

than is necessary to induce union by first intention. The employment of a drainage-tube occasions little or no embarrassment to the rapid union of such wounds. Ordinarily they can be removed on the third day.

The dressings should be reapplied and maintained until the openings for the ligatures and drainage are perfectly closed.

The employment of drains composed of substances capable of absorption, like catgut and decalcified bone, simplifies the treatment, as the drains disappear at the end of a few days, when they have performed the duty expected of them.

Union by first intention is the result anticipated in most fresh wounds. This renders the first dressing of greater importance than subsequent ones, for, if the germs can be excluded and inflammation prevented during the first week, the healing is practically completed before the first is removed, and the succeeding treatment consists in the application of very simple dressings. If, however, it should become apparent from the general condition of the patient, the presence of fever, the existence of pain and tenderness locally, and the occurrence of a fetid discharge, that fermentation is established, then primary union should be despaired of and the second dressing applied without delay. The same fidelity should be observed in the application of the second dressing that characterized the first.

The interruption of the fermentative process which has become established in the wound should form an important feature of the subsequent treatment, and test the value of antiseptic agents in destroying the putrefactive organisms.

This leads to the consideration of the second method referred to, of antiseptic treatment. This is precisely the same in all its details as that already described, except that the spray is omitted, and no effort is made to destroy the germs in the air that come in contact with the wound during the operation.

The use of the spray is not absolutely necessary to secure antiseptic results, because of the ease and readiness with which the organisms can be devitalized and removed from the wound surface, after the completion of the operation but previous to the closure of the flaps.

This is accomplished by carefully and thoroughly sponging, laving, or douching with a solution of the reagent having sufficient strength to destroy the organisms without materially affecting the tissues.

In country practice, especially, the use of the spray, in many instances, is impracticable. A variety of circumstances combine to prevent its employment. Some of these are frequent absence of assistants, the isolation of the patient, and the difficulty of always having a proper atomizer in working order. It is therefore very fortunate that the spray is not essential, in the majority of cases, to the success of the method.

In the larger operations, however, like ovariectomy, its use is always advisable, because if it is not absolutely necessary, it certainly does no harm. And every possible safeguard should be employed in operations of such magnitude.<sup>1</sup>

(To be continued.)

<sup>1</sup> The reader is referred to the works on antiseptic surgery by Cheyne, MacCormac, and Hæcker, also a volume entitled "The Treatment of Wounds," by Pilcher, for verification of most of the statements made in the foregoing article.

## Original Articles.

### A CONTRIBUTION TO THE MECHANICAL TREATMENT OF DISEASES OF THE KNEE-JOINT.

BY CHARLES F. STILLMAN, M.S., M.D., OF NEW YORK.

*Clinical Professor of Orthopædic Surgery in the Women's Medical College; Orthopædic Surgeon to the New York Infant Asylum.*

At the meeting of the American Medical Association, in 1881, the writer exhibited to the Surgical Section a new joint splint and gave a short account of its development, and he also exhibited, before the Section, the Esmarch bracket, which was

Fig. 1.

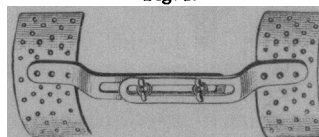


Esmarch's joint bracket.

in general use by surgeons at the time. This, after being properly fastened to the limb with plaster of Paris, produced fixation of a joint, and yet allowed exposure of the surface, but did not produce traction.

In order to secure the joint firmly, and at the same time exert traction in the axes of the limb, the writer devised a bracket in which the bridge was

Fig. 2.

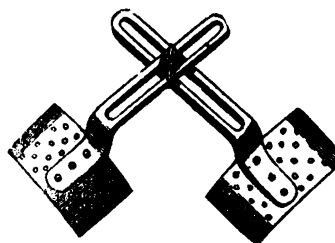


Stillman's joint bracket.

composed of two slotted flat strips, lying one over the other and connected together by two thumb-clamps, as in Fig. 2.

