6. Gout is probably always preceded by some affection of the kidneys, functional or organic, which interferes with the proper excretion of uric acid. The probable seat of the kidney affection giving rise to gout is in the epithelium of the convoluted tubes.

7. In certain blood diseases and disorders accompanied by leucocytosis uric acid is formed within the system from nuclein. Under such circumstances it passes at once into the blood and is rapidly eliminated by the kidneys.

8. The solubility of uric acid in the blood is not affected by a diminished alkalinity of the blood produced by the addition of organic acids.

9. The deposition of sodium biurate is not accelerated by a diminution of the alkalinity of the blood.

10. An increased alkalinity of the blood does not increase the solubility of deposits of sodium biurate.

11. The saline constituents of vegetables exercise a remarkable inhibitory power over the decomposition of sodium quadriurate.

12. The solubility of sodium biurate in the blood is increased by the presence of the saline constituents of vegetables.

13. The solubility of sodium biurate in the blood is diminished by the presence of the saline constituents of meat.

14. The gout-inducing properties of certain wines are not due to their acidity. Probably they owe their gout-inducing action to the effect they exercise on the metabolism of the liver.

REFERENCES.

¹ *Maladies des Vieillards et les Maladies Chroniques*, 1874. ² *Med. Soc. Trans.*, vol. xiv, p. 88. ³ Croonian Lectures, BRITISH MEDICAL JOURNAL, i, 18:6. ⁴ *Deut. med. Woch.*, 1895, xxi, p. 655. ⁵ *Loc. cit.*

A CASE OF ANGINA PECTORIS TREATED BY ERYTHROL TETRANITRATE, WITH MARKED BENEFIT.

By J. B. BRADBURY, M.D., F.R.C.P.,

Downing Professor of Medicine in the University of Cambridge; Physician to Addenbrooke's Hospital.

E. G., aged 75, a medical man, twelve months ago began to suffer from angina pectoris. As no organic lesion was discovered the affection was declared to be neurotic, and treatment with digitalis, strophanthus, quinine, strychnine (hypodermically and by the mouth), cactina, arsenic, etc., successively, was tried without avail. The patient grew feeble, and the seizures became more frequent. The symptoms were pain in the sternum, elbows, and fingers; quick, painful, jerky respiration followed, unless the attack was cut short by nitroglycerine or inhalation of nitrite of amyl, by absolute agony, and an indistinguishable pulse. A fiftieth of a grain of nitroglycerine had always to be taken to enable him to dress, undress, creep out into the sunshine, etc., and seven or eight such doses were required in the twenty-four hours. The attacks were induced not only by slight physical exertion but also by mental effort (such as the writing of a letter), and they would even occur during perfect rest or during sleep. In the intervals of the attacks the pulse was 70, soft, and easily compressible. After taking a tabloid of nitroglycerine ($\frac{1}{10}$ gr.) the usual effects—throbbing at the temples, a fuller radial pulse, etc.—were felt, followed in two to three minutes by entire cessation of the pain, and return of normal breathing.

Erythrol tetranitrate (1-grain doses) was now suggested. Without my knowledge Dr. G. undertook some observations on himself, and very kindly afterwards sent me the following account: "Before taking the tetranitrate of erythrol at stated intervals I thought it would be instructive to ascertain by experiment the length of time the agent would afford immunity from the seizures of angina. It was taken, therefore, only when attacks were imminent, as known by pain supervening in the sternum, elbows, and fingers, before the breathing had become distressed or the point of agony approached. In this latter emergency nothing short of the inhalation of nitrite of amyl or the rapid mastication of nitroglycerine tabloids will lower arterial tension and afford relief. It would seem in my case that, notwithstanding the previously long-continued use of trinitrine, this tension was

more quickly lowered and longer relieved than is shown in your diagram (Fig. 10) in the Bradshaw Lecture.¹ Certainly in ten minutes I felt that the progress of the attack was arrested, and, as the figures below show, the interval of ease was more prolonged. The following table introduces the last three or four days' use of nitroglycerine by way of contrast. The system appeared to have become so insensitive to its action that $\frac{1}{15}$ gr. three times a day was now practically inert.

