time. It necessitates only one visit; whereas with the use of ointment or drops it is the invariable experience, no matter what elaborate instructions, written or otherwise, are given, that at least one or two, and often more, out of every dozen return for refraction, either not having used the ointment at all or only partially so. They are then sent back a second time with a further supply of atropine, which although not used the first time yet in some way has mysteriously disappeared. Then, again, a certain number of the cases do not return at all, whereas if the tablets have been used on the first visit there is no chance of escape from refraction at any rate. The use of atropine at home, too, is not such an easy matter, especially when it has to be done three or four times a day for several days. It requires not only experience but time and patience, and how often, as one knows, the home and mother are already saddled with a hundred and one other duties.

One further point to which I would like to draw attention is that I have not yet seen any case, when using these tabloids, present any signs or symptoms of atropine irritation or poisoning. As regards actual cost of material, the tablet method compares very favourably with that of ointment or solution, the hospital price of the tabloids working out at about 6*d.* for a tube of 25, so that 12 cases can be refracted at a cost of a fraction less than $\frac{1}{2}$ *d.* each. Atropine ointment is supplied in two-drachm chip-boxes at a cost of a $\frac{1}{2}$ *d.* each, in addition to which a glass rod for application has also to be given, and time spent in the dispensing of the ointment or solution.

London, W.

THE USE OF GELATIN IN MICROSCOPICAL TECHNIQUE.

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At the Conference of the Sudwestdeutsche Neurologen und Irrenärzte held in Baden-Baden on May 24th and 25th, Professor Edinger (Frankfort-on-Main) showed several microscopical specimens mounted in gelatin in place of the usual mountant, Canada balsam. As I have had the opportunity, while working in his laboratory, of practising this method, I append details for any who may wish to make use of it. The technique has been developed from suggestions originally made to Professor Edinger by a photographic chemist, Mr. Ralph Liesegang, and has been worked out chiefly from the point of view of utilising it for neurological preparations. It is, however, by no means confined to this particular branch, but can be applied to most pathological work.

Sections may be cut by any of the usual methods—viz., freezing, paraffin, or celloidin. They can then be stained in the ordinary way, and all stains are available with the exception of those which can be extracted from the tissues by immersion in water. This group of exceptions is not large, but, unfortunately, it includes Nissl's method and all others in which the aniline dyes figure. Efforts which we made to fix these dyes in the tissues—as, for instance, by the use of solutions of varying strength of ammonium molybdate—preparatory to placing the sections in water, have proved unsuccessful. Further work may possibly overcome this difficulty.

Having completed the staining process the section is put into water and is now without further treatment ready for mounting in the gelatin solution.

In the preparation of this a few essentials must be noted. Firstly, the solution must be freshly made and the best results are only obtained when the special gelatin, as used for photographic plates, is employed. Of this, 10 grm. are taken and allowed to soak for two hours (preferably overnight) in 100 c.c. of distilled water. When about to be used this solution must be warmed to a temperature of 50° C. by means of a water bath in order to render it sufficiently fluid. It is advisable to filter it beforehand, also at this temperature.

As much of this warm solution is then gently poured on to the slide as can be put on without any overflowing. It is important to pour on as much as possible in order to get a sufficiently thick film of gelatin in the final result. When

large sections are being treated it is better to keep the slide on a warm stage, and in the case of frozen or celloidin sections to pour on a thin layer of the gelatin solution first before putting the section in position on the slide. Larger sections still can, with profit, be immersed in the solution for a few minutes beforehand. The preparation is now left exposed to the air, and in the course of a few hours the water evaporates and one is left with the slide covered with a fine transparent film of gelatin in which the section is imbedded. This film behaves in every particular like the gelatin film on a photographic plate. It is intensely hard, resists scratching, and can be packed face to face with other specimens without involving the risk of finding them glued firmly together as is the manner of Canada balsam. Under the microscope a perfectly clear picture is given, and if necessary cedar-wood oil, for oil immersion purposes, can be used.

The great advantage of the method is the economy of time and material which results. There is no tedious transferring from dish to dish for the processes of dehydrating and clearing. Thus alcohol, xylol, Canada balsam, and coverslips are entirely dispensed with, and in addition one does away with the danger of injuring large brain sections which attends too much handling. Apparently specimens will keep indefinitely. Weigert-Pal preparations—for which the method is eminently suitable—have been preserved for three years. Serial sections, which require large slides and coverslips, lend themselves to this manner of mounting. Finally, perhaps, botanists may find here a useful servant. Their chlorophyll specimens, being untreated by alcohol, are able to retain their pigment unaltered, and so can be mounted in the natural state.

