case of a young woman, who had been admitted with excessive pain, of old standing, at the back and internal side of the femur, and where it was necessary that something should be done, if not amputation high up in the thigh. Every week almost we observe portions of diseased or dead bone removed, but one of the difficulties here was to find whether there really was much or any sequestrum in process of separation. The patient herself was most anxious something should be done, and if not done at St. Bartholomew's, she could not conceive where else it could. The history of the case is very long, and of no interest; in a similar instance of disease, in a case at St. Mary's Hospital, under the care of Mr. Coulson last October, and recently published, a particle of bone, the size of a sixpence, as so familiarly met with, formed the *fons et origo mali*; in a very marked case, precisely similar almost to Mr. Stanley's, a little while ago, also at St. George's, under Mr. Cutler, a very limited extent of diseased surface was encountered. Yet from the locality of the diseased bone, immediately behind the popliteal vessels, in Mr. Cutler's case, as well as the similar position of the diseased bone last Saturday at St. Bartholomew's, both in Mr. Stanley's case and Mr. Cutler's, it was decided before hand, with the full consent of the patient, that if the limb could not be saved, amputation of the thigh should be then and there performed, before the patient had recovered from the chloroform. In such cases as these—and we might give several others of a similar kind, the consultation necessarily takes a new direction. Will the patient, as in Mr. Stanley's case, already exhausted by pain, be able to undergo the formidable operation of amputation of the thigh, though she might be benefited by the minor operation of removing pieces of dead bone? or might the incisions, in getting down on the bone, be in some measure adapted to the subsequent sawing off the limb and bone altogether? Some present were of opinion that by temporising measures for awhile, more might be gained; but here Mr. Stanley and his colleagues differed; the woman could not fail to lose ground confined to hospital: she had recently come in, having, however, been under observation for years; and whatever was to be done ought to be completed at once. Mr. Stanley, accordingly, on the 3rd instant, opened into the cavity of the internal condyle, and removed a piece of dead bone, thus saving the limb.

K.

Original Communications.

A CASE OF UNSUSPECTED POISONING BY LEAD.

By JAMES TUNSTALL, M.D., late Senior Physician to the Eastern Dispensary, and formerly Resident Medical Officer of the Bath General Hospital.

THE following case appeared to me to be so very interesting, from the obscurity which surrounded it, that I felt no hesitation in bringing it before the Bath and Bristol Branch at their last Quarterly Meeting, since which period I have had an opportunity to verify my own diagnosis, and now request its insertion in the ASSOCIATION JOURNAL.

My patient, a military officer of rank and distinction, addressed the following succinct account of his case to me on the 4th of February, 1856:—

"In looking back for a period of *three years*, or even more, I am aware of a weakness in the legs and feet, causing a difficulty in getting over stiles, and in mounting on horseback; also a great tendency to trip over slight obstacles on the ground, in consequence of which I have had some heavy falls. About the same time, my arms began to lose their muscular power; first the left arm, then the right, as I remember by the gradually increasing difficulty of raising the bow to the proper height in practising archery; at that period I was subject to a feeble or intermittent pulse, accompanied by anxious feelings, and a very unpleasant

sensation about the heart; but I am now quite free from these.

"There has never been any pain in the feet or legs, but about two years since the shoulders began to feel pain in certain positions, and when pressed upon; but never at rest, unless, as before observed, when pressed upon. The pain gradually diminished in the left arm, until about eight months since, when it completely left me, and the left arm and shoulder are quite free from pain. Pain then commenced in the right arm, but has much decreased during the last month, and is now almost gone from that shoulder also. As the pains diminish, the muscular power leaves the arms, which are much wasted, more particularly the deltoid muscles, the pain and weakness being increased by damp cold weather. I can feed myself, although with considerable difficulty. I can shave, holding the razor with both hands, and am able to dress and undress (not without difficulty), except putting on my coat. These notes are a proof that I can write.

"I am in my sixtieth year. My early habits of life were out of doors; I was fond of field sports, but, for the last fourteen years, my life has been more sedentary, with very considerable mental exertion, and much anxiety of mind. I have much dyspepsia, with pain in the stomach, occurring during the night, which is generally relieved by bicarbonate of soda; sometimes, but much more rarely, this pain occurs after breakfast. For the last month I have been quite free from dyspepsia, and feel no discomfort or annoyance in the stomach. All the functions are now performed regularly and well, and I also sleep well. I have consulted several medical gentlemen, but they are divided in opinion as to its nature, one considering it cerebral, another spinal, another articular rheumatism, etc."

