ipping of the adjacent margin of cartilage, and at spots invasion by granulations passing in from the synovial membrane. The cartilage of the rest of the bone as well as the proximal phalanx were healthy. The cartilage on the sesamoid bones was gone, and the subjacent bone was eroded. There was no fluid or extra synovia in the joint. The disease was apparently caries and absorption from pressure. This case did well. Healing took place by first intention. A movable joint with excellent range of motion and complete control was the result, and the girl is now in domestic service and can perform all her duties without the smallest impairment of the original functions of the joint. The six other cases are males, young adults, all below twenty years of age. In three the disease was symmetrical, necessitating operations on both feet. One case is now in hospital, recently operated on, and, like the others, showed well-marked absorption and distortion of the head of the bone at the points of contact with the sesamoid bones. The same joint of the opposite foot is in an early stage of the same disease.

To sum up, I have diagnosed, treated, and subsequently operated on nine cases, two females and seven males, and in all but two the subjects were young adults between sixteen and twenty years of age. In all the disease was associated with flat-foot, cold feet, and impaired nutrition. After a preliminary trial of tonics, frictions, and appropriate boots all were operated on, and the head of the metatarsal bone was removed. The joints healed in all cases by first intention, and a movable and useful joint has resulted.

Harley-street, W.

THE DENTAL MANIFESTATIONS OF GOUT AND LITHIUM BITARTRATE.

By EDWARD C. KIRK, M.D.

THE coexistence of the gouty diathesis with certain forms of suppurative gingivitis, known to dentists as pyorrhœa alveolaris, Rigg's disease, &c., has long been observed both by medical men and dentists. Sir A. Garrod and Sir Dyce Duckworth have each called attention to the dental evidences of gout, the latter describing what he terms the "buck tooth" of gout as characteristic of that disorder. This same buck tooth which Sir Dyce Duckworth describes, it is interesting to note, is invariably found to be produced by a localised pyorrhœa alveolaris, the faulty alignment and subsequent extrusion of the tooth from its alveolus being the result of that disorder. Recently, new light has been thrown upon the causal relationship of the gouty diathesis to the local dental trouble, by the investigations of Dr. C. N. Peirce of Philadelphia, published in a recent issue of the *International Dental Journal* and the *Dental Cosmos*. He has shown, through clinical analyses made at his request by Professor Congdon of the Drexel Institute, Philadelphia, that calcareous deposits taken from the roots of teeth lost from pyorrhœa alveolaris contain, besides the usual calcium carbonate and phosphate, a considerable quantity of uric acid and calcium and sodium urates. From this he draws two important and seemingly justifiable conclusions: firstly, that these deposits upon the tooth root and in its ligamentous pericementum are not salivary but hæmic in their origin, for he has further shown the existence of these deposits in cases where there was no solution of continuity of the attachment of the gum tissues at the cervical portion of the tooth, hence there was no possible opportunity for the saliva to gain access; and, secondly, the presence of uric acid and urates so derived and deposited upon the tooth root and in the ligamentous structures surrounding it, taken in connexion with the subsequent clinical history of pyorrhœa alveolaris, especially in view of the gouty relationship so frequently previously observed, warrants us in considering the disease in question as but one more of the many local expressions of the protean constitutional disorder known as gout or lithæmia. As further evidence of the correctness of this view, nearly all of the cases which after thorough local treatment have been subjected to intelligent constitutional treatment directed towards the elimination of uric acid and its compounds have progressed rapidly towards a cure, all local gingivitis disappearing, with no tendency to return. The exhibition of lithium in some of its combinations in connexion with a

proper dietary regimen has proved most beneficial in these cases. In a number of pyorrhœa cases I have found a marked acidity of the secretion from the mucous glands of the lip. The pouring out of this secretion brings about localised areas of decalcification of the enamel, and later of the dentine, producing the condition of the teeth known to dentists as erosion.

In seeking for some constitutional remedy for this abnormal condition of the labial mucus the administration of potassium bitartrate or common cream of tartar suggested itself from its well-known ability to produce an alkaline reaction of the secretions, particularly of the urine, when given in small repeated doses. The idea then presented itself to enhance the solvent power for uric acid of the alkalinity so produced, by combining a definite amount of lithium with the tartrate, in order to express, so to speak, its solvency in terms of lithium instead of potassium. This was done by exactly neutralising the acidity of the potassium bitartrate with lithium carbonate. This resulted in the production of neutral potassium-lithium tartrate, the chemical analogue of Rochelle salt. Further, in order to eliminate the potassium element altogether, so as to obtain the highest solvent efficiency of the lithium, a lithium bitartrate was made, the salt when produced presenting all of the physical properties of potassium bitartrate, of which it is the chemical analogue. In fact, the lithium bitartrate was indistinguishable in appearance from ordinary potassium cream of tartar; it might therefore be described as a lithium cream of tartar. The two salts described have been given a limited therapeutic test in gouty cases, those selected being of the irregular or suppressed type of the disorder. The lithium Rochelle salt (lithium potassium tartrate), being a neutral salt, is devoid of any irritating property to the gastro-intestinal mucous membrane—a feature that is desirable in cases of gastric or intestinal gouty irritability. My testing of the preparation has been confined solely to the class of cases alluded to, and these have not included any presenting classic symptoms of true gout with articular inflammations, tophi &c. A question may arise as to why there should be any superiority of lithium bitartrate over the citrate. As to this, I do not know more than that I have used both the citrate and carbonate freely, and the bitartrate has given me results beyond all comparison superior to any preparation of lithium which I have tried. My satisfaction in the use of the preparation described has impelled me to call attention to its value, in the hope that the well-known prevalence of gouty affections in England may afford a field for a wider and more complete study of the therapeutic possibilities of this drug and at the same time acquaint others with what so far appears to be its strongly marked value in the treatment of disorders dependent upon the uric acid condition. The relative efficacy of the two preparations is, however, greatly in favour of the lithium acid tartrate. It is markedly diuretic and in some cases laxative in its action. The latter is especially the case when the drug is taken before breakfast. The promptness of its action is in many cases astonishing, a subsidence of distressing symptoms quickly following the administration of three doses of five grains each, taken four hours apart in a half-pint of water on a reasonably empty stomach. The use of the preparation in the quantities named has sufficed in all cases so far treated, about twenty in number, to practically cure the disorder, temporarily at least.