Clinical Notes: MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTE ON A CASE OF ACCIDENTAL COAL-GAS POISONING, WITH RECOVERY.

BY WALTER ROBERT S. JEFFERISS, M.D., C.M. EDIN.,
D.P.H.

AS cases of accidental poisoning from coal-gas are not frequently met with in general medical practice, perhaps the following notes of a case may be of some interest to medical men.

On Oct. 4th, 1912, I was asked to go to the relief of a man over 60 years of age who was supposed to be dying. On reaching the house I found the whole place smelling strongly of coal-gas, and on going upstairs to the bedroom, a room of about 11 ft. square, I found the man lying on the bed on his back quite insensible, breathing stertorously, and to all appearance not far from death. There was also one other occupant of the room, a small grey linnet in a cage overhanging the bed, but it, alas, had sung its last song and was lying dead on the floor of its cage. The man's face was livid; his eyes were wide open, the pupils firmly contracted, and the corneal reflex gone. There was not a trace of consciousness left, and the breath smelt strongly of coal-gas. The bowel sphincter was relaxed; the temperature was slightly subnormal, the body being well covered in bed; and the pulse was 68, regular, and moderate in strength. I had the patient brought close to the open window and resorted to artificial respiration, coupled with cold affusion to the head and flicking the body with a wet towel. Consciousness gradually returning, and the patient being now able to swallow, I gave him some hot, strong coffee, a spoonful at a time, and after an hour's efforts he recovered, and I left him in the charge of his relatives. On the next day, after a good natural sleep, the patient seemed quite himself.

The history of the case is as follows. The patient, who lived with his son, not feeling very well on the previous day, had retired to bed somewhat earlier than usual, the gas being lighted to warm the room as there was no fire. The bedstead blocked the fireplace, the door and window were shut, and the gas was allowed to burn

all night, or rather up to a late hour of the night, when the son, as was his custom, turned off the meter on going to his own bed, but omitted to turn off the gas-tap in his father's bedroom. The father, seeming tired, continued to remain in bed, and the relatives considering that he was not "up to much" advised him to rest until after dinner-time, which he agreed to do. After breakfast-time the son had occasion for business requirements to turn on the gas downstairs again, forgetting that the gas-bracket had never been turned off in his father's room. During the afternoon the relatives went upstairs and found the patient as I have described, the room full of gas, and the gas-bracket still on.

This recalls to my recollection an extraordinary case of murder, where the secret opium poisoner used coal-gas to cover up his crime by pretending that his victim (his wife) was dying from accidental poisoning by the escape of coal-gas in her room, and then calling in a medical man, who, at first believing his tale, used similar measures as were used in this case, but finding no success sent for an expert to assist him, and as a result they considered the best thing was to remove the patient to a hospital for further treatment and watching. Their efforts were unsuccessful, and the woman died. A post-mortem examination threw no light on the case, but a small stain on her pillow at her own house was analysed and found to be extract of opium. The poisoner attended his victim's funeral, was shadowed, and then arrested, brought to trial, convicted, and hanged at Edinburgh in 1866. In this case the poisoner had broken through the gas-pipe, which was behind a shutter in the room, and thus allowed the gas to escape, which he thought would mislead the medical men and cover up his crime.

During the past year or two I have met with two or three would-be suicides who have tried to effect their purpose by using coal-gas inhalations, but were rescued by their relatives in time to prevent a fatal termination to their foolish attempts.

Chatham.

NOTE ON A NEW OPERATION FOR FEMORAL HERNIA.

BY G. S. THOMPSON, F.R.C.S. ENG.

I THINK it will be admitted that most, if not all, of the operations for femoral hernia are theoretically if not practically unsound, and therefore leave much to be desired. Simple ligature of the sac here, as opposed to the same proceeding in the inguinal variety, is obviously inadmissible. Muscular obstruction to the canal has not yet readily been effected, as far as I am aware, and its attempt by means of a flap from the pectineus muscle can be only temporary, since the tissue used by being inevitably deprived of its nerve-supply must degenerate into a fibrous mass, to say nothing of the objectionable mutilation. This flap method may or may not form an efficient barrier; at any rate, it cannot be relied on with certitude. Approximation of Poupart's ligament to Cooper's ligament or the pubic bone by suture, staples, or wire is apt to alter detrimentally the anatomical arrangement of the parts, causing, amongst other things, undesirable pressure inwardly and from above on the vessels to the lower extremity, whilst metal bodies in this region are a possible source of danger, to say nothing of the loosening of such things as staples. Of all these processes a modification of one of the last, by means of a loose suture between the two ligaments arranged in the form of a network, and acting like a filigree by provoking infiltration by fibrous tissue, would appear to be the best.