This bracket, after being fastened to the limb in the same manner as the Esmarch, gave traction and fixation when the limb was in a straight position, and also allowed motion of the joint if one of the clamps was removed; but if it was desired to hold the joint firmly, with the limb at an angle, one clamp did not exert sufficient power to effect this

Fig. 3.



Stillman's joint bracket with one clamp removed.

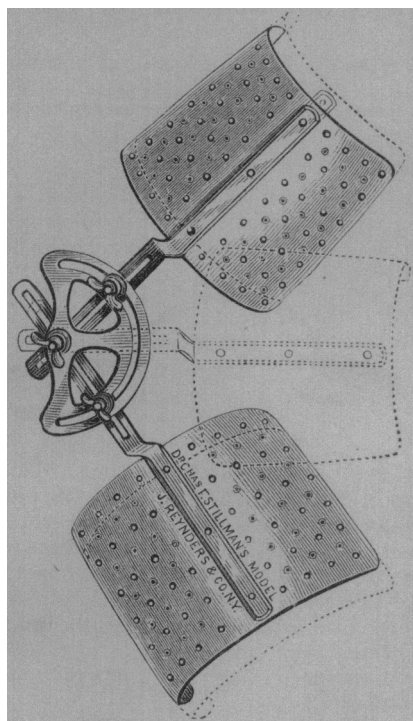
object, and therefore the sector of a circle slotted in its circumference to correspond to the slots in the flat strips of the bracket was added to the bracket, the centre of the arc being perforated and connected by a third clamp with both slotted strips.

In Fig. 4<sup>1</sup> this sector bracket is shown, and consists of two slotted strips connected to the sector

<sup>1</sup> Fig. 4 represents the brace which was presented to the American Medical Association by the writer.

by three clamps, and when applied to the limb makes a very useful and servicable joint splint.

Fig. 4.



Stillman's sector joint bracket.

This has proved itself since that time of special service in the treatment of acute inflammatory conditions of the various joints. It has received warm commendation from many distinguished surgeons throughout the country, and as the same bracket or pair of brackets can be used for either of the larger joints, it possesses a wide range of usefulness.

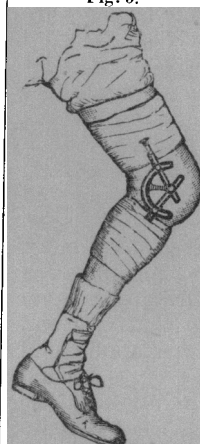
When attached firmly and properly to a limb, extension of a joint can be produced and yet motion may be allowed or altogether prevented without interfering with the extension. Fixation may also be produced at any angle and yet exposure of the surface of the joint for local treatment allowed, and it is therefore a particularly valuable splint in acute conditions of the joints attended by flexion, effusion, and pain, and in general all acute inflammatory conditions requiring perfect rest.

Fig. 5 shows the appearance of this sector splint when applied to the knee with plaster of Paris in a manner similar to that used in securing the Esmarch, but it differs from the latter in usually requiring two brackets, one on each side, instead of one above or below the joint.

In chronic knee-joint disease, however, a plaster-of-Paris dressing is uncomfortable, and cannot be removed without more or less disturbance of the joint. Since the atrophic changes in the muscles render frequent change of dressing an absolute necessity, the writer has been compelled to devise, for cases of chronic joint disease, special forms of apparatus, and this paper will be devoted to a description of the form of brace (see Fig. 6) which he has found most useful in the various chronic inflammatory conditions of the knee.

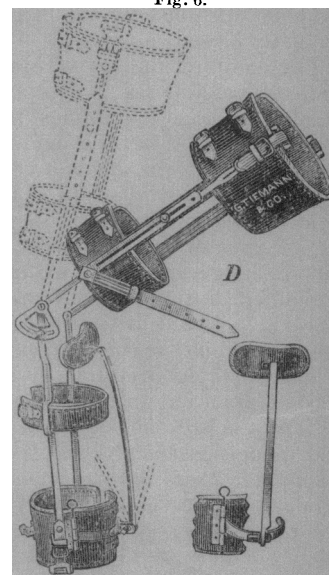
The treatment of diseases of the knee-joint as a class has, from a mechanical standpoint, been impeded by the difficulty in procuring apparatus which could be used advantageously through all stages of treatment and in every possible condition

Fig. 5.