NITROGLYCERINE.

(In doses of $\frac{1}{10}$ gr. unless otherwise indicated; only taken on the approach of, or during, a seizure.)

February 28th, at 6, 8, 12, 3 ($\frac{1}{10}$ gr.), 7 ($\frac{1}{10}$ gr.), 10 ($\frac{1}{10}$ gr.)

March 1st, at 6, 8, 11 ($\frac{1}{10}$ gr.), 12, 4, 7, 9, 11.

" 2nd, at 3, 6, 8, 11, 1, 3, 5, 7, 9, 11.

" 3rd, at 1 ($\frac{1}{10}$ gr.), 8 (here erythrol tetranitrate arrived).

ERYTHROL TETRANITRATE.

(One grain was taken at each dose except where otherwise noted).

	Taken at	Repeated at	Interval.
March 3rd (cont.)	10 A.M.	7 P.M.	9 hours.
" 4th	6 A.M.	1 P.M. and 9 P.M.	—
" 5th	7 A.M. ($\frac{1}{10}$ gr.)	12 P.M. ($\frac{1}{10}$ gr.), 4 P.M. ($\frac{1}{10}$ gr.), 8 P.M.	—
" 6th	7 A.M.	6 P.M.	11 hours.
" 7th	6 A.M.	6 P.M.	12 hours.
" 8th	6 A.M.	1 P.M.	7 hours.

"Life being now rendered infinitely more tolerable and the potency of the remedy abundantly demonstrated, I determined upon taking it steadily, at about eight hours' interval, as a prophylactic. For three days there was immunity from attacks, although some weariness and oppression at the chest were wont to steal on after the lapse of six or seven hours from taking the tablets. I am now taking them four times in the twenty-four hours, and am sanguine enough to hope to keep the foe at bay altogether."

This case needs little comment. Dr. G. is right in stating that the pulse tension is more quickly lowered than is shown in the diagram to which he refers. The initial fall depends on the mode of administration. If the drug is given in spirit and water (1 grain in 1 drachm of alcohol and 7 drachms of water) the tension begins to fall in from two to three minutes; if given in a pill and swallowed the time is from twenty to forty minutes; if taken in tablet form and masticated the time lies somewhere between the two. The best form of administration is undoubtedly the tablet form. The alcoholic solution which I originally recommended sometimes irritates the stomach on account of the amount of alcohol it contains, and unless a rapid action is required it is better to give the drug in the solid form. Erythrol tetranitrate, however, was not introduced to replace amyl nitrite and nitroglycerine in cutting short attacks which have developed, but only to replace them in preventing the onset of the attacks. That it is capable of doing this much better than nitroglycerine, the best drug we had hitherto had for this purpose, I think the preceding case conclusively proves.

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, November 16th, 1895, p. 1217.

THE DIRECTION OF ROTATION IN CEREBELLAR AFFECTIONS.

By J. S. RISIEN RUSSELL, M.D., M.R.C.P.,

Research Scholar, British Medical Association; and Assistant Physician and Pathologist to the Metropolitan Hospital.

In a paper on the Value of Experimental Evidence in the Diagnosis of Diseases of the Cerebellum, published in the BRITISH MEDICAL JOURNAL of May 18th, 1895, when discussing rotation as a symptom of cerebellar disease I stated that animals deprived of one lateral lobe of the cerebellum rotated away from the side of the lesion. I then went on to explain how a human subject with disease of one lateral lobe of the cerebellum would be expected to rotate in order to be in agreement with the experimental results which I had obtained.

The JOURNAL of the following week contained a letter from Dr. Bruce Ferguson, in which he expressed the opinion that I had fallen into an error of expression; and he gave his reasons for considering that the direction of the rotation which I had described was towards and not away from the side of the lesion. As it was impossible to reply to his criticisms in the space at my disposal for a letter, I promised to write a paper dealing more fully with the question than I

had done in my original communication. This must be my excuse for submitting for consideration on the present occasion the following problems with regard to rotation, which I hope will serve to explain my former statements on the subject, and assist us in arriving at a uniform terminology in our descriptions of the direction of rotation in cerebellar lesions.

