Banks contended at a time when little or no support was forthcoming is thoroughly accepted for the cure of inguinal hernia.

The anatomical conditions of inguinal hernia secure that with the closure of the neck sac there is also an abolition of any infundibular fossa, but this is not the case with femoral hernia, and I believe that some unfavourable criticism of radical cure of hernia in general has resulted in consequence of the operative treatment of femoral hernia failing to completely satisfy Mitchell Banks's first principle—namely, complete abolition of the sac. All present-day operations for the radical cure of femoral hernia which approach the sac from below and include various steps, such as closure flaps of aponeurotic tissue like the pectineal fascia, etc., are liable to failure, though a certain number succeed.

They should, in my opinion, be wholly abandoned in favour of the method of operating from above which I employed from about 1890 at University College Hospital.

It consists, first, in a 3-in. horizontal incision through the abdominal wall just above the inguinal canal, ample room being obtained by firm retraction especially of the rectus inwards. The peritoneum being exposed, traction is made upon it and the femoral hernial protrusion lifted out of its bed intact. The sac is then completely removed and the continuity of the peritoneum made normal. The upper orifice of the crural canal is then closed, preferably by a flap of periosteum and a thin scale of bone from the posterior surface of the pubic bone.

I would suggest that recurrence is impossible by this method of operating, and that it involves no more special procedures than those of approach from below, but that its chief value lies in its complete fulfilment of Mitchell Banks's principles.

Schwartschild⁵ has since employed a similar procedure for the radical cure of a remarkable case of recurrent obturator hernia.

(b) *Protection of the Hernial area by Closure of the Inguinal Canal.*

I have already shown that Mitchell Banks fully recognized the importance of this question, but, curiously enough, he does not seem to have fully grasped the most important step of supporting an inguinal hernial defect by transplanting downwards the lower border of the internal oblique muscle and fixing it firmly to Poupart's ligament.

Perhaps the elastic value, and therefore immensely higher efficiency, of muscle tissue as compared to fascial fibrous tissue was not then realized, nor the fact that the rigidity of aponeurotic fibres not only does not prevent their slowly stretching, but also, of course, precludes any physiological elastic recoil which is essential for the support of the viscera.

Owing, unfortunately, to so many cases coming for radical cure when they have been imperfectly supported by trusses for many years until muscular atrophy has resulted, surgeons have been obliged to employ filigree or other materials to furnish a shield to the abdominal defect, and Trendelenburg indeed transplanted bone for this purpose, but no case of hernia should be allowed to sink into such a difficult and hopeless condition.

To sum up this question of hernia, the removal of which from the community is a matter of such vital importance, I would say that our plain duty is to press to their logical conclusion—namely, early and invariably operation—the principles sketched out for us by our predecessors like Mitchell Banks. Our reward will be that we have then achieved a great benefit for our people and for the State by abolishing a source of danger and suffering.

This leads me to conclude with what can only be a very brief reference to a very large share of Mitchell Banks's useful life—namely, his public work for his city, his infirmary, his university, and his profession. The help he gave to each was so great that it is impossible to do more than express our gratitude by meeting on an occasion like this.

Deeply interested in all phases of humanity and of human life, and especially in the interests and success of his fellow citizens in the city of his adoption, he emphasized in the following pungent sentences the duty of every one of us to take some active part in public affairs and assist in the development of social progress:

We must be something more than mere prescribers of physic and healers of wounds. In my youth I had it strongly recommended to me to stick to my profession and leave everything else severely alone. The life of a doctor was to see patients, do operations, order drugs, and collect fees. I thank God that I entirely repudiated this idea of my profession.

Let us show our respect for Mitchell Banks by trying to follow his example.

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PINEWOOD SAWDUST AS A SURGICAL DRESSING.

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SAWDUST has been used from time to time by many surgeons as a surgical dressing, but its merits do not yet seem to be appreciated as they deserve. At the present time, when an efficient, cheap, and easily prepared material is desirable, I wish to draw attention again to sawdust.

Among those who have recognized its value are the late Owen Thomas of Liverpool, the late Surgeon-Major Porter, R.A.M.C., the late Mr. Callender,¹ and the present active surgical workers in Cashmir, the brothers Nevé. In a recent paper by Professor Saundby² reference is made to the value of pinewood sawdust as a deodorizer, which was demonstrated to him by the late Professor Vivian Poore.³

I have used it extensively in time past, and am using it now in Edinburgh at the Royal Infirmary and at the 2nd Scottish General Hospital at Craigleith, not only for operation wounds but also for septic cases of all sorts. It has also been much appreciated as a dressing for the shell wounds of the wounded German sailors in Edinburgh Castle, and it is very valuable for cases of incontinence of urine.

As to the wood, the sawdust from various kinds of pinewood has given good results. The softer kinds are the best, being more absorbent, while the harder kinds, although less absorbent, have the advantage of containing more resinous material. Commercial hard woods like mahogany or oak should be excluded if pinewood can be obtained. A simple method of testing the absorbent property of a sample piece of planed wood is to draw a stroke across it with a pen full of ink. If the ink spreads laterally, and dries in quickly as it would on blotting paper, the fibre of the wood is good for surgical purposes. If the ink remains on the surface, as on writing paper, the absorbent power is deficient. Apart from the wood itself, however, a good deal of absorption will take place between the individual particles of the wood.

