

CHAPTER XII.

UPON STRAPPINGS.

In strapping a limb we seek one or more of the following purposes :

- I. A "support" to the divided tissues.
- II. A compression of the part, so as to favor absorption of effused materials; or, to prevent too exuberant granulation, or herniæ.
- III. To gain a fixed point upon the member, so as to be enabled to maintain extension of the same.

For one, or of all of these purposes, the common adhesive plaster of the shops (*Eplastrum Resinæ*) is employed. The formula for its preparation, according to the *American Pharmacopœia*, is :

R. Resinæ pulveris, ℥ vi;
Emplastri Plumbi, ℥ xxxv.

This often proves irritating to the skin, from the amount of rosin it contains, if the plaster is to be long applied. The irritability of the plaster may be lessened by using less rosin in its making.

Baynton, to whom the profession is indebted for the introduction of the "strapping treatment" of old ulcers, made use of a formula containing but six drachms of the rosin to a pound of the lead plaster, less than one-half the amount used in the officinal formula.

The Dublin College, and also the British Pharmacopœia, incorporate a small amount of soap in their adhesive plaster, thus engendering a greater pliability of the dressing.

The plaster is spread upon heavy muslin, or Canton flannel, by the aid of machinery, and comes to us in rolls of several yards in length. The strips we use should always be cut

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lengthwise from the roll, otherwise the cloth will "give," when extension is made upon it, thus loosening the plaster from its "hold" upon the member.

Generally narrow strips are employed in supporting wounded parts, but those from one to two inches in width when compression or extension is desired.

After the strips have been cut, they should be heated, by placing the back of the plaster to a tin vessel containing hot water, or to the stove-pipe, before applying to the limb. They will "take hold" much better by so doing. If the part to which they are to be applied is *hairy*, a "clean shave" will be necessary before you can make a satisfactory application, and will save much trouble and pain when you come to remove them.

In removing adhesive strips from a wound that is uniting, care should be exercised lest you pull the lips of the wound asunder. If you support the wound with your finger, and remove each end of the strip *up to*, and not crossing over, the uniting line of the divided structures, you will reduce this danger to a minimum.

The portion of the plaster adhering to the limb, after the strips have been removed, is best cleaned off by first rubbing with olive oil, vinegar, or turpentine, and then washing away with soap. The surgeon's fingers are readily cleansed in the same way.

Oftentimes you will find the plaster discolored when applied to a suppurating member. This is owing to a decomposition of the lead in the plaster, due to the action of the secretions upon it.

STRAPPING FOR THE FOOT AND ANKLE.

Application. — Having cut your strips one or one and one-half inches in width, and of sufficient length to cross over the end first applied, as you see in the figure, you place the centre of the strip over the back of the heel, and bring one end, 1, down firmly, and somewhat forcibly, to the 5th meta-

FIG. 128.



For the Foot and Ankle.

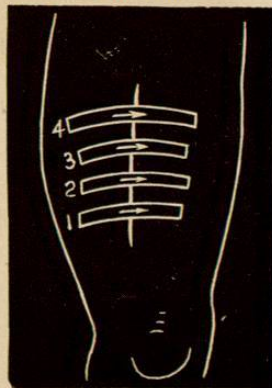
tarso-phalangeal articulation. Then seize the opposite end of the strip, and bring it equally firmly down over the tarsus, 2, to the 1st metatarso-phalangeal articulation. The other strips, 3, 5, and so on, are applied in a similar figure-of-8 manner, having care to overlap each preceding one a portion of its width. You will find you can exercise almost any amount of pressure by adhesive strips so laid, and care should be used lest you interfere too much with your patient's comfort, and so have to take them off before their therapeutical effect may be accomplished.

Variety.—Any portion of the body, when compression is desired, is wrapped in a similar figure-of-8 style, ulcerated surfaces being included in the strappings. It is really surprising the way some chronic (especially varicose) ulcers will improve after a week's treatment of good and vigorous strapping, although at the time of their application they may be somewhat painful to the patient.

FOR WOUNDS.

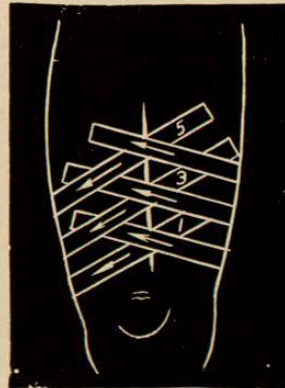
Application.—Having your strips cut of the requisite

FIG. 129.



For Superficial Cuts.

FIG. 130.



