of subphosphate of lime was separated from fresh filtered urine by means of pure caustic ammonia in a glass vessel excluded from access of air. The precipitate was well washed with distilled water and dried. A subphosphate was in this way procured, identical with that which forms the various deposits and concretions in the human body. A certain measure of the said urine, having a specific gravity of 1.025, was allowed to digest at a blood-heat along with a given weight of the above subphosphate. After three quarters of an hour had elapsed it was saturated with caustic ammonia, and thereby yielded more than double the amount of subphosphate of lime, which natural urine of the same specific gravity contains, according to the observations of Cruickshank.

Both the prepared subphosphate and the carbonate of lime are promptly taken up by a warm aqueous solution of hippuric acid; which may thus, independently of its antiseptic agency, serve to hold dissolved any excess of these inorganic matters. Human urinary calculi occasionally consist of one or both of them. Frommherz (Jahrb. der Chemie u. Phys. XVI., 329) has given the details of the analysis of a stone from the human bladder, composed of 90.673 per cent. of carbonate of lime, 2.966 of phosphate of lime, 4.015 of albumen and coloring matter; the nucleus being a particle of quartz. Bergemann (Poggend. Annalen XIX., 558) examined a human urinary calculus, of which the main constituent was carbonate of lime. Winkler (Geiger's Mag. XXI., 253), on the other hand, met with a calculus containing no less than 87.627 of phosphate of lime. A prostatic concretion examined by M. Barruel (Journ. de Chimie Med. VI., 12), was composed of 80 per cent. of phosphate and carbonate of lime, and 20 per cent. of a substance perfectly resembling coagulated albumen. Indeed I am disposed to believe with Dr. Yelloly, that phosphate of lime is seldom found in animal concretions uncombined with carbonate of lime (Phil. Trans., 1829, p. 79).

Phosphatic depositions are frequently observed in conjunction with gouty affections. Hippocrates says, that a thick urine which forms a whitish sediment, *παχυ δε ουρον λευκην υποστασιν εχον*, oft betrays pains in the joints (Prædict. lib. II., Cap. 10, n. 7). A remarkable case is collated by Haller (Disp. Pract. tom. VIII., p. 795), "De materiâ calcareâ post diurnam arthritidem per vesicam urinariam eductâ." "I know a gouty subject," says Naumann (Handbuck der Med. Klin. tom. VI., 398), "who suffers from chronic catarrh of the bladder. From time to time the urine becomes milky, and throws down a quantity of muco-albuminous matter mixed with phosphate of lime." M. Civiale, a deservedly high authority in questions of this kind, remarks (Du Traitement Médical et Preservatif de la Pierre, p. 65), "chez les personnes atteintes depuis longtemps de la goutte et déjà épuisées par les souffrances, la gravelle qui survient ou qui continue est plus spécialement phosphatique." "I know one person (Otto by South, p. 103) in whom, during an atonic attack of gout, the whole mouth, throat, and gullet were largely covered with a whitish mucus, which, when dried on blotting paper, left behind a large quantity of phosphate of lime." Tiedemann found white, stone-like, roundish concretions, principally consisting of phosphate of lime, in

most of the muscles, especially in those of the extremities of a gouty subject (Op. cit., p. 252). It is, moreover, well ascertained that the calcareous incrustations which are met with between the serous and fibrous coats of arteries are frequent in the gouty, and in many instances tophaceous concretions contain no urate of soda but phosphate of lime (John, in Meckel's Archiv. für die Physiologie, vol. I., part 4, p. 513).*

Hence it appears probable, that in many such cases the calcareous deposition is to be referred to a debilitating and septic influence acting upon the system at large. To counteract which it behoves the medical practitioner to advise such hygienic and therapeutic means as will maintain that equilibrium of function which constitutes health. A strong argument in favor of the antiseptic power of benzoic acid, or rather of hippuric acid, is deduced from the fact that the urinary secretion, a secretion above all others prone to rapid spontaneous putrefaction, remains untainted for days, and sometimes even weeks, when this acid is one of its component parts.

13, Charlotte-street, Bedford-square,
January 31, 1843.

WOUND OF THE ABDOMEN, WITH PROTRUSION OF THE INTESTINE.

TO THE EDITORS OF THE PROVINCIAL MEDICAL JOURNAL.

GENTLEMEN,—If you think the following case worthy of publication, I shall feel obliged by your inserting it in your Journal.

I remain, Gentlemen,
Your obedient servant,
J. C. JERRARD.

Honiton, February 4, 1843.

Caroline Jummerhays, aged eleven years, received a wound from the point of a scythe in June last. The child was running at play, and fell as she passed a

* Albumen is more or less intimately connected with most of these deposits. It has a great affinity for the phosphate of lime in the degree of saturation which characterises the phosphate as bone-earth; and combines with it in variable proportions, forming compounds insoluble in water. Some chemists have found from 8 to 9 per cent. of phosphate in the albumen of the serum of blood (Berzelius, Traité de Chimie, tom. III., p. 516, Bruxelles, 1830). In order to determine the action of hippuric acid upon an insoluble compound of this nature, the following line of investigation was adopted:—To a portion of the filtered white of egg diffused through water, a few drops of caustic ammonia, and then a little phosphate of ammonia were added; into the mixture a small quantity of a solution of chloride of calcium was slowly dropped, as recommended by Berzelius. The resulting precipitate being well washed and dried at a low temperature, appeared as a semitransparent, horny-looking substance, composed of 52 per cent. of bone-earth and 48 of albumen. A small quantity of this being treated with boiling distilled water, formed a kind of coagulum, and upon testing the water afterwards for lime, not a trace could be detected. On adding, however, a little hippuric acid to the water, and allowing it to digest at a moderate warmth along with the albuminous compound, the coagulum ere long broke down, a portion of the albumen seemed to dissolve, as did the phosphate of lime, for a copious white cloud ensued upon the addition to the filtered liquor of a solution of oxalate of ammonia. The presence of phosphoric acid was proved by nitrate of silver.

