of the force, of which a given material substratum is the medium, is most directly and absolutely determined by the physical condition of such substratum. When the manifestation of force is similar to any given prior force, the character of the material instrument is also similar; if the manifestation of force be changed, there is also undoubted change in the material substratum. An exposition of the nature of such changes in the nervous system belongs to the future—if, indeed, it ever be possible.

[To be continued.]

CASE OF PRURIGO ALTERNATING WITH MELANCHOLIA.

By C. HANDFIELD JONES, M.B., F.R.S.,
Physician to St. Mary's Hospital.

A CLERGYMAN, aged 64, had an attack of melancholia about 1850, which lasted two years, leaving him quite well. When seen in October 1859, he stated that he had had varicose veins in the left leg for a long time, which on one occasion gave rise to troublesome rash and itching. The use of a bandage and aperients had kept him from suffering any annoyance from them for some years. At this date there was a threatening of a renewal of pain and itching near the left ankle; the veins were enlarged. His health was good. After a few weeks, one or two small ulcers formed; from these a blush of erythema radiated, accompanied by much itching. In spite of the best devised management, the itching, clearly of a pruriginous character, increased in extent and severity. About the end of the year, his condition was really distressing. The itching he described as intolerable, precluding sleep, or rest of mind or body. The surface of the whole leg was bright red, and covered with a very thin cuticle, through which innumerable papulæ could be seen; but there was no raw discharging part, save two little ulcers. The only relief obtained was from keeping the leg enveloped in lint soaked in strong infusion of tobacco, with the addition sometimes of powdered opium, sometimes of a large proportion of hydrocyanic acid. Latterly, faintness after eating came on. The mind all the time was perfectly sound. On morning early in February, a hasty message was brought, that Mr. — had gone out of his senses. When Dr. Palmer visited him, he found him wildly excited, and irrational in his talk; but the prurigo was gone. The previous evening, he had been itching as usual; this morning, the skin was only a little red, and he said it was quite well. He gradually became melancholic, and has so remained to the present day (November 1865). The prurigo has never returned.

For this case, as for several others of much interest, I am indebted to the kind thought and acute observation of Dr. Palmer, who, amid the pressing calls of a large practice, contrives to find time to preserve records of noteworthy cases. *O si sic omnes!* Believing, as Romberg does, that prurigo is essentially an hyperæsthesia of cutaneous nerves, I regard its alternation with melancholia as an occurrence of the same kind as the shifting of a neuralgia from one part to another; the only difference being, that a nervous centre is substituted for a nerve-tract. In my work on *Functional Nerve-Disorders*, I have recorded an instance in which severe facial neuralgia, as it gave way to quinine, was replaced

by periodical attacks of hysteria, lasting about two hours. Whether, in the above instance, any *materies morbi*, such as the gouty, existed, and underwent metastasis from the peripheral parts to the central, I have no evidence to show. However, I do not think that in either lichen or prurigo we have much ground for believing that the malady is dependent on any blood-poison. It seems to be of importance to have a clear conception of the possibility of nervous centres suffering in a quite analogous way to nerves, as the mind is thereby taken off from perpetually recurring, in all cases of cerebral disorder, to the notions of congestion and effusion, as it is so prone to do.

ON THE MODERN TREATMENT OF FRACTURES OF THE LOWER JAW.*

By BERKELEY HILL, F.R.C.S.,

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in the application of Surgical Apparatus in
University College, etc.

IN the *New York Medical Journal* for September and October, 1866, Mr. Gunning, of that city, has published an excellent paper on a mode of applying caps fitted to the teeth for fracture of the jaw-bone. By this method, external support is abandoned wherever it is possible. In the majority of cases of simple fractures, the caps or interdental splints are so accurately fitted as to require no fastening to the teeth; but, when the displacement is considerable, he supports the fragments in the splint by screwing the one or more teeth to the splint.