THE OBSERVER AND THE OBSERVED.

In describing the direction of rotation of an object as from right to left, or left to right, it is first of all necessary to decide whether we are to describe the direction in terms relating to the observer or the observed. We are as a rule in the habit of speaking of the sides of an inanimate object as left or right, not in terms relating to the object, but to the observer, so that in speaking of right or left of such an object we as a rule mean the side of the object which corresponds to the right or left side of the observer. It only rarely happens that such objects are described as having a right and left side independently of the sides of the observer. It is otherwise with regard to animate objects, however, for as they have a recognised right and left side of their own, irrespective of any relation these may have to the observer, when speaking of right or left in connection with them, unless otherwise qualified, there is room for considerable confusion, in that the right and left of the object do not always correspond to the right and left of the observer. Thus an animal placed in front of the observer with its head pointing towards the same direction as that towards which the observer is looking would be in perfect agreement with the observer as regards its sides, the right of the object corresponding to the right of the observer, and the left of the object to the left of the observer (Fig. 1). But an animal placed in front of the

Fig. 1.

observer, with its head turned to the observer and its tail pointing in the same direction as that towards which the observer is looking, would not be in agreement with the observer as regards its sides, for the animal's right side would now correspond to the observer's left and the animal's left to the observer's right (Fig. 2). So that if rotating in

Fig. 2.

the manner indicated by the arrows in the figures it would be necessary to state whether right or left used in the description referred to the animal or to the observer.

The matter is therefore simplified if we suppose the object

placed in front of the observer, with its head facing towards the same direction as that towards which the face of the observer is turned, for in this way the right and left of the object correspond to the right and left of the observer, so that only one meaning could be attached to a description of the direction of rotation, which is said to be from right to left, or one which is said to be from left to right.

In my descriptions of rotation in animals after unilateral lesions of the cerebellum, I have always adopted this plan, and I feel convinced that if we are to adhere to the description of rotation as taking place from right to left, or left to right, there will always be confusion unless this plan is adopted, by which means the right and left sides of the observer and observed correspond.

THE DIRECTION OF ROTATION.

No object rotating about one of its own axes can have all the points on its surface moving in the same direction at any given instant, for the direction of motion of any point moving round a circle is the same as the direction of the tangent at each successive instant. We can, however, see how the general tendency of all points on one half of the circumference of a circle, unable to fly off at a tangent, will be to move in exactly the opposite direction to that in which all points on the other half of the circumference of the circle are moving. A consideration of Fig. 3 will make my meaning clearer. If

Fig. 3.

R and L represent the right and left sides of a circle, and a, a', b, b' represent the quadrants of the circle, it must be evident that the rotation may be such that the tendency of any point X on that part of the circumference of the circle related to one of its upper quadrants, and unable to fly off at a tangent, is to move from right to left as indicated by the upper arrow, in which case any point X' on that part of the circumference of the circle related to one of its lower quadrants, under similar circumstances and at the same time, is moving from left to right as indicated by the lower arrow. The same thing is made evident by the directions of the upper and lower arrows in Figs. 1 and 2, which indicate the direction of rotation of a dog about its longitudinal axis. This being so, if we describe rotation as from right to left, or left to right, it is necessary that we should decide whether we are to describe the direction in relation to the upper or the lower quadrants of a circle. It is usual to picture or describe the direction of rotation of a wheel revolving round a horizontal axis according to the direction in which that part of its circumference in relation to its upper quadrants is moving. Similarly, the hands of a clock are said to move from left to right; but, obviously, they only do so during the time that they are passing through the upper quadrants of the circle they describe, for when they are passing through the lower quadrants they are moving from right to left.

Usages of this kind compel us to adopt the method of describing rotation about a horizontal axis in relation to the direction of motion of that part of the circumference of a circle corresponding to its upper quadrants, in order to avoid confusion.