The means I adopt and will now describe involve the use of a specially but easily prepared celluloid filigree shaped so as to fill the triangular femoral hernial space. I have already¹ drawn attention to the value of celluloid in some departments of surgery, and amongst other things indicated the especial value of a perforated celluloid plate rather than silver wires as a general filigree substance for large and suitable hernias. Several rectangular-triangular pieces of thin sheet celluloid of various sizes and the shape of the femoral canal are cut. The short outer side is rendered slightly concave, the long side corresponds in position to Poupart's ligament, while the third side opposes Cooper's ligament. These celluloid triangles are riddled with perforations by a fine punch, and the sharp angles thereof are rounded off. The outer concave border is then turned back at right angles to the remainder, and by means of the thumb-

nail the flange thus formed is made to present a concavity at its junction with the rest of the plate. Subsequently this flange will be outermost, resting against the vein, and is formed to eliminate the sharp edge that might otherwise ulcerate into the vein and produce disaster. So much for the filigree.

Regarding the operation, a nearly transverse incision having been made over the saphenous opening, the canal defined, and the sac ligated, the connective tissues in the space are gathered outwards so as to form against the vein a cushion next to which the flange will rest. The femoral triangle limited by Poupart's ligament above, Cooper's ligament and the bone below, and the vein and connective tissue externally, is then clearly and cleanly defined. A suitably sized filigree is next chosen and inserted into this space and will rest against Poupart's ligament above, Gimbernat's ligament internally, the pubic bone below, whilst the flange opposes the vein externally, from which it is separated by the pad of loose connective tissue already referred to. Three temporary catgut fixation stitches are inserted through the perforations at convenient spots, thereby fixing the filigree to the above three ligamentous structures. The operation is thereafter concluded. The femoral canal is now completely obstructed and in a short time following the operation the perforations of the plate get riddled by fibrous tissue, as a result of which the plate becomes covered by, and embedded in, the same and thereby firmly fixed *in situ*. By this means the canal is permanently, thoroughly, and satisfactorily closed without causing pressure on, or injury and improper disturbance to, the parts; and hence an impassable barrier is constituted. Moreover, the vessels cannot be damaged or interfered with by this plan, and I think the method will prove not only the most but quite a satisfactory means, to the exclusion of all others, of coping with this troublesome condition.

Amongst other things, celluloid has the great advantage of being flexible, and consequently of adapting itself to every varying conformation of the part. Boiling is apt to crinkle this substance, and therefore it is preferably sterilised by being inserted in alcohol or some antiseptic for some time preceding its use. Celluloid can be obtained in thicknesses varying from that of the ordinary photographic film to cardboard, but for this part of the body the thinner sheets are desirable as forming a resilient and light yet efficient barrier, consisting ultimately of celluloid and its investment of fibrous tissue, which forms a femoral diaphragm.

The same principle as already utilised may be modified and adopted by using a triangular floss-silk or chromic catgut network filigree; and this would constitute an improvement on the plan of constructing *in situ* a mesh by suture of the ligaments of the part—a manipulation, as a fact, not easy of satisfactory accomplishment. If this modification be preferred or is preferable, several sizes of fine meshed triangles should be constructed and the surplus threads prolonged from each angle and two or more places from the upper and lower sides for purposes of suspension and fixation. The outer side of this kind of filigree, as in the case of the celluloid homologue, would be concave. The free threads will be used for fixing the netted filigree to the ligaments of the femoral triangle. This net filigree will have the same effect as the celluloid plate, provoking, and resulting in, the formation of a fibro-cellular diaphragm superimposed on the artificial septum introduced. As the former would probably be adequate to obstruct the canal, an absorbable material like chromic catgut might be sufficient to meet all requirements, failing which floss-silk would be indicated as the substance of choice—a question, however, which time alone can answer.

Kimberley, South Africa.

TINCTURE OF IODINE AS A HOUSEHOLD REMEDY.

BY EDMUND OWEN, F.R.C.S. Eng.,

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IN recent years surgeons have learnt that a quick and easy way of rendering a wound or a surface of skin surgically clean is by painting or swabbing it with fresh tincture of iodine. To make the method quite trustworthy, the part should be dry at the time, so that the alcohol of the tincture may carry the iodine into the depths of every pore or crevice.

But the public have not yet been taught that they also might find the tincture a valuable friend and protector; that they ought always to have a small bottle of it close at hand,

¹ Brit. Med. Jour., July 30th, 1910, p. 257.