The method of preparation I have found useful is the following:

Two large standard wire sieves are required—No. 8, that is, eight threads per inch, and No. 40, that is, forty threads per inch. In order to reject the coarse fragments the sawdust, as obtained from the sawmill, is passed through No. 8 sieve and allowed to fall on to No. 40.

It is then well shaken and rubbed on No. 40, and the very fine particles which pass through are discarded, because they would escape too readily from the prepared pads and cause an inconvenient dust. The sawdust which remains on No. 40 sieve is put into a box or sack and sent to the theatre sister.

The bags are made of butter muslin, and the sizes may be regulated according to requirement. Two sizes have, however, been found generally useful with us, and these may be shaped from a square yard of muslin as follows: Fold the square once on itself and divide the elongated double piece into three. Each of these thirds will make one large or two small bags. One end is left open, the others are closed by sewing if they do not happen to be folded. The nurse fills the bag about two-thirds full with the sifted sawdust, and then closes it with a coloured thread. The filled bags or pads are sterilized by steam in the same manner as other dressings. After use the coloured thread is withdrawn, the sawdust thrown away, and the bag washed, boiled, and dried for future use.

Besides the advantage of cheapness, and the relative

ease with which it may be obtained, sawdust is very absorbent. The pads are somewhat bulky, but this feature, with careful management, is seldom inconvenient. The discharge is so evenly distributed throughout the mass of sawdust, that the bandages and bedclothes are not soiled nearly so quickly as they are with other forms of dressing. The resin of the wood seems to act as a deodorizer, and probably also as an antiseptic.

Sawdust is well adapted for civil or stationary military hospitals. Its extensive use at the present time would save hundreds of pounds. Other materials more portable, but more expensive, might be reserved mainly for field use.

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INSECTS AND WAR:

V.—FLIES. (I) THE HOUSE-FLY
(*Musca domestica*).

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*Musca est meus pater nil potest clam illum haberi
Nec sacrum nec tam profanum quidquam est, quin
Ibi ilico adsit.*

PLAUTUS, *Mercator*.

"The common house-fly," says Ruskin, "is the most perfectly free and republican of creatures. There is no courtesy in him; he does not care whether it is a king or clown whom he teases, and in every step of his swift mechanical march and in every pause of his resolute observation there is one and the same perfect expression of perfect egotism, perfect independence and self-confidence and conviction of the world having been made for flies. Your fly free in the air, free in the chamber, a black incarnation of caprice, wandering, investigating, fleeting, flitting, feasting at his will with rich variety of feast, from the heaped sweets in the grocer's window to those of the butcher's back yard and from the galled place on your horse's neck to the brown spot on the road from which, as the hoof disturbs him, he rises with angry republican buzz; what freedom is like his?"

The house-fly is all that Ruskin describes it to be, but it is more. It is the most cosmopolitan of insects. Wherever man is there is the fly. It is found "From Greenland's icy mountains"
To "India's coral strand."

But it is naturally more frequent in warm climates than in cold, as the rate of its development depends very largely upon temperature,

Unlike the lice and the bed-bug, the fly, like the flea, passes through a complete metamorphosis. It will breed in almost any rotten matter, whether vegetable or animal, and it breeds most successfully, as Gordon Hewitt has pointed out, when certain processes of fermentation are taking place. Probably the fermentation has a favourable effect upon the food of their larvae. Undoubtedly the place most readily selected by the female for laying her eggs is stable manure. A few years ago there was a remarkable reduction in the number of house-flies in London, and Lord Montague of Beaulieu attributed this reduction to the refreshing and antiseptic petrol vapour with which the streets were then bathed. I do not know what experiments Lord Montague had made on the subject of the insecticidal value of petrol vapour, but the ordinary man in the street attributed—and I think more correctly—the diminution of the plague of flies to the absence of the nidus in which the female fly prefers to lay her eggs. Stable-yards had been turned into garages. Flies will, indeed, breed in almost any kind of dejecta, including the human, and in rotten straw, rotten wool, cotton garments, decaying vegetables and fruits, bad meat, rotten grain, and even in spittoons; but they prefer horse-manure.

In our country flies usually begin to breed in June and July, continuing well on into October if the weather be but warm. Their greatest activity is, however, in the hotter month of August and the beginning of September. In warm stables, restaurants, and kitchens, flies are able to develop

the whole winter through. A single fly will deposit at one time 100 to 150 eggs, and in the course of her summer life may produce five, or even six, batches of this size. The eggs are pearly white, elongated structures, with two converging lines, along which the egg-case will ultimately split to give exit to the larva. The eggs are laid by means of a long ovipositor a little way beneath the surface of the dung heap in a position where they will not be dried up. In favourable conditions the eggs hatch in from eight to twenty-four hours.

The first larva is legless, tapering towards the head, which bears a pair of breathing holes, or spiracles; the body is much stouter towards the hinder end. On the whole it is a white, unpleasant-looking maggot, called by freshwater fishermen a "gentle." By contracting and expanding its body it pushes its way through its moist surroundings. The skin is usually moulted some twenty-four hours later, but all these

Fig. 1.—Photograph of enlarged model of the house-fly (*Musca domestica*) in the American Museum of Natural History, New York. (From Gordon Hewitt.)

time limits depend much upon the temperature and favourable conditions. With normally high temperatures—say with 30° to 35° C.—the larva will become fully