potash of Class No. III or effete material; as, while in muscular tissue these two substances occur precisely in the right proportions to form pyrophosphate of potash (a very remarkable and interesting result), no such proportion is found to exist between the two corresponding substances in pulmonary tissue, which is clearly shown thus.

	Muscular Tissue.	Pulmonary Tissue.	Theory.
Phosphoric acid..	(0.563) 42.4*	(0.058) 11.4	43 } Pyroph. of
Potash	(0.764) 57.6	(0.451) 88.6	57 } potash.
	100.0	100.0	100

Hence in pulmonary tissue the phosphoric acid and potash effete are far from existing in a proportion which will allow their combining into a crystalloid. If my view be correct, it is necessary, however, that these two substances should become crystalloid, so as to allow their elimination by physical diffusion; and there is a very satisfactory way of accounting for the above result.

I formerly explained how the expiration of carbonic acid from the lungs was due to the diffusion of the gas from blood through the moist membrane of the pulmonary vesicles, and its final evolution together with moisture. On its way through the lung-tissue, carbonic acid must combine with that portion of the potash present, which would otherwise occur in the free state, converting it into a crystalloid, and therefore diffusible, compound. Hence it may be concluded that, in the process of nutrition of the pulmonary tissue, the potash is mostly eliminated as carbonate instead of pyrophosphate. The correctness of this view is much strengthened, if not proved, by the fact that pulmonary tissue in a state of tubercular consolidation and softening, and therefore unfit for respiration, was found to contain phosphoric acid and potash effete nearly in the proportions of a crystalloid pyrophosphate, as in the case of muscular tissue.

[To be continued.]

A PLAN FOR FACILITATING THE REDUCTION OF STRANGULATED HERNIA BY TAXIS.

By W. C. B. FIFIELD, M.D., M.R.C.S.L., Surgeon to City Hospital, Boston, U.S.A.

I NOTICE in the BRITISH MEDICAL JOURNAL for December 23rd, 1871, an article by Dr. P. C. Smyly, entitled, "A Plan for Facilitating the Reduction of Strangulated Hernia by Taxis." It is said that there is nothing new under the sun. Dr. Smyly's paper is another proof of the truth of this saying. I have for years been familiar with the process, which is often successful. In *Braithwaite's Retrospect* for 1857, there is the following quotation from Baron Seutin. The only difference is that Baron Seutin passed the finger in front of the intestine or omentum, and also used more force than Mr. Smyly describes. "*(New Mode of Reducing Strangulated Hernia.* By Baron Seutin). Baron Seutin declares that with this mode of reducing strangulated hernia (which he has now practised for twenty years), he hardly ever in his large practice finds it necessary to have recourse to an operation. The patient is laid upon his back with the pelvis raised much higher than the shoulders, in order that the intestinal mass may exert traction on the herniated position. The knees are flexed, and the body slightly turned to the opposite side to that on which the hernia exists. The surgeon ascertains that the hernia, habitually reducible, cannot be returned by moderate and continuous taxis. He next seeks with his index-finger for the aperture that has given issue to the hernia, pushing up the skin sufficiently from below, in order not to be arrested by its resistance. The extremity of the finger is passed slowly in between the viscera and the herniary orifice, depressing the intestine or omentum with the pulp of the finger. This stage of the procedure demands perseverance; for at first it seems impossible to proceed. The finger is next curved like a hook, and sufficient traction exerted on the ring to rupture some of the fibres, giving rise to a cracking, very sensible to the finger, and sometimes to the ear. When this characteristic crack is not produced, the fibres must be submitted to a continuous forced dilatation, which, by distending them beyond the agency of their natural elasticity, generally terminates the strangulation. This procedure is more (less?) applicable to Gimbernat's ligament, the hooking and tearing of which are more difficult than in the case of the inguinal ring. Considerable strength has sometimes to be exerted, and the index-finger becomes much fatigued. When, in consequence of the narrowness of the ring, the