If we decide to describe the direction of rotation of an object in terms relating to the object, and suppose the

observer and observed both facing in the same direction, with the former placed in front of the latter, and if we further always describe the direction of rotation according to the direction in which that part of the circumference of the object corresponding to its upper quadrants is moving, little room for confusion would be left. Indeed, having made up our minds to adopt the second of the three rules, the first becomes superfluous, and the observance of two rules alone would prevent any chance of confusion. These are:

1. That the object should be placed in front of the observer, and that both should be looking in the same direction.
2. That the direction of rotation about a horizontal axis should always be expressed in terms relating to the direction in which that part of the circumference of the object corresponding to its upper quadrants is moving.

ROTATION IN QUADRUPEDS.

For simplicity we shall limit ourselves to a consideration of rotation in an animal—for example, a dog, as it takes place about its longitudinal axis, which axis we shall suppose to be fixed, as in this case rotation can occur round no other axis of the animal, and there can be no translation of the animal as a whole from one point to another in space. If such an animal be placed on all fours in front of the observer, and, in accordance with what has already been said, be made to face towards the same direction as that towards which the observer's face is turned, and if, in rotating, that part of its circumference related to its upper quadrants is moved from left to right, then, in accordance with our earlier considerations, the animal may be said to be rotating from left to right; similarly, if the part of its circumference in relation to its upper quadrants is moved from right to left, the animal may be said to be rotating from right to left. (See Fig. 1.)

ROTATION AFTER ABLATION OF ONE LATERAL LOBE OF THE CEREBELLUM.

Let us go a step further, and suppose that the dog has had the right lateral lobe of its cerebellum removed. When rotation results as an effect of such a lesion the animal rotates on its longitudinal axis in such a manner that the part of its circumference related to its upper quadrants is moved from right to left (see Figs. 1 and 2); therefore, in accordance with what has already been said, rotation may be described as from right to left in such an animal. But the right side of the animal is that from which the lateral lobe of the cerebellum has been removed; therefore the animal may be said to be rotating from the side of the lesion towards the opposite side.

Such are the considerations which led me to describe the rotation which takes place in animals after removal of one lateral lobe of the cerebellum, as rotation from the side of the lesion towards the opposite side.

THE DIRECTION OF TRANSLATION.

The above method of considering rotation in animals has the further advantage that rotation and translation are then both taking place in the same direction. A wheel rotating about a horizontal axis and having one degree of freedom of translation also shifts its position from one point to another in space, according to the direction in which the part of its circumference in relation to its upper quadrants is moving. Thus, if the rotation is from right to left the translation is also from right to left, the wheel rolling from some point to the right of it to some other point to the left of it. So, too, an animal with the right lateral lobe of the cerebellum removed, if rotating, and if placed in the all-fours position, rolls from some fixed point to the right of it to some other fixed point to the left of it. Rotation and translation are thus both in the same direction, and may be said to be from the side of the lesion towards the opposite side.

There is still another advantage in considering rotation in this way in animals, for the lesser degree of translation which results from reeling, unaccompanied by rotation, also takes place in the same direction, the animal tending to fall from the side of the lesion towards the opposite side. Thus, the rotation, the translation by rolling, the translation by reeling, and the fall can all be said to take place in the same direction, by adopting the method of describing the direction of rotation which I originally employed in de-

scribing the results of experimental lesions of the cerebellum in animals.

ROTATION IN MAN.

Although this method of describing rotation seemed to be of such advantage in the case of animals, considered in their natural all-fours position, it was early apparent to me that there would be some difficulty in applying the results to man, in that man is not only considered in the erect posture by clinicians, but also as in front of and face to face with the observer (see Fig. 4).

Fig. 4.

Now, to apply to man the results obtained in animals, as already described, the conditions necessary to avoid confusion are very different to those just stated to be in vogue with clinicians. In fact, we must return to the two rules stated earlier in this paper, which require that the object should be placed in front of the observer, with its back turned to the observer (see Fig. 5), and that

Fig. 5.

rotation should be described according to the direction in which the part of the object's circumference related to its upper quadrants is moving.

