April 22nd. M. H.—. Sp. gr. 1014. Quantity 28,890 grs.

55th Experiment.

Albumen on the day's excretion = 46 grs.
5000 grs. of the urine were evaporated to 500 grs., and treated with 12 grs. of Neubauer's acid.

After 24 hours	...	...	4.62	...	26.7
Filtrate	...	...	.04	...	.23
			4.66		26.93

56th Experiment.

After four days, 5000 grs. of this urine were again analyzed.

After 24 hours	...	...	3.06	...	17.7
Filtrate	...	...	.04	...	.23
			3.10		17.93

57th Experiment.

After seven days longer exposed, 5000 grs. were evaporated to 500 grs., and treated with the acid.

After 24 hours	...	...	1.4	...	8.1
Filtrate	...	...	.04	...	.23
			1.44		8.33

April 29th. J. M.—. Sp. gr. 1017. Quantity 20,930 grs.

58th Experiment.

Albumen on the day's excretion	=	3.34 grs.
After 24 hours	...	9.76
Filtrate	...	.04
		9.80
		40.97

59th Experiment.

After the lapse of five days, 5000 grs. of the above urine were again analyzed.

After 24 hours	...	...	4.88	...	20.4
Filtrate	...	...	.04	...	.17
			4.92		20.57

April 30th. J. M.—. Sp. gr. 1017. Quantity 19,350 grs.

60th Experiment.

Albumen on the day's excretion	=	7.7 grs.
After 24 hours	...	8.78
Filtrate	...	.03
		8.81
		30.21

61st Experiment.

After four days, 5000 grs. of the same urine were analyzed.

After 24 hours	...	...	4.6	...	17.8
Filtrate	...	...	.03	...	.11
			4.63		17.91

April 25th. J. J.—. Sp. gr. 1015. Quantity 31900.

62nd Experiment.

Albumen on the day's excretion = 345 grs.
5000 grs. of the urine were evaporated to 500 grs., and treated with the usual amount of acid.

After 24 hours	...	...	3.00	...	19.14
Filtrate	...	...	.03	...	.19
			3.03		19.33

63rd Experiment.

After eleven days 5000 grs. of the above urine were evaporated to 500 grs., and treated with the usual amount of acid.

After 24 hours	...	...	1.1	...	7.02
Filtrate	...	...	.03	...	.19
			1.13		7.21

A variety of other experiments were made confirmatory of the above results, the importance of which is very great. They show that it is essential, and this more particularly when albumen is present, that the urine should be tested as speedily as possible after collection; and when this is not practicable, the urine should be placed in an ice-safe, so that decomposition might be avoided.

In the second portion of this communication I propose, as already stated, to enter on the question of the amount of uric acid present in the urine in *health and disease*.

Wimpole-street, April, 1865.

REMARKS

ON THE

PATHOLOGY & TREATMENT OF HEPATIC ABSCESS.

By C. MOREHEAD, M.D., F.R.C.P.

THE subject of hepatic abscess has during the last two years been several times* brought under the notice of the readers of THE LANCET. The tendency of these writings, with the exception of Dr. Maclean's, is to throw back, not to advance, the pathology and treatment of this important affection.

It may be well, therefore, to state briefly what seems to me the true position of the inquiry, by, in the first place, alluding to those facts of pathology which are most directly related to treatment; then by noting the results which past experience justifies on the question of puncture; and, lastly, by explaining the important bearing which the prevention and treatment of hepatitis and the medical management of the suppurative stage have on the rate of mortality from hepatic abscess.

I shall express myself categorically, as being the method least likely to encroach unduly on the pages of THE LANCET, and refer the reader who may wish to pursue the subject to the second edition of my "Clinical Researches on Diseases in India" for the facts and the reasoning on which my present statements are based.