finger does not at once penetrate, it is to be pressed against the fibrous edge, and inclined towards the hernia. After a time, the fibres yield and the finger passes. When the finger becomes fatigued, it is not to be withdrawn; but it is to be supported by the fingers of an intelligent assistant, who seconds the action it is desirable to produce. In inguinal hernia, the traction should not be exerted with the finger upon Poupart's ligament, but in a direction from within outwards, and from below upwards, by which the aponeurotic layer between the two ligamentous pillars constituting the inguinal aperture is easily torn through. The ring is then enlarged by this tearing, just as if it had been divided by a cutting instrument, or largely dilated, and reduction takes place easily by performing taxis in a suitable direction. The mobility of the skin, its laxity in parts where hernia prevails, and its extensibility greater in proportion to its thinness, and to the absence of a lining of fatty cellular tissue, by allowing the sliding and the thrusting of this membrane in front of the finger it cushions, affords protection to the intestine from all immediate contusion.

"When the strangulation is induced by the issue of a considerable mass of intestine, or an accumulation of fecal matters, it is desirable, first, to disengage one of the extremities of the noose, and to seek to expel the gas or fecal matters by moderate pressure, in order to facilitate the reduction of the tumour. In a few cases in which the finger cannot be introduced, a small incision may be practised in the skin, and the handle of a spatula or any blunt instrument may be passed in by separating the cellular tissue. Pressing this against the border of the ring, while avoiding the intestine, this orifice may be eroded or dilated without danger. The greater the resistance offered by the aponeurotic fibres, the greater will be their tension, and the more easily will their laceration be produced. As a general conclusion, it may be laid down that the facility and promptitude of this procedure, and the immunity that attends it, ought to diminish the gravity of the prognosis of strangulated hernia by rendering the circumstances under which recourse need be had to an operation quite exceptional. Such exceptional cases will be found (1) in old irreducible hernia; (2) when the strangulation in inguinal hernia occurs at the internal ring. Generally the external ring and the inguinal canal are large, and allow the easy penetration of the finger; and then this method is applicable, and the rupturing or dilatation of the internal ring should be attempted, and the manœuvre is rendered easier by the fact that in these cases the canal is much shortened, and the two rings approximated. If, however, the external ring be too narrow to admit the finger, an operation is required. (3.) When there are general symptoms of a gangrenous state of the intestine."

I have practised this method of Baron Seutin in one case very successfully.

ON A "RESIDUAL-AIR-PUMP" FOR EMPHYSEMA.

By HORACE DOBELL, M.D.,

Senior Physician to the Royal Hospital for Diseases of the Chest, etc.

MY friend Dr. Berkart recently described an instrument which he had invented for the purpose of better effecting the objects aimed at by the experiments of Drs. Hank, Hagel and Mader, of Vienna, in the treatment of emphysema of the lungs. The objects of these experiments and of Dr. Berkart's instrument were, "to reduce the intravascular pressure, and that resulting from it on the thoracic surface of the diaphragm," and to displace and replace the residual air stagnated in the emphysematous cells.

Dr. Berkart says, "With a somewhat bulky instrument, a modified Hutchinson's spirometer, which if safety is to be ensured, has to be worked by two assistants, Dr. Hank first used compressed air in croup and emphysema. Subsequently, he found that if emphysematous patients were allowed to expire into an atmosphere, the pressure of which was from four to eight inches of water less than that of the air, the relief they obtained was greater and more lasting than by the use of compressed air; and his brilliant results have been fully corroborated by Drs. Hagel and Mader. I therefore designed two instruments, and I have been using them for some time with the best results."

Being much interested in the treatment of emphysema, and fully appreciating the importance of the objects aimed at by Drs. Hank, Hagel, Mader, and Berkart, I at once induced Dr. Berkart to be kind enough to bring his instrument to the Royal Hospital for Diseases of the Chest, and to try it upon some of the numerous emphysematous patients who seek relief at that charity. By a set of inspiratory and expiratory valves communicating between an orinatal mask and an air-pump, the cylinder of which is suddenly exhausted at the instant when the patient completes an act of ordinary expiration, Dr. Berkart aims

* The proportions per cent. of phosphoric acid and potash effete in the four analyses of muscular tissue were as follows:

	I.	II.	III.	IV.
Phosphoric acid	43.8	43.7	43.7	40.4
Potash	56.2	56.3	56.3	59.6