Mr. Gunning recommends that the jaw should be adjusted in its splint as quickly as possible; but he procured union in one case, which is narrated at length, where four months of ineffectual treatment had been previously tried, and fragments of bone were escaping through wounds under the jaw, with copious discharge of pus. His mode of proceeding is as follows. He first brings the fragments as much on a level and into their true position as possible. For this purpose, if his fingers do not suffice, he uses wooden levers or a small screwjack placed in the floor of the mouth, to force out obstinate deviation of a fragment inwards. Gaps, through loss of teeth at the line of fracture, are to be filled by plugs of hard wood, and the fragments kept in place by tightly wiring the teeth. It is best to remove all these means for keeping the fragments in place while the splint is being fitted, when that is accomplished, though ligatures used solely to support loosened teeth may be left, as there is no traction upon them. Stumps and teeth, loose before the accident, are best taken out, if they interfere with the arrangement of the splint.

Having done this, Mr. Gunning takes a mould of the lower jaw in wax softened by heat, holding the wax in an ordinary dentist's tray. From this mould he makes a plaster cast of the jaw. If the line of teeth be uneven in the cast, he saws it through, raises the pieces to the right level, and casts again. In this way he obtains an exact copy of the jaw in its natural position; on this he makes a vulcanite mould, which fits the teeth exactly. (Fig. 4.) The margins of the mould or splint should be carried down below the line of the gums, so as to grasp

* Concluded from page 226 of last number.

the jaw beyond the alveolar border; and when the fracture takes place behind the teeth, its outer side should be prolonged backwards as far as the muscles

Fig. 4.—Vulcanite interdental single splint to fit the arch of the teeth of the lower jaw, seen upside down. The holes marked A pass through to the upper surface, to allow water to be injected between the splint and the teeth while it is worn for cleaning. (Copied from Mr. Gunning's paper, in *New York Medical Journal*, September 1866.)

will allow, to prevent the displacement of the anterior fragment outwards which muscular action produces in these fractures. Holes should be made in the top of the splint, to permit a stream of water to be sent between the splint and the teeth daily, for cleanliness. Also, in difficult cases, a hole should be cut opposite a tooth in each fragment, for ascertaining from time to time that each part continues in its proper position while the splint is worn.

The perfect fit thus secured suffices, in simple fracture, to keep the parts in close apposition; while the movements of eating and speaking are very little interfered with. But, when several teeth are missing or decayed in either fragment, it is necessary to procure more intimate union between the splint and the broken bone. For this purpose, Mr. Gunning employs gold screws, let into a sound tooth in each fragment, and screwed through a small gold eye fixed in the splint in the process of vulcanising into the tooth selected for the purpose. It is not necessary to let the gold screw pass more than half a line or a line into the tooth; and the hole it leaves can be easily filled when the splint is no longer necessary.

Mr. Gunning points out that teeth will bear considerable pressure or traction in a vertical direction without irritation; but very slight lateral pressure will soon loosen the soundest teeth, and cause much pain to the patient.

The time commonly necessary to procure union, when these splints are applied immediately after the fracture, is not great. In his own case, Mr. Gunning, after sustaining a compound fracture of the jaw, applied a splint of this kind thirteen hours after the accident, and was able to see patients the same afternoon. He wore this splint, fastened to the first molars, twenty-four days. Flexible union being by that time established, he released the molars from the screws, and wore the splint day and night for seven days more, removing it daily, to clean the teeth. After that, he wore it only by night for three weeks longer. During the whole period, the jaw was used for eating and speaking. The bones were separated so widely by the injury, that the little finger could be passed between the teeth; and sensation was lost to the parts supplied by the labial branch of the inferior dental nerve. This was completely restored by the time the splint was laid aside.

Where there is much vertical displacement, Mr. Gunning advises that the splint should be attached to a tooth in the upper jaw. This, however, is to be avoided, if possible, as it deprives the patient of the use of the lower jaw during the time the splint is worn.