Pathology.—In suppuration of the liver, as in that of other parenchymatous organs, the lymph which has become exuded into the interstices of the tissues coagulates and changes into pus, and the tissues amongst which it has been deposited liquefy and disappear, and the purulent fluid thus formed becomes more or less circumscribed by membrane of low organization. Then more lymph exudes from the surface of the investing membrane (now better organized), and changes into pus; thus the sac becomes distended, the bulk of the liver increased, and tumefaction augments in different directions according to the situation of the abscess. Adhesion of the opposing serous surfaces follows, and the circumscribing wall and tissues become thin on one side by interstitial absorption, and pointing, with rupture and its consequences, succeed. The favourable completion of these processes depends on the constitution of the individual, the size and number of the abscesses, and the judgment displayed in the treatment. When the hepatic abscess is large (the size of a cocoa-nut or more), or when there are several abscesses, the prognosis is very unfavourable, and death frequently takes place before the processes necessary to recovery are completed.

In all abscesses the change of the coagulated lymph into pus precedes the liquefaction of the tissues amid which it has been placed; therefore, for a time longer or shorter, but always considerable when the exudation has involved a large extent of parenchyma, the shreddy, flocculent, devitalized structures remain adherent to the yet hardly organized inner surface of the sac.

Of hepatic abscesses, in the aggregate, about one-half are single; but of these a considerable proportion are of large size. If the abscess is not larger than an ordinary-sized orange, is single, and not far from the upper convex or the lower concave surface of the liver, or from the anterior surface of the thin part of the left lobe, or the thin edge of the right lobe, then, under careful treatment, recovery may be looked for by discharge of the pus through the right lung into the stomach or bowels, or from the external surface. If the abscess is of small size, and situated deep in the substance of the liver, there is always a chance, under careful management, that restoration may take place by absorption—that is, the liquor puris becomes absorbed, the corpuscles shrivel and break up into their constituent granules, and an encysted putty-like or cretaceous residuum is left, and remains quiescent. This event is, I believe, more common than is usually supposed, and is a contingency which should always be kept in view in the treatment of hepatic disease.

Puncture of hepatic abscess.—The following are the conclusions at which I have arrived on the question of practice:—

* Annals of Military and Naval Surgery, &c., art. 83. Extracts from communications by Dr. Cameron and Dr. Maclean in THE LANCET of 6th and 13th June and 18th July, 1863; *ibid.*, 16th July and 20th and 27th August, 1864, by Sir Ranald Martin.

1. When the swelling is not larger than an orange, and points conically at the epigastrium, or below the margin of the right ribs, we should wait for the inflammatory blush on the skin, and then open the abscess with a bistoury sufficiently freely to admit the ready discharge of the contents without pressure. If the abscess has been single, and the strength well preserved, success will generally attend this proceeding. But the question, under these circumstances, of puncturing or leaving the abscess to rupture spontaneously, is practically of little importance. My preference is in favour of puncture.

2. When there is *general* bulging of the right ribs below the seventh, with *distinct* fluctuation and pointing at an intercostal space, it is immaterial whether a puncture be made or spontaneous rupture takes place. In both circumstances there will be gangrene of the soft tissues from thinning, and probably caries or necrosis of one or more ribs.

3. When the liver occupies the epigastrium, reaches to within an inch of the umbilicus, extends two or more inches below the margin of the right ribs, becomes gradually prominent in these situations, and after a time *obscurely* fluctuating, then premature puncture, either with a bistoury or a large trocar, will lead to irritative fever and gangrene of the soft tissues around the opening from *within* outwards, due to decomposition, from admission of air, of the devitalized unliquefied tissues still adherent to the inner wall of the sac. If, with the physical signs just noted, there be present irritative fever, it is additional proof that the processes which ought to precede puncture are not completed, and that the operation, if undertaken, will be followed by gangrene and death.

4. If there be general bulging of the right ribs below the seventh, fulness of the intercostal spaces, and *obscure* fluctuation, then puncture may be made with a small trocar in the manner (with the view of preventing the admission of air) practised by Mr. Cock in paracentesis for pleuritic effusion. As delay in these circumstances is inexpedient, an exploring needle should be used in doubtful cases.

5. When prominent extensive swelling at the epigastrium or below the right ribs, with diffuse sense of fluctuation, indicates the existence of a large abscess in the thick part of the liver, we should allow sufficient time for maturation—indicated by increasing tumefaction and tension, with cessation of irritative fever,—and then, when fluctuation has become more distinct, we may puncture with a small trocar, observing the same rules in respect to gradual evacuation of the contents, repetition of the operation, and careful exclusion of air.