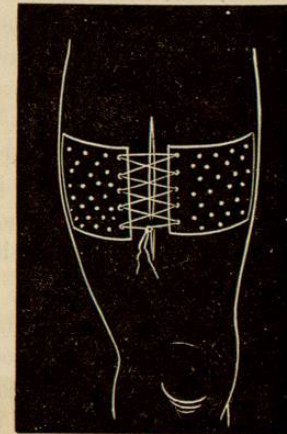
For Deep Cuts.

length (if the wound be not deep they need not surround the limb, but if the cut be to the bone, large enough to a little more than encircle the limb), you begin at the bottom of the wound (1, in figures 129 and 130) to apply them, the lips being held approximated by an assistant. The first strip having been applied, you follow in the same manner with the remaining ones, having care not to overlay either angle of the wound, or to apply them so closely that pus will not have a free escape. Some surgeons prefer to suture the lips of the wound, and then apply the plaster-strips between the sutures. But if the form of strapping represented in Fig. 130 be used, sutures will be rarely needed.

Another, and perhaps better, way for drawing together the lips of a wound, is shown in Fig. 131. This method has the advantage of doing away with sutures, and will hold the lips of the wound firmer than will narrow strips of adhesive plaster. It is made from the perforated adhesive plaster, and was first suggested by Dr. Packard, of Philadelphia. It leaves the lips of the wound fully open to inspection, and in no manner interferes with getting union by "first intention;" hence, on this account, it is to be commended.

In deep wounds, such as of the thigh, however, it would be best to have the plaster nearly surround the limb, in order that compression could be exerted upon the severed muscular structures as deeply down as possible.

FIG. 131.



For Deep or Superficial Cuts.

FOR THE TESTICLE.

Application.—Having the parts shaven, have your patient stand against the edge of a table, or with his back to the wall,

FIG. 132.



For the Testicle.

This roller is then fastened by a short piece of the adhesive plaster. You then pass the strips 2 and 3 (which are one-half or three-quarters of an inch in width, and long enough to go perpendicularly around the gland), completely around the testis, beginning them at, and *upon*, the previously applied roller, and ending them there. This should be continued until the whole organ has been thus enwrapped. Then, taking long pieces of strapping, one-half an inch in width, encircle the gland spirally from the bottom, 4, 5, to the top, overlapping each preceding turn, finishing them over the roller that was first applied.

Uses.—In chronic enlargements of the testis, or in some cases of hydrocele. After a day or two's application the organ will be found to have shrunken; then the dressing is to be removed, and re-applied.

Variety.—See page 125, upon the *tubes caoutchouc vulcanisé* of Nélaton. The *capote* is also made a legitimate use of in these cases. In both instances the roller, 1, is to be applied before the rest of the dressing. The ring of the *capote* should rest upon the applied roller.

FOR THE BREAST.

Description.—The strips having been cut to a width of one and one-half or two inches, and a length of some thirty inches, they are ready for

Application.—The Mamma being supported by an assistant you fasten one end of the strip over the spine of the scapula of the diseased side, and bring it down under the same axilla, and then pass it diagonally upwards across the chest, encroaching upon the gland, to and over the opposite shoulder, there ending; you thus follow course 13 of the Cross of One Mamma figured upon page 88. The other strips should be applied in a similar manner, only encroaching upon the gland more and more, until the necessary support has been given.

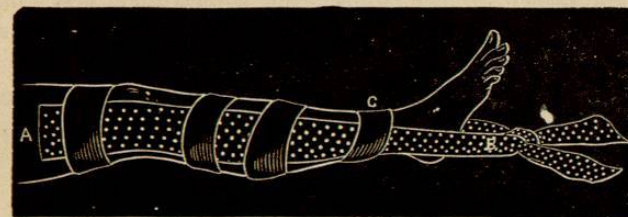
If *compression* is desired, cross strips can be run diagonally downwards across the chest, from over the shoulder of the diseased side to the hepatic region.

An American surgeon has taken advantage of the expansibility of sponge in maintaining compression of the mamma. The sponge (a large one) is thoroughly cleansed and impregnated with some antiseptic, and then pressed between two flat surfaces until it becomes dry, and as flat as possible. It is then firmly strapped or bound upon the breast with some one of the breast bandages which have been described, and is gradually made to expand by moistening with water, if the secretions from the gland or sore be not sufficient for this purpose. (See pages 88–89.)

Uses.—As a support of an inflamed or hypertrophied breast. Also, when compression is used, as a therapeutic agent in the treatment of any of the various forms of abscess that may arise within or about the gland.

FOR EXTENSION OF THE LEG.

FIG. 133.



Extension of the Leg.

