inwards, a pad (I) being introduced within the wing at F, to press on the internal tubercle of the os calcis, and the wing being kept in its place by the straps M and N. There is also a rigid bar (K) at the back of the knee, and its action is to keep the joint in a perfectly extended position, whatever amount of force is used laterally. To this bar is attached a carefully made leather strap (C), formed in such a way as to cause the least possible amount of pressure on the patella, and also to diffuse the pressure over the inner condyle when the cog-wheel (B) at the knee is acted upon. The instrument is also made in such a manner that, in drawing the limb straight, it adapts itself to its altered position, and fits the straightened limb as well as it before fitted the deformed one. Figure 2 shews the apparatus applied.

Fig. 2.

Before the application of the instrument, a soft woollen stocking should be put on the deformed limb, and a bandage carefully applied over it from the foot upwards. The instrument is then made to exactly correspond to the angle of the deformed leg by means of the screw (H) at the knee-joint, and is to be then applied and the straps adjusted, and the wing and pad fixed in their place. The cog-wheel (B) opposite the knee-joint is then acted on so as to slightly straighten the leg until pain is complained of, when the screw must be a little reversed, and the patient made quite easy. In this manner, the leg must be slightly stretched every day, when the resistance will be found to gradually give way, and the limb will be brought into the straight position. Great caution must be used in the application of pressure; for, if a sore be allowed to form on the skin on the inner condyle of the femur, all treatment must for a time be abandoned, and much time will be lost.

It is advisable that the instrument should be removed occasionally, and more frequently at first, before the skin has become accustomed to its pressure; and the leg should then be washed and powdered, and the knee flexed and extended to prevent its becoming stiff. This treatment must be continued until the limb is quite straight; and, as there is danger of relapse in this, as in all other deformities, it is necessary that, when the patient begins to walk, steel supports, fixed to the boots and extending to the hips, should be worn during the day.

In those cases in which it is necessary to subcutaneously divide any tendon or ligament, a piece of folded lint is to be put on the puncture, and the leg kept at rest until the wound is healed, which takes place in four or five days. The instrument is then to be applied, and the limb brought into the straight position as before described.

The instrument here shown has been made for me by Mr. Gumpel of Leicester Square, and many of the details are the result of his ingenuity.

EXCISION OF THE KNEE-JOINT FOR SYNOVIAL DISEASE OF FOURTEEN YEARS' DURATION;

WITH DISLOCATION OF THE TIBIA BACKWARDS, AND RETRACTION OF THE LEG TO A RIGHT ANGLE.*

By FREDERICK J. GANT, F.R.C.S.,
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THE conditions of disease which may be appropriate for excision of the knee-joint, almost exclusively have reference to the probability of ankylosis taking place, as the natural mode of cure, without such surgical interference. Formerly, the question of joint-excision was viewed in relation to amputation of the limb, as if the two were alternative operations. But the comparatively early period proper for excision, namely, before the supervention of marked constitutional disturbance or perhaps hectic and exhaustion, is too early to justify amputation; and the later period, when any such constitutional condition co-exists, is too late for excision, as implying the loss of the vital reserve power requisite for the prolonged process of union after this operation. When, therefore, either operation becomes justifiable for disease, the other should not be entertained. But while I have long held this rule—at variance with the preconceived estimate of excision *versus* amputation—there are exceptional cases in which (ankylosis having failed) the question as to the choice of these operations may be discussed. Thus, in chronic joint-disease, whether synovitis or caries, when the patient has perchance retained or regained sufficient constitutional vigour to undergo an operation entailing a long process of repair, the condition of the joint may, even under extreme circumstances, permit excision, with the probability of restoring an useful limb, instead of sacrificing it by amputation. Destruction of the articular surfaces, and perhaps of the ligaments—in short, irreparable destruction of the whole articulation—having long since occurred, this condition has been accompanied by dislocation and flexion of the limb, proceeding slowly until the latter change has resulted in extreme malposition. Eventually, the limb becoming fixed, it cannot be straightened by extension or by tenotomy combined, with the view to the bare chance of ankylosis; and as the limb wastes from functional inactivity, the atrophied state of this useless appendage would seem to further preclude the hope of recovery by removal of the joint.

The following case falls within these conditions, and illustrates the local as well as the constitutional states under which I should deem excision to be preferable to amputation; reserving the latter operation as the last resource after a fair trial of the former.

A man, aged 24, was kicked accidentally on the left knee, fourteen years ago. From his description of the immediate symptoms, this injury appears to have caused acute synovitis; and, as the patient's general health bore no evidence of scrofula or other constitutional taint, the synovial inflammation seems to have been purely traumatic. Suppuration ensued within the capsule, and the abscess broke. The boy, an orphan, was sent from Islington Workhouse to the sea-side, where he remained for more than three years; and then he returned to the Union for two years. During the whole of this period, there was copious discharge from the knee-joint through two or three fistulous openings, which never permanently closed. Soon afterwards, he was drafted into the Shoe-Black Brigade, and remained in this employment ever since. Two years ago, he went into one of the metropolitan hospitals; a cast of his leg was taken, but no operation seemed advisable, and he left the hospital in a week. Last winter, a severe fall on the pavement renewed the synovitis; and the fistulous tracks, which had dried up for a month, again discharged. Then he was sent from the union infirmary to the Royal Free Hospital, and admitted under my care.