The first requirement needs no further explanation; but this is by no means the case with regard to the second, for it may not at first sight be clear which part of the circumference, in the erect posture, corresponds to that in relation to the upper quadrants in the all-fours position. To make

this clear it is best to imagine the same dog that we have already considered in the all-fours position as now standing on its hind limbs, in the erect posture. A moment's consideration will make it obvious that the part of its circumference which was superior before (that in relation to its back) now becomes posterior, so that, as the dog is still supposed to be rotating in the same direction as before, we must describe the direction of rotation as it occurs in connection with the posterior part of the circumference of the animal, for if we were not to do this, but were to describe it in relation to the anterior part of its circumference, what we called rotation from right to left before would now be rotation from left to right, which would be absurd, in that the actual direction of rotation of the animal has remained unchanged, and is the same now as it was when it was in the all-fours position.

To be logical, therefore, we ought to consider man in precisely the same way that we have just considered the dog, and to describe the direction of rotation according to the direction of rotation of the posterior quadrants of an imaginary circle drawn round his vertical axis (see Figs. 4 and 5). Looking at the question in this way, a man with a destructive lesion of the right lobe of his cerebellum, if conforming to the behaviour of a dog with a similar lesion, would rotate in such a manner that the part of his circumference related to his posterior quadrants would move from right to left (see Fig. 5), or, in other words, from the side of his lesion towards the opposite side. But naturally at the same time that the part of his circumference which is posterior is moving in this direction, that which is anterior is moving in directly the opposite direction as represented by the arrows in Figs. 4 and 5.

It was because I saw that this was the logical way for me to apply to man the results obtained in animals and described upon the lines already detailed, but that it was so much at variance with the usual method of describing rotation in man as commonly employed by clinicians that I adopted the "screw method" of describing rotation as the least likely to cause confusion. I am quite in agreement with Dr. Bruce Ferguson that, according to my results, the man with a right-sided cerebellar lesion performs the right about turn in rotating, and therefore turns to the side of his lesion. Reference to my former paper, however, will show that I said nothing of man's rotating to the right or left, or to the side of his lesion or away from it. These statements were made in connection with the animal considered in the all-fours position, as already explained in this paper; I then explained how a dog, described by me as rotating away from the side of the lesion, could be compared to a screw going into the cork of a bottle, while one with a left-sided lesion behaved like a screw coming out of a bottle, and finally explained how a man, placed in front of and facing the observer, would be expected to turn under similar circumstances. All this was done with the set object in view of allowing any who were in the habit of describing rotation as clinicians commonly do in man, to see how to adapt my descriptions in the dog to theirs in man. If we make man our primary object, and describe rotation in him according to the direction in which movement is taking place in connection with that part of his circumference related to the anterior quadrants of the circle he describes in rotating, then we must do likewise in animals, and either imagine them to be in the erect posture, or, if in the all-fours, describe rotation in relation to the inferior and not the superior quadrants of the circle they describe in rotating. But that there are objections to this plan must be fairly evident from what has been said in that part of this paper which deals with the general question of the direction of rotation.

Before leaving this part of my subject, it may be well to refer to Dr. Ferguson's second contention that a patient with a lesion of the right lobe of the cerebellum, if placed flat on his back, rotates in such a manner as to turn on to his right side first, and that this is, therefore, rotation to the side of the lesion. There would be as much justification in my saying that because the same patient, if placed flat on his abdomen, rotates in such a manner as to turn on to his left side first, that therefore the direction of rotation is away from the side of the lesion; but there is no real justification for either statement. Had I been considering the dog as lying on its back, then it would have been reasonable to place

the patient on his back; but in that the dog was considered in the all-fours position, to be accurate we ought to consider man in this position also, or as lying on his abdomen. But we are not in the habit of considering man in this position when describing rotation in him, nor are we in the habit of imagining an animal as lying on its back when describing rotation in it, hence the convenience of the "screw," or some similar method of describing rotation.

THE ADVANCING SHOULDER.

The method of describing the direction of rotation according to the direction in which the advancing shoulder of the individual is moving is one which has been advocated in connection with man. Thus, if the rotation is such as to bring the right shoulder of the individual forward the rotation is said to be from right to left, whereas if the rotation causes the left shoulder to move forward, then the direction of rotation is said to be from left to right.

