lief; the symptoms, after two weeks duration, returned in a most aggravated form; therefore, seeing no other alternative, I introduced a sound, and proved the diagnosis to be correct. Having explained the nature of her case, the patient felt anxious to have relief afforded as speedily as possible, I therefore proposed an operation by Weiss's urethra dilator, to which she readily consented, and which accordingly took place on the following morning. The patient being placed nearly in the usual position for lithotomy, I introduced the dilator, and continued gradually to expand the blades, until they were separated to their greatest extent, about an inch and a half, which occupied about forty minutes. Having allowed the dilator to remain in the urethra twenty minutes, I withdrew it, when, to my great satisfaction, the natural efforts of the bladder expelled a calculus of the size of a walnut, without materially increasing the severity of the patient's sufferings. On being placed in bed, forty drops of *tinct. opii in camph. mist.* ʒiss were given. On visiting her next morning, I found she had passed a comfortable night, having had several hours refreshing sleep; felt easy; tongue clean; pulse 87; skin moist; bowels not open since the operation. Ordered

Ol. ricini ʒvj;
Liq. potassæ gtt. xxx;
Aq. distill. ʒj.

In the evening her bowels were comfortably relieved; passed her urine several times with less pain than before the operation.

From this time her health gradually improved, and for three weeks everything went on in an uninterrupted way towards recovery, when she began to experience pain in the region of the left kidney, increased by pressure and motion, difficulty of making water, pain and numbness of the leg and thigh—in short, every symptom denoting stone in the bladder had again appeared. To enumerate them would be merely a work of supererogation. Suffice it to say they were of an aggravated form. The patient expressing her belief that stone had again passed from the kidney into the bladder, and finding its natural efforts insufficient for its expulsion, I, at her earnest desire, had recourse to the operation in the manner above detailed, which was repeated three different times, at intervals varying according to the urgency of symptoms; the bladder, at each time after the operation, expelled two, and sometimes three calculi from the size of a walnut to that of a hazel nut. I have not since had occasion to use the dilator, and feel pleasure in saying the patient has still the power of retaining her urine as well as before the operation, con-

sequently, it is reasonable to suppose that Weiss's urethra dilator will, I should say, in every case, supersede the operation by the knife in calculi of the female bladder. I have the honour to be, Sir, your obedient servant,

JOSEPH LOVEGROVE, M.R.C.S.
 Horsham, Sept. 13, 1832.

ON THE
 ANTISEPTIC PROPERTIES
 OF THE
 HYDROCHLORATE OF TIN.

By Dr. TAUFFIER, of Strasburg.

ALCOHOL, which has hitherto been generally used in the preservation of animal substances, offers many inconveniences, which, in some instances, may render its antiputrid properties nearly useless. Without speaking of the high price of this liquid, which renders its employment very expensive, especially in putting up of large anatomical specimens, it would be sufficient to point out the almost disorganising action which it exercises upon the animal tissues, to demonstrate the want of a menstruum which does not present these disadvantages.

Various substances have already been proposed to replace the alcohol, but none have as yet been found to merit a very marked preference.

The substance of culinary salt, of salt of nitre, of alum, of sulphate of zinc, which have been recommended as retarding putrefaction, oppose but a feeble barrier to the disorganization of the parts.

Corrosive sublimate preserves, it is true, animal substances from putrid decomposition, but it hardens and discolours these matters, and finally renders them indistinct by a chemical action, which it exercises on them. Many examples have also proved, that the employment of this mercurial salt is not without danger to the operator.

The *persulphate of iron* in solution has also been recommended as an antiseptic liquor, but it has the inconvenience of covering the parts to be preserved, with a yellow crust of sub-sulphate and oxide of iron. To establish this fact, I used a solution of the trito-sulphate of iron, which had for three hours been exposed to the contact of the air. Some muscular flesh, which I immersed in this liquid, resisted putrefaction for eleven months; but it became covered with a coating of sub-sulphate of iron which prevents the distinguishing of the organic structure. The liquor becomes decolorated, and in lieu of the trito-sul-

phate of iron, it contains the proto-sulphate only.

