fourth and fifth ribs, just under the nipple. The sounds at the apex were very indistinct, though a low soft murmur could be caught; at the base, a distinct rubbing to and fro sound was heard. The heart's dulness appeared to extend towards the costo-clavicular articulation. The pulse was 104, and thready.

In the lungs, percussion was decidedly duller under the left clavicle than under the right. There were strong sibilant and sonorous rhonchi on both sides of the chest; mostly on the right side, where, in the clavicular region, the respiration was loud and blowing, and equal in length to the inspiration. On the left side, the expiration was prolonged, but not nearly as much so as on the right.

Over the front of the abdomen, there was a rash of a blueish shade, disappearing under pressure; the patches varying in size from that of a fourpenny piece to a pin's head.

The bowels were open; the appetite was good.

The following treatment was followed. A blister was applied over the heart, and the following mixture prescribed:—

R Potassæ nitratis 3ij.
Vini ipecacuanhæ 3ij.
Spiritus ætheris nitrosi,
Tinct. camphoræ compos., aa ʒss.
Oxy mellis scillæ ʒi.
Aque ad ʒxvj. M.

Sumat cochlearia ij amplâ 4tâ quâqua horâ.

September 3rd. He was much improved, though the legs, especially the left, were much swollen. The urine was moderate in quantity, and deposited phosphates.

He gradually improved from this time, so as to be able in two or three weeks to leave his bed, and walk about on crutches, and even to go into the garden to smoke his pipe when the sun shone; but he continued weak and cachectic, with a dejected air and expression.

Oct. 4th. Mr. Bacot, the house-surgeon, was called in the evening to see him, and found him sitting on the bed-chair (having just passed a motion), complaining of pain in his bowels. By the administration of stimulants at short intervals, he rallied from a state nearly approaching collapse.

October 5th. He was this morning quite free from pain, but his pulse was excessively small and weak.

At 2.30 P.M., when visited again, he was found *in articulo mortis*, and rapidly sank.

EXAMINATION OF THE BODY. *Chest.* The lungs were covered with recent false membrane, not uniting them to the costal pleura in front, although it did so behind. There was no tubercle. The lungs were crepitant, and buoyant in water. The pericardium contained a little fluid, and some fine adhesions united the roots of the vessels to the pericardium. The heart was of normal size. There was a large white patch on the anterior surface of the right ventricle, the walls of which were a quarter of an inch thick. The tricuspid valves were healthy; the pulmonary valve had fine reticulations on two of its segments. The wall of the left ventricle was half an inch thick. The aortic valve was thickened and opaque, and had some reticulations. The mitral valve also was thickened at the points of insertion of the chordæ tendinæ; and the opposite portion was puckered and greatly diminished in breadth.

Abdomen. This cavity being opened, a dark plum-coloured fluid escaped, and the intestines on the right of the median line were found to be encased in a coagulum of blood an inch thick. On close examination, the liver was found united to the right pillar of the diaphragm. The aorta and vena cava were imbedded in a mass of fibrin, extending from the aortic opening in the diaphragm to just above the iliac arteries. This mass was removed entire, and exposed an aneurismal sac, bounded by the right pillar of the diaphragm, the anterior inferior surface of the liver—the lobulus Spigelii projecting into the sac, and in front by a layer of thick lymph, together with the vena portæ and hepatic artery, which were moreover united by recent lymph to the lower edge of the liver. This cavity

was divided into two of unequal size, that attached to the aorta being as large as a walnut, and separated from the larger one by a thick layer of lymph, perforated with an opening of the size of a goose-quill, and having another opening, by which it communicated with the aorta, as large as a chicken's quill. This last opening was found just above the giving off of the arteries, which usually unite to form the celiac axis, but which in this case arose separately from the aorta. The aorta was roughened by a patch, apparently of atheroma, at this precise spot, without any dilatation, and was elsewhere smooth and healthy. The smaller cavity was rugose, like the lining membrane of the gall-bladder, and contained a tough, tawny coagulum. The larger one—twice the size of the smaller—appeared to be of more recent existence, and to be formed principally by adhesion of the parts and organs whereby it was naturally bounded.