Showing application of sector bracket to knee.

Fig. 6.

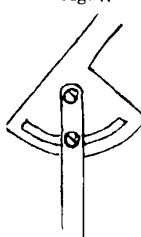


Stillman's knee splint.

which might arise during such treatment, and there has been no one splint which would meet all the different mechanical indications.

One of the most important of these indications is to incorporate in the brace, and to place on either side of the joint (in its transverse pivotal axis), a movement which will allow either fixation or motion. In Fig. 7 such a one is shown,<sup>1</sup> and if the pivotal

Fig. 7.



Stillman's joint movement for fixation or motion.

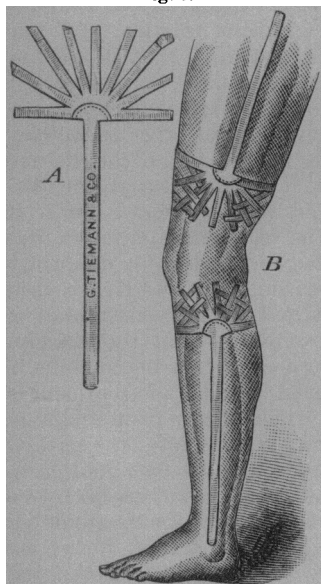
centre is placed in the transverse pivotal axis of the joint, its arc of motion will correspond closely to the arc of motion in the normal joint, and by means of the clamp in the slotted arc the joint may be fixed in any desired position, or by releasing the clamp slightly motion may be allowed.

Another important indication is the occasional employment of traction, and a new feature in this splint consists in the method of obtaining it by having adhesive plaster grasp the knee just below and above the joint over a *very limited* area, and to effect this the plaster is cut in the fan shape, shown in Fig. 8 (A), and long strips of webbing are attached to each. It requires four of these fan-shaped pieces for each knee, and four long pieces of webbing, and these are to be placed as shown in Fig. 8 (B), interlaced for greater security from displacement, and then covered with roller bandage as in Fig. 9. Upon the superior and inferior extremities of the splint are provided rollers and buckles, to which the webbing is to be attached, and then, by means of an elastic ratchet, force may be applied upon the thigh portion of the instrument to effect the extension (see Fig. 10).

<sup>1</sup> For description of this movement see the Boston Medical and Surgical Journal, August 31, 1882, p. 200.

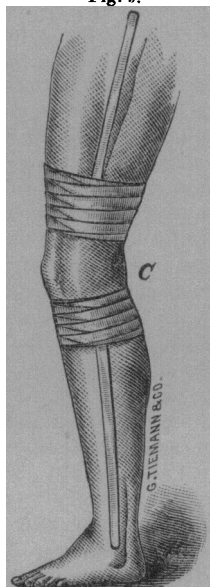
This arrangement differs from any attachment in ordinary use at the present time, in being limited to a small zone just above and below the joint, and consequently does not interfere with the muscular structure of the thigh or leg, as is the case when

Fig. 8.



(a) Fan-shaped pieces of adhesive plaster, with webbing attached, for traction.  
(b) The same applied to limb, interlaced.

Fig. 9.



(c) The same covered with roller bandage, ready for the splint.

the splints are applied by adhesive plaster over the whole extent as in other splints for this purpose, or in the former plaster-of-Paris attachment of the writer.

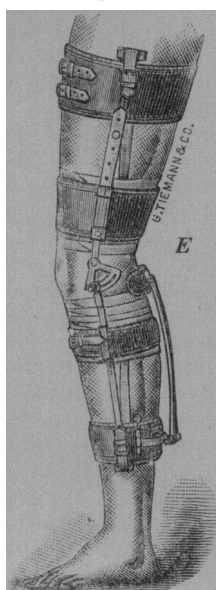
To exert the traction and produce extension of the joint, the ends of the webbing strips are to be passed over the rollers at each extremity of the splint, and, after being pulled upon as firmly as possible, are secured in the buckles provided for that purpose.