The aqueous solution of sulphurous acid preserves much better the animal tissues of which we have just spoken, at least it does not quickly alter the natural texture of the parts. I have been enabled to preserve, till the present moment, almost without alteration, a piece of muscle, which I plunged ten months ago into water acidulated with sulphurous acid. The solution remains transparent, the fleshy fibres have become much more distinct, preserving their red colour; but after the fifth month the tendinous parts and the interstitial cellular tissue began to be transformed into a species of gelatinous and transparent "*bouillie*," having the appearance of white of egg.

Dr. John Davy, who first availed himself of this acid for the preservation of cabinet specimens, confined himself to its employment by immersion. I was anxious to assure myself if this sulphurous solution acted with the same efficacy upon fleshy bodies merely moistened by it. I have with this view tried many experiments at the Amphitheatre of Anatomy of the Faculty of Medicine, and in the presence of M. Lauth, superintendent of the anatomical schools. An arm which had been dissected for the bloodvessels, presented all the signs of putrefaction, as it appertained to a body twenty days dead. A glutinous matter which oozed out incessantly on the surface of the muscles rendered their dissection more and more difficult. Half of the arm was moistened slightly with water acidulated with sulphurous acid, and then exposed to a temperature of twelve degrees. The next day the moistened portion was perfectly smooth, a little red, and nearly in the same state as when fresh, whilst the adjacent parts were black, covered with a viscous matter, and throwing out an infectious odour. A *gastrocnemius* muscle was enveloped in tow, moistened in sulphurous water, and exposed to a constant temperature of twelve degrees: at the end of four weeks it was as fresh as the first day. The sulphurous acid appears then more particularly useful in the cases where it is proposed to arrest for a time only the progress of putrefaction, and in this respect its use becomes infinitely more important to anatomists in facilitating the dissection of preparations, which require minute work. But it appears to be less proper than alcohol for the general preservation of anatomical specimens, because of the kind of maceration to which this fluid subjects the parts immersed in it.

Amongst the different saline solutions, alkaline or acid, of which I have considered the anti-putrid tendencies, that of hydro-

chlorate of tin appears alone to unite all the conditions which ought to give it a preference over alcohol in the preserving of animal matter, at least in the greatest number of cases. In June, 1831, I placed in a weak solution of this metallic salt, a muscle with cellular tissue filled with fat. These parts retained all their freshness in consequence; those which were coloured by the red blood assumed indeed a slightly brown tint, but in other respects they did not show the slightest alteration, either in consistency or appearance. I have shown these specimens to many anatomists, who have viewed with astonishment their perfect integrity after so considerable a lapse of time.

I have subjected to essays of this kind different sorts of animal tissue, such as the mucous and serous membranes of the lungs, of the liver, spleen, &c. All these substances remained without any alteration for five weeks in a solution of one part of deuto-hydrochlorate of tin in thirty parts of water. Another piece of flesh, chiefly composed of muscular parts, which had been immersed some time in a solution of salt of tin, was left in an earthen pan after having been passed through water. At the end of ten days it had not shown the slightest sign of alteration, although it was still completely impregnated with moisture; exposed to the air, it dried without any sort of decomposition. The deuto-chloride of tin then may be employed with success, whether in the conservation of fresh pieces, or to favour their dessication, according to the end proposed. To produce this effect, it is necessary to use a solution of one part of this salt in twenty parts of water, acidified by hydrochloric acid. The salt of tin of the manufactories should not be employed for this purpose, because the solution is disturbed by the air, and allows a deposition of sub-deuto-hydrochlorate, which is precipitated over the parts. It is requisite to employ a deuto-hydrochlorate which does not contain the proto-chlorate, and which may easily be procured by treating "tin in grains" with *aqua regia*.

As the calcareous substances which enter into the composition of the bones act strongly upon the hydrochlorate of tin, it becomes necessary to leave for some time in the acidulated water such anatomical pieces as have been attached to them, in order to dissolve the calcareous salts; they may afterwards be placed without inconvenience in the metallic solution.