The first three conclusions are drawn from ample personal clinical observation; and if the principles which regulate the pursuit of other sciences are also to be held applicable (as I presume they are) to the science of medicine, then these conclusions can only be set aside by induction from a still larger collection of facts. The fourth and fifth conclusions are suggestions founded on sufficient experience of the failure of other methods of proceeding, and they seem to me to indicate the direction in which advance may be hoped for in the treatment of hepatic abscess by puncture.

Uncertainty with respect to the existence of adhesions between the surface of the liver at the seat of abscess and the abdominal walls has been a difficulty with many. Their non-existence is of rare occurrence; and if we use a bistoury when there is distinct pointing and inflammatory blush, and a trocar under the other circumstances which justify puncture, no risk can be incurred on this account. I therefore attach no importance to the suggestion made by Graves and others of preliminary proceedings undertaken with the view of ensuring adhesion.

In many of the scattered records of hepatic abscess, including cases in which puncture had been practised, the situation of the swelling and of the opening is not mentioned; and such cases are of no account in determining this practical question. A case of hepatic abscess treated by puncture, in order to be of value to science and of use in advancing sound practice, should include the following particulars:—(a) The period of attack of hepatitis; a short summary of the tropical history of the patient and of the treatment of the hepatitis. (b) The condition of the base of the right lung; the upper, lower, and lateral (towards the left side) limits of the liver at the time of puncture, as ascertained by auscultation, percussion, and palpation, should be stated with precision; also the situation and character of the fulness (general or distinctly pointing) and of the fluctuation, with the appearance of the skin over the prominence, should be accurately noted. (c) The position of the puncture with reference to the ribs or the ensiform cartilage or the umbilicus, and its nature (whether by bistoury or trocar), with the quantity and quality of the pus

evacuated, should be described. (d) The subsequent progress should be given; concluding, whenever practicable, with a description of the condition of the liver, and of the patient generally, at the end of *six* months at least from the date of the operation.

The practice of plunging a trocar or exploring needle deep into the substance of the liver in search of suspected abscess, or in certainty of its presence, without consideration of its situation or condition, which was followed in Bengal by Dr. Murray about twenty-five years ago, has been well commented on by Dr. Maclean in THE LANCET of July 18th, 1863; and his condemnation of the procedure has the additional value of resting on his personal observation of Dr. Murray's operations. It is to be regretted that this method, already fully tried, and abandoned from its want of success, should be now revived and advocated on the limited experience of three or four cases, and these too of a nature affording no evidence in its justification. On this grave practical question it behoves every physician familiar with the treatment of hepatic abscess to express his opinion. For myself, I have no hesitation in regarding the proceeding as at variance with sound pathology and the rational practice of medicine and surgery.

Relation of the prevention and treatment of hepatitis to the mortality from hepatic abscess.—Though we may not look to surgery for a notable diminution of the mortality from hepatic abscess, it may however be sought for with confidence in other branches of medical science. The predisposition to hepatitis, and the liability of the inflammation to terminate in abscess, are increased by the various deteriorated states of constitution (cachexiæ) dependent on residence and service in India, and which it is unnecessary to enumerate here. It is sufficient that many of these predisposing causes may be prevented, or very materially lessened; and that external cold, the ordinary exciting cause of hepatitis, may be provided against. By protection from predisposing and exciting causes, hepatitis and its liability to terminate in abscess will become diminished. We may look, then, to the completion of sanitary measures now in progress for a sensible reduction of the mortality from hepatic abscess. Much may also be done towards the prevention of abscess by the judicious medical treatment of acute hepatitis, and much towards favouring recovery from hepatic abscess by skill in detecting the commencement of the suppurative stage, and in treating it during its entire progress.

I shall not encumber the pages of THE LANCET with trite remarks on the use of bloodletting and eliminants in the treatment of hepatitis. Every practical physician knows that these are remedies only for the early stages of inflammation—applied in the hope of effecting resolution or materially curtailing exudation; that the manner of their use must depend on the diathesis and the state of the vascular and nervous systems of the individual at the time of attack; and that, under all circumstances (more particularly when the disease may be of long duration), the conservation of the patient's strength by the means suitable to his varying condition ought never to be lost sight of. I shall therefore confine myself to one or two practical points, not generally much dwelt upon, but to my mind of the greatest importance.