The letter concludes by asking my opinion on the case, and what I thought of the Bath thermal waters as a remedy.

To this communication I replied as follows:—

"It is a difficult matter, without seeing a patient, to decide whether functional derangement, or organic disease, is the foundation of a certain train of symptoms; but I am inclined to the opinion that in your case the whole of the symptoms mentioned result from mere functional derangement.

"*First*. Because, had there been organic disease, you would have become much worse than you describe yourself to be.

"*Secondly*. Because you want many of the symptoms which are attendant on actual disease of the brain or spinal marrow.

"*Thirdly*. Because all the symptoms mentioned are not at all inconsistent with prolonged dyspepsia* in a person accustomed to much mental exertion, and compelled, after an active life, to sedentary employment.

"I am, therefore, inclined to attribute your present ailments to dyspepsia in the first instance, producing an irregular action of the heart, which has resulted in diminished nervous and muscular energy. Your handwriting is firm and steady, your ideas flow readily; and as you describe yourself as better since you discontinued your severe mental labour, I would fain hope that your health will amend in the first instance, and that this amendment will be followed by a restoration of your nervous and muscular powers. Under these circumstances I am inclined to hope that you will derive great advantage from the Bath thermal treatment; but I reserve to myself the right to give a more correct opinion by a personal examination."

In the afternoon of this day I first saw my patient; and having carefully examined him, although many of the ordinary symptoms produced by lead were wanting, I had no difficulty whatever in diagnosing the case as one arising from the absorption of that mineral in extremely minute and long continued doses. There was the character-

* "In cases complicated with gastritis, one of two things happen—either the seat of pain is in the epigastrium, or exists in every other part of the abdomen." (*Lead Diseases*, a Treatise from the French of L. Tanguet des Planches, with Notes and Additions on the Use of Lead Pipe and its Substitutes. By Samuel L. Dana, M.D., LL.D. Lowell, 1848, p. 102.)

istic blue line on the gums, the whole muscular structure was wasted from the scapulae to the forearms, with a clammy coldness, and a general want of power (feeling remaining perfect), and a total absence of spasm or contraction. The left hand was colder than the right, and slightly arched on its dorsal aspect; the thumb was wasted, and arched towards the palm.*

It was clearly one of those cases in which, as I pointed out in my work on the Bath waters, an error in diagnosis might easily be made; and to make sure of my own, I tested the urine of my patient, and found sulphuret of lead with the hydrosulphuret of ammonia, a test well known for its extreme accuracy, and the facility with which it may be applied to suspected fluids. With my concurrence, my patient transmitted, twelve days after leaving home, ten ounces of urine, and two bottles, each containing the same quantity of his usual drinking water, the one boiled, and the other fresh, to Mr. Herapath, whose report I subjoin:—

"I have analysed the contents of the three bottles forwarded, and I have found lead in all three of them. In the water from the boiler, there is also a trace of iron. Lead is in such quantity in the two waters, that I have no doubt that they will produce symptoms of lead poisoning, perhaps in numbness, and stiffness of the extremities, or in 'lead colic', loss of appetite, constipation, atrophy, palsy, or paralysis, in fact, it is difficult to say in which form its effects will appear. The trace in the urine is very slight."

REMARKS. I believe this to be the first case on record in which chemistry has been applied to, by an analysis of the urine, to confirm a physical diagnosis in a case of palsy; it was highly important that this course should be adopted, because—from the variety of opinions formed of the nature of the case, the absence of many of the recognised symptoms of palsy from lead, the non-existence of the peculiar colic, and the age and great mental occupation of the patient at the period of invasion—the suspicion that lead was the cause of the mischief was not entertained, although other persons in the locality who had partaken of the same water had the ordinary and easily recognised forms of lead disease.