REMARKS. In neither of these cases was the calibre of the aorta at all increased. In both, there was deposit in the inner coat, though very slight, and confined to the immediate neighbourhood of the perforation of the artery in the case of Whittle. In both, the cellular coat appeared to form the aneurismal sac, being dissected away by the infiltration of blood. Both patients were in the state of rheumatic cachexy, contracted under very similar circumstances. But in Whittle there was something more: the valvular heart-affection, and an abscess over the right shoulder-blade (not mentioned in the account of the autopsy).

It appears sufficiently clear that, in the case of Cockerell, the affection of the artery commenced with his rheumatic attack. The inflammation of the serous lining of the heart (endocarditis) was continued to that of the aorta, ending in atheroma of the vessel; the peculiar characteristics of which—fatty globules and crystalline matter—were distinctly visible under the microscope. Rokitsansky affirms that this succeeds to hypertrophy of the lining membrane of the vessel in such cases.

In the case of Whittle, the incrustation in the aorta was so small and thin, that it may be doubted if it was of the same nature as that of Cockerell; and when it is remembered that there were two sacs—the inner one only containing a coagulum, and that, besides the coagulated blood, there was found in the abdomen a quantity of thick plum-juice-like fluid—we retain the impression then felt, that an abscess had given way. The outer and larger sac was probably that of an abscess, which had caused arteritis at the point of contact, with ulceration through its coats, and their dissection of its outer one by the effused blood, thus gradually causing the aneurismal sac. This conclusion is, however, somewhat at variance with the appearance which the larger sac presented, of being more recently formed than the smaller one.

The sudden pain in the belly, and the supervention of syncope *in the recumbent posture*, indicated internal hæmorrhage from the yielding of arterial coats, either by ulceration or aneurismal rupture. Happily, the cause of death was clearly demonstrated by the *post mortem* examination, and as clearly exhibited in the well prepared pathological specimens with which the remarks on the case were illustrated.

Dorchester, June 1853.

SUGAR OF MILK AS AN ARTICLE OF FOOD IN CONSUMPTION AND OTHER PULMONARY DISEASES.

By JAMES TURNBULL, M.D., Physician to the Liverpool Royal Infirmary, and Lecturer on Clinical Medicine to the Medical School.

THOSE who are familiar with Liebig's works are aware that he established, several years ago, the fact that all the various substances used as food belong to one of two classes—the azotised, or plastic, which form the tissues of the body,

and replace the worn-out tissues; and the non-azotised, or combustive, which furnish food for the lungs, supporting respiration and animal heat. Now, it is a curious fact, which he also established, that, though the fibrin, albumen, and casein, which constitute the chief of the first or azotised class of alimentary substances, exist in vegetable as well as animal food, animals have not the power of forming in their own bodies any of those azotised alimentary principles. They are primarily derived from the vegetable kingdom; and the digestive organs of animals have no power of producing them, but merely of assimilating what has been already formed by plants, or previously drawn from the vegetable kingdom by some other animal. These views met with considerable opposition when they were first advanced; but their correctness is now generally admitted, and there is no essential difference in the chemical composition of fibrin procured from vegetables and that obtained from the flesh or the blood of an animal, or between vegetable and animal albumen or casein.

Of the other class of alimentary substances—the non-azotised—the chief use of which is to supply food for respiration and the support of animal heat, the principal are starch, sugar, oil or fat, and alcoholic liquors. These unite with the oxygen absorbed at the lungs, and are the chief source of the carbonic acid and watery vapour given off by these organs. They are, in fact, burnt by a process of slow combustion, which is the great source of the high temperature of animals.

It appeared to me that, as this function of the lungs must necessarily be more or less impeded in all pulmonary diseases, and as cod-liver oil had been found so beneficial in that particular disease, consumption, advantage would be gained by selecting from this, the non-azotised or combustive class of alimentary substances, such of them as would have the greatest tendency to unite readily with the oxygen absorbed at the lungs; and thus, in the disabled condition of these organs, to facilitate the performance of their functions.

I was thus led to inquire which of the non-azotised or combustive class of alimentary articles are most readily digested, and have the greatest affinity for oxygen. Sugar of milk is an article belonging to this class of aliments, which possesses these properties in a high degree, and is deserving of more attention than it has yet received as an article of food. I shall therefore state a few facts respecting it, which seem to me sufficiently interesting to be worthy of being brought under the notice of the profession.