The error of thinking that the removal of the inflammation in hepatitis and the cessation of the symptoms are always, or even generally, coincident is not unfrequently committed; whereas, in truth, the cessation of symptoms is coincident with the period when the onward progress of diseased action has been checked, and return to a healthy state has fairly commenced: for the deranged capillaries return slowly to their normal condition, and probably do not attain it till some time after the symptoms have disappeared. The patient is, in consequence of this misapprehension, treated as if he were convalescent when he is not so, and recrudescence, with the formation of abscess, results.

When hepatitis has undoubtedly existed, recovery must be regarded as incomplete till several days have elapsed since the removal of pain and febrile disturbance; and during this period the patient should be confined to bed, the diet should still be carefully regulated, and derangement of the secretions, when existing, should be corrected only by gentle means.

An analogous error, and it is a very grave one, is frequently committed in regard to change of climate after hepatitis. If suppuration be suspected, and the strength be still such as to encourage hopes of recovery by processes of repair, this result will be favoured by change to a more temperate and tonic climate; but the measure must be so conducted as to avoid the risk of recurrence of acute inflammation from the excitement of travelling or sudden reduction of temperature, while at the same time the advantages of appropriate regimen and

medical treatment are secured. If this principle be sound, then a lengthened sea-voyage in a comfortable ship, at a suitable season, to more temperate latitudes, is the only kind of change that affords the prospect of benefit. A journey to an elevated hill-station, or the discomforts and excitements of the overland route, destroy the remaining chances of recovery, and ought to be invariably discouraged. This opinion, originally formed by me from experience in India, has been painfully confirmed by facts which have come to my knowledge since my return to England.

When the existence of hepatic abscess is undoubted and prostration considerable, then change of any kind is injurious. The fatigue of movement, the disappointed hope, and the absence of that careful nursing which solaces the close of exhausting disease, will increase the suffering, add to the prostration, and hasten death. This, indeed, may seem a proposition so self-evident as hardly to merit notice; yet it is not so, for I say it advisedly and from personal knowledge that much popular delusion has for long existed and still continues on this point, and not unfrequently there is great professional weakness in yielding to it. Still change of climate, if rightly used, is of great efficacy, and calculated materially to lessen mortality from hepatic abscess and other forms of hepatic disease. In persons whose constitutions are deteriorated by long residence in India, or who have been subject to recurring hepatic derangement, there should be no hesitation in recommending—at a suitable time as respects the disease, and at the appropriate season, and subject to judicious precautions—change to a more temperate climate. There should be no waiting for attacks of hepatitis, or the suspicion of organic disease. It is the diathesis which demands the change. He is a poor pathologist, and has studied disease to little purpose, who requires more. Further, it should never be forgotten that in all changes of the tropical invalid from hot to cold, and from dry to damp climates, great attention to clothing is necessary, in order that impressions of cold on the surface of the body, and consequent relapses or first attacks of organic disease, may be prevented. The stereotyped dixit that the newly-returned Indian is less susceptible of cold than the resident Englishman, is, I apprehend, without foundation in theory or in fact. But be this as it may, I am very certain that, if this belief be adopted and acted on by the cachectic or enfeebled, it will be to them fraught with imminent peril.

When in the treatment of acute hepatitis the means used with the view of effecting resolution seem to have failed, and there is reason to fear that suppuration has commenced, then all depressant remedies should be at once intermitted, deranged secretion should be corrected by the mildest means, and the character of the treatment should be at all points carefully and steadily conservative of the patient's strength.

The records of pathology show the coexistence of ulceration of the large intestines in a great proportion of the fatal cases of hepatic abscess; and it is a complication which must necessarily materially increase the mortality. I have a strong conviction that the intestinal ulceration has not been unfrequently produced by a persistence in the use of calomel and purgatives after suppuration has begun.

That a reduced mortality from hepatic affections in India may confidently be anticipated I am firmly persuaded; but it is to be sought for in judicious sanitary measures and rational medical treatment, not in rash and meddlesome surgery.

May, 1865.

ON APHASIA, OR LOSS OF THE POWER OF SPEECH;

WITH REMARKS ON OUR PRESENT KNOWLEDGE
OF ITS PATHOLOGY.