Although this was apparently a hopeless case for excision, viewing the state of the joint and of the limb, as already noticed, and considering that this condition had resulted from destructive changes of many years' duration, yet the circumstances were not, in my experience, beyond the reach of conservative surgery; while the synovial character and purely traumatic origin of the joint-disease, coupled with my estimate of the patient's remaining health, encouraged me to subject him to the issue of this operation. Accordingly, on May 10th, I excised the articular ends of bone, quite parallel, and carefully removed the whole of the thickened synovial membrane, leaving only the semilunar flap of healthy integument. The limb was brought down with difficulty; and having placed the femur and tibia in exact apposition, the splints which I am accustomed to use—a long back splint from the buttock to just above the heel and an external interrupted splint with foot-piece—were applied, each being secured by broad strips of adhesive plaster and roller-bandage.

* Read in the Section of Surgery at the Annual Meeting of the British Medical Association in Cork, August 1879.

Lastly, the wound was thoroughly cleansed of blood and seen to be dry; then the flap was laid down and accurately closed with wire sutures. A pad of lint and oil silk covering were used, and bandaged round the joint to exclude the air, and prevent any collection of blood beneath the flap. I never have recourse to antiseptic precautions in the operation or in dressing the wound; and in after-dressings, I trust entirely and with confidence to the pre-septicism of cleanliness and general hygienic arrangements. Under this system, I have never yet known pyæmia or septicæmia to follow any joint-excision in now an unusually large number of cases. In the present case, the ordinary amount of swelling followed the operation, but which gradually subsided; and the joint was not uncovered for some days. Then primary union had taken place throughout the whole length of the incision, although generally the angles remain open and ooze for some time. Two or three of the sutures were picked out, the others remaining until the adhesion had become firm—in the course of another week or two. Three sinuses, existing before the operation, afterwards served to drain away a small quantity of adhesive serous fluid.

Two months after operation, on July 4th, the splints were removed for the first time, when the bones were found to have firmly united, and the patient could raise the limb a little from the bed. The splints were reapplied. The man's general health had much improved; and, instead of presenting a withered and prematurely old appearance, his rejuvenescence was a matter of general comment in the hospital.

NOTES OF AN EASTER HOLIDAY TRIP TO MADEIRA.

By T. SPENCER WELLS, F.R.C.S.

SINCE the publication of Sir John Forbes's *Physician's Holiday*, a month's ramble in the autumn has become part of the life of busy men in our profession. At one time, Sir H. Holland was almost a solitary example of a man who regularly every year made some long voyage; and even now, when six weeks in Scotland, or a long continental tour, is by no means uncommon, a month at the seaside or in Switzerland is as much as can be spared for health and recreation, even by the more fortunate of our brethren. Latterly, some who, for various reasons, wish to remain in or near London in the autumn and avoid part of a long winter or a cold spring, have gone to the South of Europe, to Algiers, or to Egypt, in December, January, or February, returning to London when Parliament meets, or soon after. An Easter holiday of more than a few days is only just becoming a thing to look forward to. When Easter is late, a few days may be spent pleasantly in Normandy, or in Belgium and Holland. It is often too cold for Paris, and the weather is not, when Easter is early, very encouraging for a trip by sea. Easter was early this year; but, never having seen Madeira, having been prevented from leaving home in the winter, and last autumn's holiday having been much shortened, I determined to give up three weeks to the voyage to Madeira and back, and to pass about ten or twelve days on the island. Accompanied by two of my daughters, we left Southampton on the afternoon of the 25th of March, and Plymouth on the 26th, in the Union Company's steamer *German*, and arrived at Madeira on the 30th, exactly four days from Plymouth, a distance of 1200 miles. We had what was considered to be rather a rough passage, and several ladies on board suffered a good deal from sea-sickness; but the French Empress Eugénie, who was the most distinguished passenger, appeared at every meal, was on deck a great part of each day, and enjoyed the moonlight nights.

We remained at Madeira until Friday, the 9th of April, and left on the evening of that day in Donald Currie's steamer the *Warwick Castle*, arriving at Plymouth on the afternoon of the 14th, sleeping at Exeter, and, after visiting the cathedral on the morning of the 15th, arriving in London in the afternoon, exactly three weeks from the day of departure.