Description.—I. Two broad and somewhat tapering perforated adhesive plaster strips (of some good make), of a length sufficient to reach from above the knee-pan to below the foot, and tie.

II. Several narrow strips of the same material to surround the limb when the strips are applied.

Application.—The broad strip, A-B, is applied to the side of the leg, while its fellow is made to do similar service upon the other side of the member. The narrow adhesive strip, C, is then applied about the leg as a confiner. The inferior ends, B, of the two side strips are then tied together, and a wedge of wood, a little longer than the foot is wide, is placed within the noose, to which the weight is attached. The wood is used to prevent the chafing and constriction of the foot, which would otherwise occur from the bringing together of the two inferior ends of the extending strips, as soon as the weight was attached.

Uses.—In cases of fracture where extension is demanded. Also in chronic arthritis, and for overcoming vicious contractions of muscles or tendons.

Variety.—This dressing may be applied to the upper extremity, though an occasion rarely calls for its use there.

NOTE.—Be sure to have the extension strips of sufficient length to reach ABOVE the knee-joint, otherwise you will be apt to stretch the joint-ligaments if your extension is long continued.

A NEW EXTENSION APPARATUS.

Some French surgeon, whose name we have just now forgotten, has ordered the following apparatus for making extension upon the foot. It is a rubber bag, shaped as you see in the cut, that surrounds the leg at the astragalo-tibial articulation, with wires in the two ends for fastening the extension-cord. At the back part is a stop-cock and tube for inflating the bag with hot or cold water, or air, as the case may be.

We should think this an excellent apparatus for maintaining

extension in hip-joint cases, the counter extension being made on a somewhat similar plan, that of a narrow rubber-bag (rather than tube), which could have a stop-cock attached admitting fluids, or air, and this passed over perinæum and groin, and the ends ringed so as to be easily attached to the extending cord running to the head of the bed.

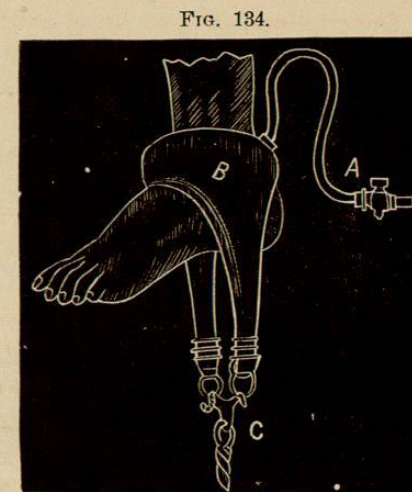


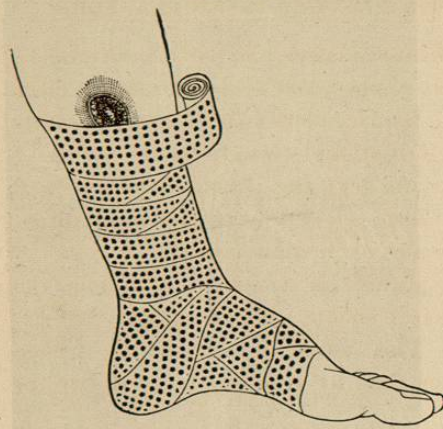
FIG. 134.
For Extension of Leg or Arm.

The advantage in the rubber being that it does not make a "dead" traction; but by its extension and self-contraction it simulates the resiliency of animal tissue. Another feature is that hot or cold water could be used, thus stimulating the capillary circulation, if used alternately; and in other ways it might be beneficial, especially about the ankle joint, in case continuous cold or hot applications might be deemed useful. The water, or air, would tend to equalize pressure, and so prevent any undue pressure upon the resisting points of the ankle and foot.

STRAPPING FOR VARICOSE ULCERS.

Having taken sufficient of the porous adhesive bandage, mentioned several times before in this work, to enable you to properly envelop the affected member, it is to be applied with quite firm pressure about the limb, as shown in Fig. 135. The turns of the bandage about the member are to be made as if you were applying the ordinary "roller" bandage.

FIG. 135

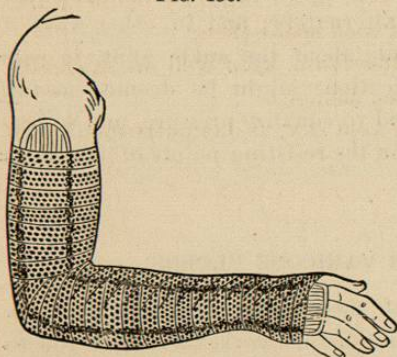


Strapping for Varicose Ulcers.