When the sinking of the anterior fragment cannot be prevented without this resource, Mr. Gunning takes a cast of the upper jaw, as well as of the lower one; models on them a splint (Fig. 5), which fits the

Fig. 5.—Double vulcanite interdental splint fitted to both dental arches. B. Orifice for admission of water between splint and lower teeth; c. Opening for food, speech, etc.; D. Channel for saliva from parotid gland to reach mouth—its fellow, on other side, being concealed; x x'. Heads of screws—the one let into upper first molar, the other into lower canine tooth. (Copied from *New York Medical Journal*, Sept. 1866.)

upper jaw by its upper surface, and the lower one by its under surface, being screwed to a tooth in the upper jaw. One upper incisor will, he says, support the lower jaw easily. In front, a slit is left between the incisors for the passage of food; and others at the sides, for the entry of saliva into the mouth, and for injecting water between the splint and the teeth.

Mr. Gunning employs external support of the chin as an additional means for preventing displacement, either when, as is seen in Fig. 6, the patient had lost all the teeth, or when the fragments are very movable, as in his first case, that of a seaman, whose jaw had suffered comminution of the fragment and necrosis of pieces of bone during the four months that elapsed after the injury before the patient came under Mr. Gunning's care.

This external support is supplied to the splint by steel wings, which are fixed into the splint at the

Fig. 6.—Shewing the method for supporting externally the jaws in the splint, when the teeth are not fastened to it by screws. x. Upper wing; c. Lower wing; x. Mental band to keep the jaw up in the splint; i. Neck-strap to keep the band back; k. Balance-strap to hold skull-cap in place. The upper wings are, of course, dispensed with, when a single splint only is used. (Copied from *New York Medical Journal*, September 1866.)

angles of the mouth (see Fig. 6), and are carried outside the cheek to the angles of the jaw. A piece

of stout jean or canvass, cut to fit under the chin, is then connected with these wings, and also fastened by a tape behind the neck.

If the case require that a bearing be made on the upper jaw as well as the lower one, as in fracture of both jaws in edentulous persons, the two splints are articulated behind, so that they may open and shut with the lower jaw. Each piece then carries a wing, the lower one supporting a chin-piece, and the upper one being connected by strings attached at the temples to a close-fitting skull-cap. The skull-cap is prevented from slipping forward by connexion with a strap fastened to both shoulders.

As these splints cannot be made without the assistance of a dentist, and cases often occur where that cannot be procured, Mr. Gunning advises that metal caps or troughs to put on over the teeth be made, and kept ready in various sizes to suit any jaw. They should be provided with a short handle in front to hold them by.

In using them, the same precautions are necessary to bring and keep the fragments in position temporarily by wire and silk round the teeth. This being done, a cap to suit the arch and length of the jaw is to be selected. Any part of the edges or corners that will press tightly on the gum must be filed off. When the cap is fitted as carefully as possible, it is to be lined with softened gutta-percha, then applied to the teeth, and the jaw pressed firmly up into them. If it fit securely, it may be left *in situ*; but, if it be necessary to support fragments by a chin-piece, it must be removed to solder on the wings, which are precisely similar to those already described. Any further trimming found necessary may also be made; then, the ligatures being released, the splint is put on again. In difficult cases, the ligatures may be left on for the first week or two, as the cap fits too closely to allow lateral tugging on the ligatures, and consequent pain in the teeth fastened by them. (See fig. 7.) These caps may be screwed

Fig. 7.—The metal cap fitted and ready for use. The wings, a, soldered on and connected with the mental band, H. F is the strap passing behind the neck. (Copied from the *New York Medical Journal*, September 1866.)

on to the teeth as readily as the vulcanite caps, if desired.

Should the patient's jaw be too tender to allow it to be pressed up into the cap while the gutta-percha is soft, wax may be used instead of gutta-percha, as it requires less pressure; but this lengthens the business, for a cast in plaster of Paris must then be taken of the wax mould, using the plaster cast instead of the jaw on which to mould the gutta-percha lining to the cap.

This splint will come off readily; so it may be moved from time to time for cleaning and examining the jaw. While it is off, the patient should be cautioned to keep his jaws closed.

The time it is necessary to wear these splints apparently varies in different individuals. When applied

early in simple fractures, three weeks or a month appear sufficient; when it may either be worn at night only, or, unscrewed from the teeth, worn by day and night, but removed daily for cleaning. In this way, it is used for another month.