By FREDERIC BATEMAN, M.D.,

PHYSICIAN TO THE NORFOLK AND NORWICH HOSPITAL.

APHASIA* is the term which the French observers have given to the loss of the faculty of speech, the organs of phonation and the intelligence being unimpaired. As the pathology of this affection is at the present time the subject of much discussion in the scientific world, I am induced to record the following case, not on account of any therapeutical deduction that can

be drawn from it, but as a good illustration of the loss of the power of articulate language without any other paralytic symptom; and the numbness of the *right* hand, which occurred some weeks later, adds to the interest of the case, as tending to confirm the doctrine, now attempted to be established, that aphasia is due to a lesion of some portion of the *left* hemisphere.

Wm. S—, a waterman, aged fifty-one, was admitted under my care in the Norfolk and Norwich Hospital on April 1st, with the following antecedent history. On the 9th December, after unloading the vessel in which he had conveyed a cargo of goods along the river from Norwich to Yarmouth, he went into a tavern to ask for some beer, but when he entered the house he found he could not speak. This loss of speech was not preceded by any premonitory symptom, and it was clearly unaccompanied by any other paralytic symptom, for, although speechless, he on the same evening removed his vessel from one point of the river to another, and on the following day loaded it with a fresh cargo, after which he took the train to Norwich, walking from the railway station to his home, a distance of a mile. His friends, finding that his vocabulary was limited to the words "Oh dear! oh dear!" sent for a surgeon, under whose care he continued till a few days before he came to the hospital.

State on admission.—His condition is that of a healthy-looking man, with an intelligent countenance, looking me straight in the face when addressed, evidently understanding all that is said; but although his ideas appear to arise in great number in his brain, he is unable to give expression to his thoughts by articulated language except in the most imperfect manner. I am informed, however, that he has been slowly improving in this respect since his complete loss of speech three months ago. He has the proper use of his limbs, which are quite free from the slightest abnormal sensation. Deglutition is unaffected. The tongue is protruded straight, and he can execute all the different movements appertaining to that organ. The only features to notice in the tongue are, that the right half is slightly raised above the level of the left half and is more flabby, and that when told to protrude it he keeps it out a long time, as if from deficient memory, he probably not remembering what he had done. He is very cheerful, and does not weep from emotional causes, like persons with ordinary paralysis, nor has he that distressed countenance usually observed in the subjects of grave cerebral disease. I am informed by his relatives that some weeks after the first attack he experienced slight numbness in the *right* hand, which, however, soon passed off.

So long a time having elapsed since the attack, I have felt that little could be done in the way of treatment. He has, however, slightly improved since his admission under the use of small doses of phosphates of iron and zinc with dilute phosphoric acid, and careful attention to diet.

It is to this particular form of paralysis, where the nervous phenomenon affects only the ability to give expression to the thoughts by speech, that Professor Trousseau has given the name of aphasia—a subject which he has made a prominent feature in his clinical lectures, from which I have selected the following case, which is all the more valuable as the subject of it was himself one of the most eminent professors of the French school, and who, having devoted a long life to the investigation of cerebral disease, was particularly well qualified to appreciate and record the symptoms which he experienced in his own person.

"Dr. R—, being confined to his house from the effects of an accident, had been reading nearly all day, and had thus fatigued his brain. He was engaged in reading one of Lamartine's literary conversations, when all on a sudden he perceived that he imperfectly understood what he was perusing. He stopped a moment, then resumed his reading, but again experienced the same phenomenon. In his alarm, he wished to call for assistance, when, to his great astonishment, he found himself unable to speak a word. He now fancied himself the subject of apoplexy, and he immediately caused his arms and legs to execute various complex movements, and found there was no paralysis. Being alone, he rang the bell, and when his servant came he could not speak a word. He moved his tongue in all directions, and was struck with the strange contrast which existed between the facility of movement of the vocal organs and the impossibility of giving expression to his thoughts by speech. He now made a sign that he wished to write; but when pen and ink were brought, although he had the perfect use of his hand, he found himself quite as unable to give expression to his thoughts by writing as by speaking. On the arrival of a physician, at the end of two or three hours,

* From *α-φάσις*, formerly described under the names of Alalia and Aphemia, both of which terms are now superseded.