This porous adhesive bandage is specially applicable, in these cases, as it furnishes a means of firm support to the dilated veins, at the same time it is easily and evenly applied. Then, too, the porosity of the bandage allows for a certain amount of transpiration from the skin beneath, and also for the discharge from the ulcer itself.

ADHESIVE BANDAGES FOR RETAINING SPLINTS.

FIG. 136.



For Retaining Splints to Members.

Another useful application of the adhesive plaster, cut into proper widths, or for the perforated adhesive bandage, before spoken of, is in retaining the various forms of splints, and other stiff dressings, to a member.

Fig. 136 represents the "bandage" so applied to an "arm splint" where there has been a fracture, or dislocation. The perforated bandage is to be preferred to the plaster strips, as it is non-adhesive to the integument, yet adheres firmly to itself. Then, too, the pores allow of proper transpiration from the skin.

GENERAL DIRECTIONS FOR MEDICATED PLASTERS.

Before applying a medicated plaster, the part, if covered by long hair, should be closely clipped, and made thoroughly clean and dry. After removing the face-cloth (which may be readily done by moistening it, if it sticks strongly to the adhesive surface, and, afterwards made dry), the plaster should be well smoothed on, so as to conform accurately to any inequalities, observing that there is no air confined underneath.

The back-cloth on cut plasters is designed to protect the patient's underwear, therefore should not be removed.

To Remove a Plaster.—This is best done by taking it from off the part *quickly*, rather than by dragging at it slowly, or pulling it off piecemeal.

A plaster should never be worn longer than to obtain the desired result.

The different plasters may be kept to best advantage as follows:

India rubber plasters should be kept cool.

Isinglass plasters must be kept in an ordinary temperature, as moisture and extreme heat soon spoils them.

Kid plasters and emp. adhæsivum keep well in moderate temperature free from extreme changes.

Mustard and spice must be kept dry, as dampness soon spoils them.

CHAPTER XIII.

KNOTS.

Ligatures were introduced to the profession by Ambroise Paré. Previous to his time the "actual cautery," or the cautery of boiling oil, was made use of for arresting hæmorrhage. Ligatures are confined by knotting their extremities closely down upon the divided vessel they surround. Various styles of knots are employed, though we shall limit ourselves to a description of but three.

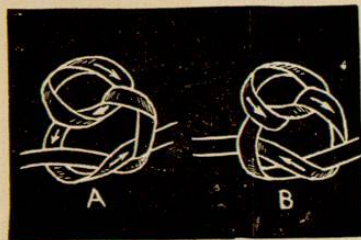
THE SURGEON'S KNOT.

Description.—This is formed by passing one extremity *twice* about the other, in making the noose; and hence makes a more bulky knot. Sometimes the first knot of a ligature is the common single knot, and then the surgeon's knot is made, thus securing it. The objection to this knot is its bulkiness, though it is in quite common use with some operators.

THE REEF KNOT.

Description.—This is the ligature knot in general use among surgeons for arresting hæmorrhage.

FIG. 137.



The Reef and "Granny" Knots.

A "Granny" knot, B, is quite frequently made for the Reef, A, through inattentiveness of the surgeon; and students almost invariably make it on their first trial of the Reef. It is not a really bad knot; yet it lacks the firmness and surety of the Reef. The Reef knot, A, is made by first

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crossing the ends of the ligature so that the one held by the right hand shall be uppermost. You then pass the right extremity around that held in the left hand, from within outwards; this makes the first knot, which is pressed firmly down to, and drawn constrictingly around, the vessel, by the *finger tips*. You then cross the ends again, so that the extremity that was held by the right hand, when making the first knot, shall *still be uppermost*, although consigned to the keeping of the left hand. The second knot is then made by passing the end now held by the right hand (formerly held by the left) around the other extremity, from without inwards, then drawing it closely down to its fellow by the finger tips again, thus completing the knot as a whole.

The secret in avoiding the Granny knot, B, is in keeping the uppermost end of the first knot still uppermost when making the second one.

In pulling the ends of the ligature, to tighten the knot, always have the direction of the force *downwards, or towards the vessel*. You will thus avoid jerking the noose from the vessel should the fingers slip from the thread, or the thread break.

CLOVE-HITCH KNOT.

Description—A strong crash towel is about as good as anything for making this knot. Previous to its application the part over which it is to be applied should be enveloped with a wet piece of lint; this serves the double purpose of protecting the limb from excoriation, and of preventing the slipping off of the knot from the extremity when making traction.

Application.—Place one of the extremities of the towel, or cravat, over the back of the forearm, for example, as at 1; pass now the other extremity down across the arm, and up over (diagonally from below upwards) the one first applied, as at 2. As

FIG. 138.



Clove-hitch Knot.