mower at work, the point of the scythe penetrating the left side of the abdomen, about three inches below, and the same distance from the umbilicus. I saw her about three hours after the accident occurred, when there was a heap of protruded knuckles of intestine about the size of a large fist. There was severe retching and a feeble pulse.

Having relaxed the lower limbs and raised the pelvis, I endeavoured, with both hands, to enclose and compress the heap of intestine, but could not reduce an inch of it, and during the attempt I could perceive fresh portions of the bowel protrude every time she retched.

I then tried to find the wound, which was so completely hid by the overspreading of the heap of intestine, that I could not see any portion of it. I next took hold of a portion of the bowel between the forefinger and thumb of both hands alternately until I traced it (whether its upper or lower part I cannot tell) to the wound; then, with the point of each forefinger alternately, I was enabled to return portion after portion, and in about half an hour succeeded, without enlarging the wound, in reducing the whole mass.

The wound, which was about three-fourths of an inch in length, was united by two sutures (which were passed through the cutis only), a strip of adhesive plaster, a compress of lint, and a bandage round the body.

A dose of castor oil was given, which operated well in the night. The next morning there was considerable tenderness diffused over the abdomen. She was bled to sixteen ounces. In the evening of the same day, the tenderness continuing, she was again bled to the same amount.

After this the case went on well. The ligatures were stripped and removed about the tenth day. A strip of adhesive plaster, a slight compress of lint, and the circular bandage, were continued about ten days longer, when the wound was completely cicatrised.

REMARKS.

I do not think that, without enlarging of the wound, I could have succeeded in returning the intestine within the abdomen by any other method than that which I adopted. Every attempt to compress the mass seemed to excite the retching, and further protrusion, as stated above, could be distinctly perceived at each effort to vomit.

The retching recurred repeatedly during the reduction with the points of the forefingers, but the protrusion could be effectually prevented by the points of the fingers in the wound.

REMARKS

ON

ABNORMAL SOUNDS IN THE EAR.

By G. KRAMER, M.D., Berlin.

The occurrence of accidental or abnormal sounds or noises in the ear has been accounted for in three ways. 1, It is said that the sound is caused in the interior of the the organ of hearing; 2, That it arises from condensation of air in the cavity of the tympanum; and 3, It depends on tension of the membrana tympani.

num; and 3, It depends on tension of the membrana tympani.

Although experience has never demonstrated the existence of aneurismal dilatation of the small vessels of the internal ear, and although the small calibre of the vessels must render such an accident very improbable, yet Itard seems disposed to admit it in certain cases giving rise to the development of certain sounds in the interior of the ear. This, however, is a mere hypothesis. The pulsations of which some plethoric individuals complain, have likewise been explained by distention of the arteries of the ear; but it is much more probable that sounds of this kind are produced in the sinuous canals through which the blood-vessels pass to the brain, and that they are rather felt in the head than heard in the ear. The same remark is applicable to the sounds which attend aneurism of the primary carotid and arch of the aorta, or hypertrophy of the heart.

As to condensation of air in the cavity of the tympanum, it is impossible to conceive how such an effect could be produced. Previous obliteration of the Eustachian tube must coincide with such an accident; but then the retained air would be dilated by the natural heat of the body, instead of being condensed. Now, dilatation of the air in the cavity of the tympanum is not a cause of "singing" in the ear, for this symptom is as often absent as present in cases of obliteration of the Eustachian tube.

The third alleged cause is likewise inadmissible. The membrana tympani is always in a state of tension, in healthy persons free from the noises alluded to; it is of a shining hue, and very convex outwards; I have never seen this membrane more tense than it should be in several hundreds of patients whom I have examined with the greatest care, and I am unacquainted with any symptom indicative of this pretended excess of tension. The only alterations which it presents are changes of texture; we find the membrana tympani thickened, inflamed, destroyed in part or in whole, opaque, rough, covered with vegetations, &c., without being able to trace any connection between these organic lesions and the production of abnormal sounds in the ear.

It has been affirmed that all obscurity in the diagnosis of increased excitability of the auditory nerve, as a cause of abnormal sound, ceases as soon as the symptom becomes connected with deafness. By deafness we are here to understand diminution and not a complete loss of the power of hearing; for mention is made of deafness which has suddenly ceased on the disappearance of the sounds, while the sudden disappearance of true deafness is a thing absolutely impossible. But deafness (or rather hardness of hearing), accompanied by irregular noises in the ear, is not dependent on some affection of the auditory nerve alone. It is accompanied by various diseases of the auditory apparatus, and this so often, that we cannot admit from the coexistence of deafness with abnormal sounds that the latter depend on increased sensibility of the auditory nerve.

To prove this assertion I have taken from my notebook one thousand cases of diseases of the ear, and I have classed them in two series, according as they were or were not accompanied by accidental sounds; the species of disease was noted in each case after