The upper thigh girth is then pushed away from the remainder of the apparatus either by elastic or rigid ratchets, as the surgeon prefers. The ratchet shown in Figs. 6 and 10 consists of two overriding slotted strips, which can be fastened together by a screw-clamp, when sufficient traction has been exerted by the elastic strap provided for that purpose.

This form of ratchet is a modification of the original Davis elastic ratchet, and in the hands of the writer is more effective than any other traction ratchet he has used, because by simply loosening or tightening the clamp (the elastic strap being on the stretch at the same time), the traction may be varied from the elastic to the fixed at the will of the surgeon, and I have found that if the elastic be kept up unvaryingly, as a result the adhesive plasters are apt to cut into the skin in very much the same manner and on somewhat the same principle characterizing the action of an elastic ligature.

This is obviated without impairment of the efficacy of the traction by simply tightening the clamp holding the slotted strips together, when the desired amount of extension of the joint is secured.

Fig. 10.



Stillman's knee splint applied.  
to the back of the leg, and placed posteriorly (see Fig. 6). At its upper end is attached a semi-girth which presses on the back of the upper part of the leg, and below it is attached to a stirrup, which is itself fastened to the lower girth of the instrument.

This stirrup is provided with a hinge and a socket, so that it may be opened and shut when the rest of the brace is in position, and the forward pressure, which is dependent upon the angle which the posterior lever makes with the rest of the brace, can thus be adjusted by means of a ratchet at the intersection of the lever with the stirrup, without the necessity of removing the brace from the limb. One of the features of this arrangement consists in its availability for all classes of cases in which the least tendency to this subluxation exists, for it can be adjusted to any desired angle, thereby giving any degree of forward power, and this power is brought to bear precisely where it is wanted, and without causing impingement of the brace upon the limb at any point.

There are very few cases of joint disease, even of the simplest form and of the most recent date, in which the comfort of the patient is not increased by having a certain amount of forward pressure just below the popliteal space.

How many of these patients say to the surgeon that they feel they could walk if they "had something that would press the leg forward just below the knee, as it seems weak at that point"; and by the arrangement shown, this power can be supplied without interfering with the main portion of the brace or with the motion of the joint. There is no form of knee-joint disease in which this forward pressure, either in a lesser or greater degree, is not of advantage, and there is an anatomical reason for this, since in these diseases, relaxation of the quadriceps femoris is accompanied by a contraction of the biceps, semi-membranosus, and semi-tendinosus muscles, thus interfering with the possibility, in many cases, of producing linear trac-

Another indication, also, of the utmost importance in the treatment of knee-joint disease is the prevention of posterior luxation.

Most of the diseases of the knee-joint are accompanied by a tendency, even in the milder cases, to luxation of the tibia backward, and this is a feature which the mechanicians of orthopædic surgery have tried to overcome with more or less success.

To meet this indication the author has devised a new and effective arrangement which brings to bear a spring lever power, which is distinct from anything heretofore used, and operates without interfering with the action of the remainder of the brace. It will be noticed that it is a long, flat steel bar, bent to conform

tion in the proper axes of the thigh and leg; while if the tibia is held forward in the position it would be if the anterior muscles were exerting their normal power, the extension of the joint is effected without pain to the patient, and the traction is exerted in the proper axes.

By means of a ratchet at the intersection of the inferior extremity of the posterior lever and the stirrup to which it is attached, this power, as has been stated, can be adjusted so that the lever can be varied from a mere upright support to a spring lever of tremendous force, and in every case in which it is applied (provided, of course, that the power exerted is not beyond the proper amount necessary for the particular case) the patient's usual comment is to the effect that the comfort of the apparatus is thereby much increased; and from the surgical standpoint the joint is placed in much better condition for curative treatment, because this tendency to backward luxation is thereby greatly overcome. This is but another application of the V-shaped lever which the writer is using in the treatment of diseases and deformities of the back and other portions of the body.