In eight cases narrated in the paper, all of them of great difficulty, and the majority of them sent to Mr. Gunning after other surgeons had failed to procure union, the splint was worn usually three months; some ten or eleven weeks only.

One case is particularly interesting from the apparently hopeless condition of the patient, Mr. Seward, the American statesman, who, in the spring of 1865, was thrown from his carriage, and sustained fracture of the lower jaw between the bicuspid on each side, besides other severe injuries. While lying in this helpless state, he received at the hand of an assassin wounds on the throat and face, which rendered the fracture on the right side of the jaw compound. Twenty-four days elapsed before Mr. Gunning was permitted to treat the case. When he took it in hand, the forepart of the jaw with the eight front teeth was drawn down, leaving the end of the right posterior fragment white and bare, while pus came freely from both fractures. The teeth left in the posterior fragments were, one bicuspid on each side, loosened by the injury, therefore unavailable for supporting the jaw and the right wisdom and the root of the left wisdom molars. The upper jaw was destitute of teeth. Mr. Gunning took a cast of the upper jaw; then reduced the displacement of the lower jaw, ligatured the parts by silk and wire, and took a cast. From these he made a vulcanite splint, fitting both jaws, which was screwed to the canines of the under jaw, and, as there were no teeth in the upper jaw, supported through wings outside to a skull cap. An aperture through the splint, seven-eighths of an inch long and half an inch deep, being left in front for the passage of food. This was worn without removal for sixty-eight days, during which period many pieces of bone had come away. By this time, the left fracture had united, but not so the right. Mr. Gunning then removed the necrosed alveolar process, preserving still the second bicuspid, and applied a fresh splint made ready from the original casts, which was worn twenty-six days, and then replaced for three weeks more by a lighter one, which allowed the teeth to be seen. Talking was easy the whole time they were worn; and the jaw could be used for eating as soon as the second splint was applied. The patient wrote six months later—that is, twelve months after the accident—"the whole jaw moves quite well and firmly. Thus, at last, I begin to regard my cure in that respect complete."

It is evident that Mr. Gunning's perfection of the interdental splints renders in many ways this method an incomparably superior one to external apparatus or to partly internal apparatus, which requires a wooden chin-piece for its *point d'appui*, as Lonsdale's does, for example. Its main advantages are:

1. It ensures complete immobility of the fragments more certainly than any other plan.
2. Consequently, it relieves the patient of much pain during its treatment.
3. As it presses on none of the soft parts, it fits tightly from first to last, and avoids the discomfort accompanying the chin-splints.
4. It, in all but the worst cases, is no greater hindrance to the patient in pursuing his daily occupation than a set of false teeth. It allows him to eat, speak, and go about unnoticed.

The main impediment to the general adoption of entirely internal splints is, that their fitting requires a dentist's mechanical skill, which is not always available. For this reason, Mr. Gunning recommends the

modification of metal caps fitted to the arch of the jaw by bedding the teeth in a layer of gutta-percha, and then either screwing to the splint a tooth of the fragment which sinks when unsupported, or connecting by an external metal wing the cap with a trough or chin-piece moulded to fit the jaw outside, as one that may be managed by ordinary instrument-makers, under the surgeon's directions.

From what has gone before, it would appear the most useful methods of treating fracture of the jaw are: First, for simple fractures, where there is little displacement, and means are not at hand for making a more elaborate apparatus, the chin-splint and four-tailed bandage, applied as directed in the early part of this article. Next, Morel Lavallée's interdental splint, which is easily applied, and most serviceable in fractures anterior to the molars; or Gunning's metal cap splints, which are useful in all varieties of fractures through the dental arch. Lastly, in cases of unusual difficulties in preventing displacement, where the patient's position, avocations, or health, require the functions of the jaw to be interfered with as little as possible, Hayward's metallic plates, or Gunning's vulcanite caps with the teeth screwed into them, are most satisfactory and ingenious methods for treating those fractures of the lower jaw which hitherto have been the cause of much suffering to the patient and perplexity to the surgeon.