It may interest many of our Associates to know something of what may be gained by three weeks so spent. In the first place, nine days on the open sea is a great gain. Supposing sea-sickness to be trifling, or altogether out of consideration, there can be no doubt that the rest, quiet, and thorough change of a life at sea is beyond all question far more exhilarating than any change which can be obtained by railway travelling. And a few days' voyage at the end of March, when cutting east winds are prevalent in London, may take us into delightful weather—to Bordeaux, for example, or to Lisbon, or Cadiz, or Gibraltar and the North African coast. None of these would have been new to me; I therefore chose Madeira, though the Azores would also have been new and almost equally within reach. I cannot too strongly advise any one thinking either of a spring or an autumn holiday to go to Madeira. Except in the hottest of the summer months, the climate is most enjoyable.

The hotels in Funchal are excellent, and the excursions near the town numerous and interesting; while longer excursions to the north of the island open up some of the finest mountain and coast scenery in the world. Excellent saddle-horses or ponies are to be had for those who are not strong walkers; and a hammock carried by two men for those who do not ride and for invalids is the easiest and safest mode of conveyance I have ever seen or tried, far more so than the *chaise à porteur* known to tourists in Switzerland.

It may perhaps interest some readers if I give a short account of an excursion of five days which I and my daughters made from Funchal to the north of the island. Starting at 8.15 on the morning of the 1st of April, I and one daughter on horseback, the other daughter in a hammock, we at once began to ascend the mountain at the back of Funchal. The hammock is carried by two men, and a third man goes on all long journeys, so that one man may rest at intervals. A man also goes with each horse, and we took an additional man to carry provisions and a change of clothes. We reached the top of the pass soon after noon, began to descend on the north side of the mountain, rested about an hour, and arrived at Santa Anna about five. Here we found comfortable quarters in the house of a landowner, who acts as an hotel-keeper, remained there that night and the next, spending the 2nd of April in a lovely excursion to what is called the Levada de Fayal—a watercourse carried along the mountain-side up narrow gorges. We should have given another day to the ascent of the Pico Ruivo, the highest point on the island, but the day, though delightful in the lowlands, was not favourable for mountain views. So, on the 3rd, we took the coast-line for San Vicente, starting at eight and arriving at four, by horse and hammock as before, along some of the grandest rock and coast scenery in the world. A small inn at San Vicente afforded clean beds and other accommodation, rough but sufficient. The 4th we spent in a coast ramble on foot to Seixal; the 5th, in returning by a magnificent mountain-ride to Funchal, starting at 7.30 and arriving at 5. The 6th was spent in Funchal, seeing sugar-mills, wine-stores, the Consumption Hospital, and gardens. On the 7th, we made another coasting excursion, this time by boat, to what are called the fossil-beds, returning to Santa Cruz, and then going by hammock to Dr. Grabham's mountain residence at Camacha, where we dined and slept, returning on the 8th to Funchal. On the 9th, we spent the early part of the day seeing a great establishment where pineapples are grown by the thousand for Covent Garden, the working of the submarine telegraph, and other objects of interest, under the kind guidance of Dr. Grabham; and, the return steamer having been signalled just before sunset, we left for Plymouth at night.

Beside this hasty sketch of a delightful holiday, I may allude to some matters of professional interest. Of course, the chief interest of Madeira to us all is its use as a winter residence for invalids. On this point, I need only say that I saw several residents who had gone out apparently in a hopeless condition years ago, but were still enjoying life at Funchal in the winter, and up in the mountains in the summer, invariably suffering if they returned to England even in the summer. I heard of others who had gained so much by two or three winters in the island as to be able to remain afterwards in Europe. But those interested in this matter should read Dr. Grabham's work on *The Climate and Resources of Madeira, as regarding chiefly the Necessities of Consumption and the Welfare of Invalids*. Dr. Grabham has been engaged lately on some novel observations on the effect of light and elevation, the results of which I hope he will be able to bring before the Association at the Cambridge meeting in August.

The Hospital for Consumptive Patients, founded by the Princess Maria Amelia in 1853, is now a large airy building, with small wards of six, four, two, and one bed, surrounded by a lovely garden; and is under the care of Dr. Pitta, who has published a series of valuable annual reports of his experience. In the four years 1875-78, he treated one hundred and ninety-one patients—one hundred and forty-three of whom were cases of phthisis. In forty-four of these, there was evidence of hereditary influence. In the others, it was traced to hard sedentary work, in unhealthy cottages, with insufficient food. A very large proportion of the females is furnished by the young women who work at embroidery sixteen or eighteen hours a day, sitting on the ground in a cramped position, with the thorax bent towards the knees; eating meat only two or three times a year; and having very scanty food, on any but great festival days, of bread or maize, potatoes, or a little salt fish. This is a sufficient answer to those who ask: Why send consumptive patients to Madeira, when phthisis is so prevalent among the native population?

On the day I left, I was asked to see a native lady, between sixty and seventy years of age, who had cataract in both eyes. I was told that all such patients were sent to Lisbon or Paris for operation, and that it was doubtful if the operation of extraction had ever been performed in the island, but that it certainly had not been done during the last thirty