In conclusion, after the traction has accomplished its purpose and extension of the joint is no longer necessary, the splint is so arranged as to permit the removal of the rollers and buckles at each extremity and of the traction ratchets, thus converting it into an effective simple fixation splint or knee support during the stage of convalescence, and when by the use of restorative measures the anterior muscles of the thigh have been strengthened so as to hold the tibia forward in its proper axis with the femur, the V-shaped lever may also be dispensed with, provision being made for that purpose without impairing the efficacy of the rest of the brace.

A description of the means to be employed for the restoration of these muscles constitutes too important a subject to be discussed in the limits of such a paper as this, and I shall reserve it for some future occasion. Suffice it to say, that the neglect of this precaution is not only a fruitful source of the long-continuance of lameness and feeble circulation in the entire limb, after cessation of all actual disease in the knee, but it is a cause of relapse, and the importance of this factor is too little, if at all, insisted upon by orthopædic writers in treating of the subject.

## CASES OF CEREBRAL SYMPTOMS IN EARLY (SECONDARY) SYPHILIS.

BY F. B. GREENOUGH, M.D.,

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THAT syphilis at the present time, on the whole, is a milder and less virulent disease than it was formerly is a fact which, I think, cannot be questioned. Whether this is due to a change in the type of the disease itself, or to an improved and more rational method of treatment, is perhaps an open question, but probably both of these factors have a share in the change that has taken place. That there has been a change is shown by the fact

that while without doubt the number of cases of syphilitic disease has been increasing, the number of cases where we find serious and destructive lesions of the skin and mucous membranes have diminished. This is, of course, simply a statement of opinion, not corroborated by statistics, but I think the opinion I express will be endorsed by colleagues who have seen much of venereal practice. Of one thing there can be no doubt, and that is that at present many, that is to say, a large percentage, of the cases of syphilis do very well, and after the comparatively light symptoms of the secondary period have passed off do not hear from the disease again. I am aware that it is claimed that the disease is not eradicated, but simply latent; but if it continues latent during the rest of the patient's life, and has no influence either on him or his offspring, what a boon it would be to humanity (as Hebra used to say) if phthisis, cancer, and other diseases could be made latent to the same extent. That the less frequent occurrence of severe sequelæ from syphilis is not entirely due to improved methods of treatment is shown by those cases in which, either from recklessness or indifference, or any other cause, the patient has stopped treatment long before he would have been advised so to do, and yet has for years been free from all symptoms. Although I have not attempted to get the exact figures, I can say that during my fifteen years' experience in charge of the special department at the Boston Dispensary the number of cases that showed late and grave lesions of syphilitic disease compared to those that came for treatment for the early symptoms has been very small. And yet these patients are exactly of the class in which one would expect bad results. That is to say, they are poor, unable to get proper food and care, often of bad habits, and rarely follow out the instructions and treatment given them for the length of time that in private practice would be insisted upon. While, however, the number of cases of syphilis that are followed by serious later symptoms seems to have diminished, or at least to be comparatively small in number, those in which we find evidence of cerebral trouble have decidedly increased. To convince one's self that this is the case one has only to look at the medical literature of the last decade and compare it with that previous to the last—twenty, or even fifteen, years. With regard to the recognition of cerebral syphilis by the older authors there seems to be some difference of opinion. Legrand du Saulle, in the *Gazette des Hôpitaux*, in an article on "Cerebral Syphilis," says: "The first notions with regard to the cerebral symptoms in cases of syphilis date back very far. Fracastor and Nicolas Massa even say decidedly that the French disease may be accompanied by insanity and epilepsy." On the other hand, Heubner, in his very complete article in Ziemssen's *Cyclopædia* on "Syphilis of the Brain and Nervous System," says: "Although Fracastor described so graphically the ravages of syphilis on the face, etc., he knew nothing of the internal diseases of the same patients." He also states that this lack of knowledge with regard to syphilis of the nervous system was due, in part, to the fact that the old practitioners occupied themselves chiefly with symptomatology and therapeutics. This may be very well