TESTIMONIALS TO THE MASTER AND MATRON AND MEDICAL OFFICERS OF THE MARYLEBONE UNION. On Friday the 1st instant, Mr. T. Chambers, Q.C., M.P., presented testimonials to Mr. and Mrs. Douglas (the master and matron), and Dr. Randall and Mr. Fuller, the medical officers of the Marylebone Workhouse, as a recognition of their services on the occasion of the recent calamity in Regent's Park. The ceremony took place in the Court house, Marylebone Lane. Mr. Chambers opened the proceedings with a brief address referring to the incidents of the painful catastrophe, and to the praiseworthy conduct of Mr. and Mrs. Douglas, Dr. Randall, and Mr. Fuller, on that occasion. He said that the testimonials did not represent the pecuniary estimate of the value of their services, but were a token of the manner in which the public appreciated their exertions. The testimonials were as follow. A candelabrum bearing the following inscription, "Presented, with another salver and candelabrum, to John Randall, Esq., M.D., physician to the St. Marylebone Infirmary, in recognition of the skill and energy shewn by him on the occasion of the catastrophe on the ice in Regent's Park, on the 15th January, when thirteen persons out of the fourteen submitted to his treatment were restored. Thomas Chambers, Q.C., M.P., chairman; W. Fieldson, G. Overton, Hon. Secs.; William Robinson, Treasurer." A gold watch, upon which was inscribed—"Presented to W. F. Fuller, M.R.C.S., in token of his great attention to the sufferers from the catastrophe on the ice in the Regent's Park, on the 15th January, 1867. Thomas Chambers, etc." The master and matron received one hundred pounds, and a testimonial stating that "the promptness to conceive measures for the relief of the sufferers, and the unwearied attention bestowed upon them, happily ended in the restoration to life of many who otherwise must have died; subsequently, the sympathy shewn to the bereaved, and the skilful management of the details of the inquiry into the calamity exhibited qualities of head and heart which have been deeply felt by the public, and unanimously recognised by the press."—*Standard*, March 4th.

THE PUBLISHER begs respectfully to inform the Secretaries of District Branches and the members of the Association interested in extending its numbers, that the prospectus of the forthcoming volumes of the JOURNAL for the year 1867 is reprinted in a separate form for distribution, and that he will be happy to forward it where desired.

British Medical Journal.

SATURDAY, MARCH 9TH, 1867.

THE COLLEGE AND ITS CHARTER.

It has been again and again reiterated in the pages of this JOURNAL, that, so long as the Examiners of the College of Surgeons are members of the Council which elects them, so long is it vain to hope for any plenary reformation in its proceedings. The vote lately taken on the proposition of Mr. Charles Hawkins strongly illustrates the correctness of our conclusion. Mr. Charles Hawkins simply asked that the charter of the College should be carried out in spirit and intention, and that its terms should no longer be evaded. Mr. Charles Hawkins said: The charter was expressly obtained to prevent the examinations from being converted into life-appointments; I ask you to obey the charter. And what has the Council said in reply? We shall do nothing of the sort, we will go on as we have always gone on; those who have held shall still hold; no length of tenure of office is a bar to continuance in office; the will of the holder, and not the good of the College, shall determine the period of an Examiner's retirement from official life.

Everyone will regret to hear that Mr. Paget was the main opponent of the reform which Mr. Charles Hawkins would have commenced. Mr. Paget backed Mr. Lawrence, and saved the ancient state of things at least for the present. We know not what his arguments were. We well know his eloquence; and can well imagine what his eloquence can effect when addressed to so congenial a majority of sympathisers. Happily for us, his powerful phrase, and gifted voice, and forcible argument, were not heard by us. We have been saved from the fascinations of the charmer; and can judge of his action without being misled by his eloquence. And what was the policy supported by Mr. Paget? Surely it was the policy which opposes all reform, which opposes all advancement, which contradicts all the wishes of the profession, so often and so forcibly urged in late College elections. What was the policy, but a denegation of the essence and spirit of the charter? But surely Mr. Paget does not suppose that this state of life-holding office is to be a lasting institu-