There are three principal varieties of sugar—cane sugar, milk sugar, and grape sugar. They are closely allied in composition, though they differ considerably in chemical properties. All kinds of milk contain sugar of milk; but it is worthy of notice that asses' milk, which has always had a greater reputation than any other kind, as an article of food in consumption and other pulmonary diseases, contains the largest proportion, relative to the caseous and oleaginous principles, of any kind of milk. Whey, which consists almost entirely of sugar of milk, has also been found a useful article of diet in consumptive cases.

When we inquire into the chemical properties of milk sugar, we also find that it has so strong an attraction for oxygen, that, when dissolved with an alkali, it has the power of reducing more or less completely some of the metallic oxides. It is readily absorbed into the blood, which, being an alkaline fluid containing oxide of iron, furnishes the necessary conditions for its oxygenation. Besides this, its composition is such, that it must be readily converted into carbonic acid and water. There is only one other point in relation to its fitness to supply material for respiration, which I shall at present notice. It is the fact, originally pointed out by Liebig, and now admitted by physiologists, that one of the great offices of the liver is the preparation of combustive material for the respiratory process. This is a point which has not been sufficiently kept in view by medical men; but it is one of great practical interest, when we consider that the function of the lungs and that of the liver are so intimately connected and mutually

dependent, that derangement of the secreting function of the latter must necessarily interfere with the former, and may not improbably be one of the chief causes of a tubercular state of the blood. The liver prepares the combustive materials for respiration; and of this there are two sources, one being the worn-out tissues of the body, the hydrocarbonaceous part of which forms bile, and, being re-absorbed, is consumed at the lungs; the other is the saccharine and fatty matters of the food, which are consumed in a similar way. It would seem, however, that the liver has not only the power of preparing the latter, but also of forming saccharine at least, if not oleaginous matters, from the blood. A defect in this power may be one of the great causes of tubercular diseases; and if we can, by giving a ready formed oil which is stored up at certain times in the liver of the cod-fish, rectify to a great extent any defect in its action, so far at least as the oleaginous material for respiration is concerned, there is good reason to expect that still more may be gained by giving, in a ready formed state, the other combustive material, the saccharine.

The facts I have brought forward have led me to use sugar of milk in the treatment of consumption; and, as I have seen benefit from its use, I wish to recommend it as an article of food deserving of more attention in the treatment of this disease than it has yet received. I believe also that they embrace an important principle, applicable to the dietetic treatment of other diseases.

Liverpool, June 1st, 1853.

READY MODE OF APPLYING THE DOUCHE, AND OF ADMINISTERING INJECTIONS OF WATER.

By J. INGHAM IKIN, F.R.C.S. Eng.

IN directing the fitting up of a small Hospital for the Diseases of Women and Children, just opened in this town, I have adopted a simple and effectual plan for the application of the douche, and for the administration of water injections, both of which are very useful in the treatment of many disorders of women. As I am not aware that this exact mode of employing water has been recommended or used by the profession, I now call attention to it through the medium of our JOURNAL.

To every floor in the new hospital, hot and cold water is carried; the latter being supplied by the town water-works; the former, by a reservoir placed in the attic, heated by pipes connected with the kitchen fire. To the pipes and taps in the lavatory and bath-room, I have had additional screw taps attached at the side, to which is appended a length (about two yards) of gutta-percha tubing, of somewhat smaller diameter than that now commonly used for cleansing carriages, etc. There is, at the end of the elastic tube, a brass screw, to which terminal pipes of different kinds can be attached; for example, an ordinary straight one, with a single aperture; a vaginal one, with a number of orifices, as in a female syringe, etc. As the pressure on the water in the pipes (which communicate with the mains) is always considerable, it is expelled with great force, which can be regulated by the screw tap, at the will of the patient or nurse, according to circumstances and the effect produced. It is a simple and effectual mode of applying the douche, and of giving water injections.

The proper and judicious application of water, in the treatment of many diseases, either local or general, we should not overlook, nor allow quacks, hydropathists, and others, to obtain credit for modes of treatment which, in judicious hands, can be skilfully and discriminately used, though they will not be abused, or used merely as a means of *pumping* the pockets of the patient, and gulling the public.

As a shower bath, especially for children, I may add that I find the pneumatic apparatus (an old invention, I believe, recently come again into fashion) to be very convenient, especially when a severe shock is objectionable.