Turpentine stupes were applied to the abdomen, and thirty minims of tincture of opium given. At 8 P.M., an enema was given, and he passed a small stool without blood. At 12 P.M., he passed another small stool, dark, mostly fluid, and containing blood. His stools after that night were normal and regular; they were examined for shot for several days, but none was found. His temperature the evening of the accident was 100.4°, the next night 99.4°, and afterwards normal.

I think it is probable that the shots which struck the abdomen penetrated the splenic flexure of the colon, as shown by the presence of blood in the stools. They must have struck the body with considerable force, for that which struck the left arm had very nearly penetrated it, and the gun must have been close to him when it went off. The patient was a heavy fat man, with a great quantity of subcutaneous fat on the abdomen, to which circumstance he probably owes his escape from worse consequences.

On the sixth day after the accident, the shot which struck the left arm was found under the skin in the centre of the above-mentioned bruise. On the tenth day, the shot which struck the right arm was found under the skin, one inch and a half external (in the supinated arm) to the wound of entrance.

The patient recovered without a bad sign, and asked to be allowed to return to duty on the seventh day after the accident. He was, however, kept in hospital for about a month, and finally discharged on May 8th, the thirty-second day after the accident.

REMARKS.—Apart from the fact that the patient received two shots in the abdomen and one in the thorax, fired from a distance which can hardly have been greater than one yard, and recovered rapidly and easily, this case is, I think, medico-legally interesting. There is no reason to doubt the patient's story, but I should hardly have thought it possible that a man could shoot himself with his own gun* in both arms, as well as in the abdomen and thorax.

TO WHAT EXTENT DOES THE INFLUENCE OF POSITION DURING THE ACT OF MICTURITION AFFECT THE FORMATION OF URINARY CALCULUS?

By RAGLAN W. BARNES, M.K.Q.C.P.,
Army Medical Department.

To many medical officers serving in India, who have the opportunity of seeing the practice in the civil hospitals and dispensaries up country, it must have been a matter of surprise to note the great number of cases of urinary calculus that apply for assistance, to say nothing of the much greater numbers whose caste, prejudice, and fear of operative interference prevent our seeing; and, although by no means an original idea, it has struck me after operating, and seeing great numbers of cases operated on, that the position of the native's body during micturition has more to answer for in the formation of stone than we are led to suppose. The almost universal position of the native of India during the act of micturition is that of "squatting" on his hams, and from that position he never rises till micturition is finished.

Now when we come to consider the diet, principally rice, highly seasoned food, such as hot curries and "dal" (a highly nitrogenous substance, eaten by the native with avidity), and the quality of the water with which this is washed down, it must be a matter of very little surprise to us to find how favourable a subject he is for the formation of calculus; but when we find, added to this, a distended bladder, and a position assumed in micturition which, to a certain extent, paralyses the action of the muscular organ he wishes to empty, I think we may assert that he does his best to bring about the disease which we are called on to combat. It is plain that, in the majority of cases, he does not empty his bladder, and that a certain amount of urine is left, to set up by its irritating action, some vesical inflammation, followed by the deposit of sabulous matters, and the formation of calculus, which generally takes the form of oxalate of lime, or, more rarely, uric acid or urate of ammonia.

I have searched in vain to see if this subject is mentioned in any text-book as a source of stone; and the question arises, if our surmises are correct regarding the influence of position, what measures

* The gun did not burst. It was a muzzle-loader, and old, but its barrels were not particularly worn.

must be taken to induce our Aryan brother to see the error of his ways, and to assume a position more upright and less hurtful?

Perhaps, as the march of civilisation proceeds in India, he may become morally and physically more upright; but, till that happy day arrives, I am afraid we shall not be able to hang up the lithotomy-knife, and allow the forceps to rust on the wall.

THERAPEUTIC MEMORANDA.

NOTE ON DISINFECTANTS.

MOST practitioners must have often realised the inefficiency of disinfectants in allaying the fœtor of cancerous ulcers, an annoyance which sometimes troubles patients even more than the pain, or the thought of death.

I have used the whole round of disinfectants for cancerous ulcers, but all have failed in allaying the fœtor, and keeping the ulcer clean. The disinfectants tried were carbolic acid, sanitas, terebene, resorcin, creasote, boroglyceride, chloride of zinc, charcoal, etc. After failure with these, I tried a saturated solution of hyposulphite of soda, added to an equal quantity of water, and found it exceedingly efficacious. The ulcerating surface was well syringed and washed with the solution, and was then covered with rags steeped in the solution. The granulations were kept clean, and the fœtor was well kept under.

Most disinfectants seem to lose their virtue after a few days' application, but I have used this one for months in the same patient with continuous good effects. It is cleanly, has no smell, does not stain, and is very cheap. I venture to recommend it to the favourable consideration of your readers, feeling sure that they will not be disappointed if they try it, and I should be glad to hear the results of their experience.

W. E. BUCK, M.A., M.D. (Cantab.)

CANNABIS INDICA.

HAVING reference to the effects of this drug, to which attention has been drawn by several writers in recent numbers of the JOURNAL, the experience I have just had in the case of a lady, aged 60, of rather peculiar temperament, in relation to the action of medicines, may be worth recording. She considers herself unable to bear tonics; but, as she was suffering from severe pain of what I considered a rheumatic nature, in a state of nervous exhaustion, I ordered the following: R. Ferri redacti gr. j; ext. cannabis Indicæ gr. ½; fiat pilula ter die sumenda.

About three hours after taking the first pill, she felt so giddy, that she was obliged to lie on the sofa; her fingers became icy cold and benumbed; she heard noises as though omnibuses were driving past, and she had visions of objects passing before her eyes; she felt drowsy, and, as regards her brain, much as she had done after taking opium when sleep had not followed. All these phenomena passed away in a few hours, and she attributed them herself to the iron. She wished to try another pill the next day, and she took one, with just the same results. I then enlightened her as to the effects being, in my opinion, due to the Indian hemp, and this ingredient was omitted from the pill. She then took the iron with impunity for several days.

Being herself anxious to test whether the symptoms above described were really due to the Indian hemp, she again took one of the pills (containing a half-grain of it), and, for the third time, the giddiness, etc., followed about three hours afterwards.

I may add that this lady has had relatives who have been martyrs to gout; she has felt none of its manifestations as regards the joints, although I doubt not some of her ailments may be referable to a gouty diathesis. She possesses a remarkably slow pulse, which seldom beats above forty in the minute.

W. M. KELLY, M.D., Taunton.

OBSTETRIC MEMORANDA.

CASE OF HEMIPLEGIA AFTER PARTURITION.

M. F., a primipara, after suffering slight labour-pains for about three days, was delivered on Sunday, November 19th, 1892, of a full-sized male child. The head was in the first position, but somewhat transverse. The uterine contractions were weak and infrequent, and, after an unsuccessful attempt to stimulate them by means of ergot, delivery was easily completed by the forceps. The patient progressed satisfactorily for thirty-eight hours, when she suddenly discovered that the whole of her left side was paralysed. When I