Philadelphia, U.S.A.

TYPHOID FEVER; PERFORATION (?) OF THE INTESTINE; SUBSEQUENT ULCERATION OF THE FAUCES; RECOVERY.

By F. W. BURTON-FANNING, M.B. CAMB., M.R.C.P. LOND.,
AND
S. H. BURTON, M.B. LOND., F.R.C.S. ENG.

A YOUNG WOMAN twenty-two years of age was attacked by typhoid fever on July 22nd, 1893. Two other inmates of the same house also contracted the disease. For three weeks the temperature ranged between 102° and 104° F. There were a few spots; she usually had had one daily relief from the bowels; the tongue was slightly furred; the pulse was seldom over 100 per minute, and her

strength was well maintained. During the fourth week of illness the fever persisted, oscillating between 101° and 103° ; but on the thirtieth night of her illness the temperature dropped within four hours to 97.2° (as shown by the accompanying chart); there were no unfavourable symptoms, and the next morning it rose to 105° . Then it steadily fell again during the succeeding twelve hours, till the thermometer would not rise above 95° , and for fifteen hours the temperature remained below this point. At the commencement of this fall there was no other marked change in the patient's condition; but in eight hours' time she became collapsed, with rapid thready pulse, cold extremities, and extreme pallor. A few hours later there was increased distension of the umbilical region, absence of abdominal respi-

typhoid ulcer may be recovered from, the mere survival of our patient made the occurrence of this a very debatable point. Critical falls of temperature do occur towards the end of some attacks of typhoid fever, independently of any accident, and may be accompanied by either increased or diminished frequency of the pulse; but in this case the patient became actually collapsed, and had abdominal distension, with vomiting and hiccough, though these symptoms did not occur until some hours after the drop of temperature. The above case lends some support to the theory that instances of unusually prolonged fever are really due to one or more relapses becoming engrafted on the original attack. This case certainly emphasised the common experience in regard to typhoid fever, that an apparently hopeless case may

ration, and tenderness in the right hypochondrium. She vomited bilious mucus several times, and had a good deal of hiccough, but the tongue was moist and only slightly furred. The pulse was 132, very small and soft, the mind was clear, but during the whole fifteen hours that the temperature was depressed her extremities remained clammy, her complexion was dusky, and her general condition that of collapse. These symptoms were preceded by some straining and the desire to relieve the bowels. On the assumption that perforation of the intestine had taken place, the patient was quickly brought under the influence of opium, which was continued for three days; she had a drachm of peptonised milk and a drachm of brandy every half hour. Four days later she had a small semi-solid relief from the bowels, which was light-coloured and contained no blood. The distension of the abdomen began to lessen, and the general condition improved.

In the middle of the sixth week the fever began to fall in the typical gradual manner, but when it had only touched 98° once a relapse (as we believe) took place, and she had another eighteen days of fever, making eight weeks altogether. Whether her strength would outlast the prolonged fever became a question of the greatest anxiety; for a week the pulse was always over 140 per minute, and was more than once so desperately weak that it could not be counted, she was in a state of hebetude and delirium, and passed motions and urine unconsciously. Her eventual recovery was a surprise to all, and was owing, we believe, to the way in which her nurses fed her with peptonised milk, mutton jelly, or brandy every quarter of an hour. For a week she took eighteen ounces of old brandy in the twenty-four hours, and we had ample means of convincing ourselves of its beneficial effects on our patient. Her convalescence was very satisfactory, and the only noteworthy occurrence in it was the formation of a clean-cut hole—the size of a pea—in the anterior pillar of the left fauces, the lodgment of crumbs in which was the first thing that attracted attention to her throat.

Though it has been demonstrated that perforation of a

recover. We do not know that perforation of the fauces has been previously noted in enteric fever; the exact condition that led to it in our case was not observed, as it caused no symptom, but we imagine that it must have been of the same nature as the ulcers seen in the larynx and pharynx in typhoid fever.

Norwich.

STONE IMPACTED IN THE URETER: ITS CONSEQUENCES, SYMPTOMS, DIAGNOSIS, AND TREATMENT.

BY EDWARD COTTERELL, F.R.C.S. ENG.,
SURGEON (OUT-PATIENTS), LONDON LOCK HOSPITAL, ETC.

THE significance and the consequences which may occur from a stone which has become impacted in the ureter have lately attracted a certain amount of attention both in this country and in America, and any part which I may have taken in helping to bring the subject more thoroughly home to the mind of the profession is due to the fact that I have had two cases of the kind occur in my own practice, the details of which I communicated in a paper read before the Royal Medical and Chirurgical Society on May 8th of this year. I will not further refer to these cases except to say that in both instances I performed uretero-lithotomy successfully. The literature on the subject for the most part consists of a few cases (up to the present time eleven in all have been reported, excluding my own two cases) scattered in the medical journals for the last ten or twelve years. A reference to most of the leading text-books on surgery, for the purpose of unearthing any reference to this subject, results for the most part in a "blank." Nor can we wonder at this perhaps when we consider that twenty years ago operations upon the kidneys, such as are now performed every day, were almost unheard of, and although very rapid