There is no objection to this as far as man is concerned, and it could be applied to animals considered in the erect posture, but it is not capable of more general application to all rotating objects in that the direction of motion of the advancing shoulder corresponds to the direction in which the anterior quadrants of the circle described are moving. This would be justifiable if in describing the direction of rotation of circular objects in general rotating about a horizontal axis, we did so according to the direction of motion of the inferior quadrants which, as has been already shown, correspond to the anterior quadrants in man and animals in the erect posture. But as it is in relation to the upper and not the lower quadrants that we are in the habit of describing the direction of rotation of objects rotating about a horizontal axis, and the direction of motion of the receding shoulder is that which in the erect posture gives the direction of rotation in relation to the posterior quadrants, which in their turn correspond to the upper quadrants of objects rotating about a horizontal axis, there seems more justification for describing the direction of rotation in relation to the receding than the advancing shoulder.

THE SCREW.

In my former paper I showed how, as suggested by Dr. Beevor, the direction of rotation might be compared to a corkscrew entering the cork of a bottle, or coming out of one; but this method of description has since been objected to on the ground that there are right and left-handed screws, so that all screws do not rotate in the same direction in entering a cork or other object. There can be no difficulty about the matter, however, if we state whether the direction of rotation simulates a right or left-handed screw entering or coming out of an object. Matters would be further simplified if we used the term "screw" without other qualification, except as to right or left-handed, and male or female. The last distinction is scarcely necessary, but to avoid all chance of confusion may be employed; so that in comparing the direction of rotation to that of a screw, all that is necessary is to say that rotation occurred as in the case of a right-handed male screw entering or coming out of an object.

THE CLOCK.

It has been suggested that "clockwise" and "anticlockwise" is the simplest way to describe the direction of rotation. That it ought to be the simplest way I have no doubt, but as to whether it is likely to be generally understood in the descriptions of rotation, either in animals or in man, without further explanation, is, I think, open to question. In the first place, the face of the clock may be supposed to be placed vertically, in which case a dog, for instance, placed in front of it, with its tail to the face of the clock, and rotating about its longitudinal axis in the same direction as the hands of the clock, would rotate in the opposite direction to that in which the hands of the clock are moving if its head instead of its tail were placed to the face of the clock.

Another way in which the clock may be considered is as forming a horizontal platform with its face directed upwards, and a man or an animal in the direct posture placed to stand on it. In this case rotation of the object about its vertical axis could be described as "clockwise" or "anticlockwise" without fear of confusion. A third way of con-

sidering the matter is to suppose the man or animal as forming the axis about which the hands of the clock are rotating, the head of either being in relation to the face of the clock. In this case man can be considered in the position natural to him—the erect—and animals in that natural to them—the all-fours—without any ambiguity as to the direction meant if “clockwise” or “anticlockwise” be the terms used to indicate it.

CONCLUDING REMARKS.

Of all the methods of describing rotation which have been considered in this paper, the simplest appears to me to be that of describing rotation in relation to a screw; for all that is necessary to avoid confusion in this instance is to state that a right-handed male screw is under consideration. This being clear, the direction of rotation either resembles a screw entering or coming out of an object.

The next in order of simplicity seems to be the method by which the direction is denoted by the terms “clockwise” and “anticlockwise.” Simple as the method is, however, it becomes useless unless the relation of the object to the face of the clock is clearly defined. This precaution possibly ought not to be necessary, as the correct relation should be understood; but I feel sure that the relation is not generally understood, therefore it would be well to always make this point clear in describing rotation according to this method.

There seems little to choose among the other methods of describing rotation, for in order to understand what is meant, they all require that the exact relation of the object to the observer should be clearly defined, and that it should be distinctly stated whether the direction of rotation is being described as it occurs in relation to the upper or lower quadrants of the circle described in the “all-fours” position, or in relation to the posterior or anterior quadrants of the circle described when the object happens to be in the erect posture.

NOTE.

^a In the case of the clock right and left refer to the observer's right and left when he is looking at the face of the timepiece.

A NOTE ON THE OCCURRENCE OF MALTA FEVER IN INDIA.