Tanquerel, in his highly interesting treatise upon *Lead Diseases* mentions one hundred and two cases of lead paralysis, of which forty were not preceded by colic: a fact worthy of observation in reference to the present case. I conceive that where a gradual loss of power takes place in the upper extremities, with a symmetrical loss of substance, without any impairing of the sensibility of the limbs, or any evidence of cerebral mischief, we should look to lead, or some other mineral, as the cause of the disease, and I am inclined to think that the term paralysis has been wrongly applied to these cases. I would restrict paralysis solely to express a disease having its origin either in the brain or spinal marrow, and apply the term atrophy to those cases in which there is loss of power with loss of substance, and which are distinct in their invasion and seat from the true paralytic affections. This is a point which has not been sufficiently insisted upon by systematic writers; and hence the difficulty of diagnosis in cases which (except where the profession of the patient points to the cause of the disease) embarrass the practitioner in the formation of a correct diagnosis. In lead atrophy, the loss of power is dependent upon want of muscular structure, caused by gradual absorption, or rather by the want of healthy nutrition, producing an atonic condition of the nerves of motion; hence its invasion, unlike true paralysis, is gradual instead of sudden; the limbs are flaccid instead of spasmodically contracted, and remain very much in the same condition both night and day: in genuine hemiplegia the hand may at times relax from spasmodic closure, or *vice versa*; while, in atrophy from lead, no such phenomena are observed. Hence, in the disease now under

consideration, the whole of the natural motions of a limb may be produced by the assistance of the hand of an attendant, while in genuine paralysis they cannot be in any degree simulated; hence, we have a good diagnosis of a disease of rare occurrence, except among particular trades, and even more rare in the individual experience of members of the profession.

I have had a large experience in the treatment of the chronic form of lead atrophy, having had under my care, since I came to Bath, 236 cases, of whom 219 were either cured or greatly relieved by the Bath thermal treatment. The treatment of my patient consisted of thermal baths, electricity, and frictions, under which he improved, when, at the end of six weeks, his leave having expired, he returned to duty, shortly after which he was attacked with the furuncular epidemic, so that I am unable to state the progress of his case since March 19th, which I had hoped to do; for cases like this generally require some considerable time before any great symptoms of amendment are visible.

I have only to remark, in conclusion, that where lead, in minute quantities, exists in the ordinary water drunk by the patient, the gradual invasion of the symptoms may mislead the most careful practitioner. Lead appears, in these cases, gradually to poison the blood, without producing any of the symptoms of colic; indeed, Tanquerel observes, that "when lead preparations have been introduced and absorbed in the system, they may show their deleterious influence directly by encephalopathy, an apyretic neuralgia of the encephalon", and producing symptoms of mental alienation, mislead the practitioner. Among the lead diseases he enumerates, are found arthralgia, paralysis, and encephalopathy, each of which may occur independently of the more recognised form of colic. Thus I have, I think, written enough at present to show that a number of diseases, preserving their individual characteristics, may put on appearances which may mislead even the best men in the profession, unaccustomed to observe them as directly arising from the introduction of lead into the alimentary canal.

ANEURISM OF THE THORACIC AORTA.

By JOHN WALSH, Esq., Manchester.

CASE. C. D., aged 35 years, a tailor, consulted me on the 10th of last March, and gave me the following history of his case. Until twelve months ago he enjoyed perfect health; about that time he was attacked in the street by some ruffians, and, after a severe struggle, knocked down and badly beaten; he has never felt the same man since. Six months after this, he began to be troubled with a pain in the centre of the breast, also a harsh dry cough, and occasionally palpitation of the heart; latterly he has fits of shortness of breath when much hurried; appetite always good; sleep very short and troubled; he has lost flesh, but was always thin; he has been treated most of the time by the surgeon of the society of which he is a member, and has been also a patient of the Royal Infirmary. He was told his disease was consumption, and the remedies employed consisted of cough mixtures, chest plasters, and cod-liver oil; nothing has done him any good. He wished to know from me whether there was any possibility of curing him; if there was, he would place himself under my care; but if not, he should prefer remaining under his own surgeon. I made a moderately careful examination of the case. I found the man sallow and cachectic in appearance; pulse quiet and regular; tongue rather foul; the apices of both lungs sounded clear on percussion, and the respiratory murmur was pure in the same parts; sounds of heart quite normal, and action regular.

Being satisfied that there was neither phthisis nor disease of the heart present, I was disposed to regard the case as one of dyspepsia; and stating my views to the patient and his brother, who accompanied him, I prescribed in accordance with this opinion, and told the man to call again

* The limbs are pendant on the side of the body; if raised, they fall like inert masses, obeying the law of gravitation. In consequence of the permanent contraction of the pronator muscles, and especially of the flexors, the hand becomes rounded, and the back of the hand arched. (Tanquerel.)