

this muscle suddenly contracts the whole strain falls upon one spot, and the bone gives way just as when a stick is snapped across the knee." Now we have our patella fractured, what occurs next? Displacement of the fragments; and upon the amount of displacement depends our treatment. Displacement of the fragments is due to four things: First, to contraction of the quadriceps extensor femoris muscle; secondly, to contraction of the ligamentum patellæ; thirdly, to distension of the knee-joint by blood and serum; and, lastly, the amount of separation of the fragments is due to the amount of pre-patellar aponeurosis and fascia torn. If the fascia is not torn or very slightly torn, we will have little or no displacement of the fragments, and bony union the result. Delayed union, non-union, and ligamentous union may in many fractures be due to constitutional or local conditions, but in no fracture do the same local conditions so uniformly interfere with the union of bone as in fracture of the patella. When the patellar fascia is not torn the diagnosis is not so easy, but not difficult. The effusion is not so great and not so rapidly absorbed as when the displacement of the fragments is greater. This is owing to the fact that the contraction of the muscle is not so continuous and is followed by a state of rest, and the effusion is rapidly absorbed. The amount of displacement and effusion is not an important factor in cases of non-union. McEwan, of Glasgow, was the first to point out this most important feature in non-union in fracture of this bone. He demonstrated the fact that you cannot have bony union on account of the aponeurotic structure interposing between the fragments, and here I may state that there is little use in wiring a patella if this interposition of fragments is not thoroughly picked and cleaned out. I hope I may not be considered bold or aggressive when I say that all ordinarily treated fractures of the patella when the fascia is ruptured, and where it is attended with any degree of displacement, cannot be considered at this day to be successfully or scientifically treated unless you have osseous union as a result; and to get osseous union must be our object in the future. Ligamentous union does not insure a limb as perfect functionally as before the fracture. How often do we hear of the same person having his patella

fractured once or twice, and many cases are recorded where the same patella has been wired in two or three different places at different times, the surgeon in cutting down finding the old fracture as strong as any part of the bone, and the bone fractured in another place. I saw a case of this kind in Sir Joseph Lister's wards, King's College Hospital, last year. After seeing the wonderful results of this operation, I must say I became impressed with the idea that in all cases where we cannot get the fragments in direct apposition we should cut down and wire the bones. Most writers, especially the older ones, consider this operation unnecessary and unwarrantable. I cannot see it in that light, as, if we believe in antiseptic surgery and practise it to the letter of the law, the danger should be no greater than that of any other ordinary operation. In making your incision, make it long enough to give you plenty of room. It should at least be two and a half inches long. Open the joint freely. All effused material should be squeezed out; the joint thoroughly irrigated with carbolic solution; the holes drilled obliquely from the cutaneous to the fractured surface, so as to avoid the cartilage. After the joint has been thoroughly irrigated, the bones are brought together with soft strong silver wire, taking care that every bit of tissue is from between the fragments. Then carefully sew the aponeurotic structures together with catgut or silkworm gut. Lister does not pay much attention to this, but McEwan lays great stress upon it. Lister buries his large silver wire suture, while McEwan brings his out, and removes it in five or six weeks' time. Lister does not remove the wire suture at all, unless it causes irritation or becomes troublesome. McEwan dresses his wound with iodoform and rubs it freely into every crevice with his finger. In five or six weeks' time he begins passive motion, and it is truly wonderful the results he has. Lister, of course, uses his double cyanide gauze, and puts his leg up in Gouche splinting, and does not begin passive motion nearly so early. Most text-books will tell you to use drainage tubes, but unless you are not very particular about your antiseptics it is better not to use them. I noticed this more particularly in Mr. Watson Cheyne's wards, he having almost entirely dispensed with drainage tubes in all operations.