BY

A. E. WRIGHT, M.D., and SURG.-CAPT. F. SMITH,
Professor of Pathology, Army Medical School, Netley. A.M.S.

WE have elsewhere¹ in a paper on The Application of the Method of Serum Diagnosis to the Differential Diagnosis of Typhoid and Malta Fever directed attention to the fact that Malta fever probably prevails not only in the Mediterranean basin, but also in India. We have since the date of the publication referred to further investigated this question, and we have found confirmation of our conclusions.

In view of the importance of the question, and in view further of the fact that public attention has recently been called (in Parliament and elsewhere) to the extreme pre-

valence of typhoid fever in an Indian station (Sabathu), where, as our serum examinations teach us, Malta fever must be very prevalent, we desire to be allowed briefly to refer to the matter.

Our observations have been made on soldiers who have recently been invalidated home from India to the Royal Victoria Hospital, Netley. A minute quantity of blood was drawn off from the finger of each of these invalids. This blood was diluted and was then examined in capillary sedimentation tubes in the manner which was recently described by one of us in the JOURNAL.²

The results of our examinations are subjoined in tabular form (see below).

In confirmation of the results which we have obtained by the application of the serum test to the after-diagnosis of these cases of continued fever, we may mention that many of these patients have since their arrival in Netley suffered from the ordinary sequelæ of Malta fever (such as swollen testicle, sciatica, and rheumatoid joint pains), and that others have suffered from definite relapses of fever. Further, we may direct attention to the fact that careful Indian observers have described cases of “atypical typhoid” which presented a set of symptoms and a temperature curve which we now know to be almost characteristic of Malta fever. In this connection we would particularly direct attention to an able report on typhoid fever in India which was published by Brigade-Surgeon Marston in the Appendices to the Army Medical Report for 1879.

REFERENCES.

¹ Lancet, March 6th, 1897. ² BRITISH MEDICAL JOURNAL, January 16th, 1897.

THREE CASES OF LOBAR PNEUMONIA APPARENTLY DUE TO INFECTION.

By A. DOUGLAS HEATH, M.D.LOND., L.R.C.P.,
M.R.C.S.ENG.

HAVING regard to the increasing interest that cases of infective pneumonia have excited of late years, I have thought that three cases which came under my notice a few months ago might be worth recording, as infection from one patient to the other seemed clearly established. All three cases occurred in the same house, and there had been no previous illness such as influenza on which the pneumonia might have been superimposed. The patients were stricken down within a short time of each other. As far as one could tell, the onset of the pneumonia in the second case was four days after the onset in the first; and the rigor, which was the first symptom in the third case, occurred two days later. In any case, therefore, if they derived the disease from the first case, the incubation periods in the two patients subsequently attacked could not have been longer than six days. Until they were prostrated by the disease, two of the patients had nursed the one first taken ill. The midden system is in vogue in the district, and these are situated outside the houses in a small garden. Although I made inquiries, I was unable to hear of any cases of pneumonia at that time in the vicinity of the

Table of Cases examined by Professor Wright and Surgeon-Captain F. Smith.

No. of Case.	Station from which Invalided.	Regiment.	Whether Served previously in the Mediterranean.	Whether had Suffered from Fever while on Service in Mediterranean.	Highest Dilution in which Serosedimentation Effect was Obtained upon the Micrococcus Melitensis of Bruce.	Remarks.
1	Sabathu	Black Watch	No	—	1 in 150	Higher dilutions not tried in this case.
2	“	“	No	—	1 in 10	
3	Nowshera	Argyll and Sutherland Highlanders	No	—	1 in 200	
4	Meean-Meer	Somerset Light Infantry	Yes, in 1893	Yes	1 in 1,000	All these served in Sabathu before going to Meean-Meer.
5	“	“	“	No	1 in 200	
6	“	“	No	—	1 in 1,000	
7	“	“	Yes, in 1893	No	1 in 200	
8	“	“	“	No	1 in 300	
9	“	“	“	No	1 in 150	
10*	“	“	Yes, in 1892	No	1 in 150	

This patient had enteric fever in Madras before he went to Sabathu.