

# HUMAN JOINTS MADE BY MAN.

Another Step in the Wonderful Progress of Surgical Science Showing Promise of Success.

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**D**R. PERCY W. ROBERTS of New York, who a short time ago succeeded in reconstructing a tuberculous hip joint so as to eliminate the disease and produce a new and serviceable head on the bone, has now devised an operation by which he is able to make not only a new hip bone but also a new hip joint.

A small bone removed from a paralytic foot showed such striking similarity of contour when held in a certain position to the head and neck of the femur or long bone of the leg and presented so large a surface, that it suggested to him the possibility of using a portion of it as a graft to replace the bony head of a leg or arm when impaired by accident or disease.

On June 18, 1912, at the City Children's hospital, a girl of eight, who had for over two years been bedridden from tuberculosis of both hips, was submitted to an operation. An abscess extending half way down the thigh was present on each side and both hips were stiff. The little bone of the right foot was removed and placed in salt solution, while the wound was closed and a plaster dressing applied. The abscess on the left thigh was then cleaned by incision and the wound closed by suture.

When the hip joint was opened it was found that the half destroyed bony head was bound securely down by dense scar tissue. This was cut and the head was freed, turned into the wound and sawed off at the middle of the neck. An ivory pin one inch long and three-sixteenths of an inch in diameter, threaded its whole length, was then screwed into the stump of the neck and, after the removal of a part of the body of the astragalus taken from the foot, the remaining portion was screwed down hard onto the cut end of the femur. Secured in this way the parts held firmly. The newly formed head was replaced in the bone, the wound closed and the leg put up in a long plaster bandage.

After forty-eight hours the temperature remained normal, the soft tissues healed quickly, the abscess disappeared and at the end of ten weeks the graft was found united and the patient had all of the voluntary motion wished for.

Four other patients have been operated on in the same way and are still in plaster. Two of them have progressed without pain or rise of temperature and their general health is improved. The third case was a dislocation which followed acute inflammation with entire destruction of the head and neck of the bone, and the fourth was a patient with tuberculosis of both hips with an abscess. All of these are doing well.

Should the operation prove to be as prac-

tical as present experience indicates, its wide application to a number of conditions now more or less hopeless of relief by other forms of treatment will be apparent to those who have to deal with impaired hip joints. Among such conditions are those cases of tuberculous hip disease in which at present the result is usually two stiff hips which render locomotion without crutches difficult or impossible; dislocations in which the head and neck of the femur are destroyed; congenital dislocations in which reduction is impossible owing to malformation of the femoral head; old fractures of the neck of the femur with non-union, and injuries to the hip in which men of middle age are incapacitated for work and their only hope lies in a fixed joint.

Transplantation of the small bones may also be of service in injury of the shoulder.

If possible, it is of course desirable to obtain the graft from another patient in need of operation for deformity of the foot, as has been done in some of the cases referred to. There is no serious objection, however, to making an autotransplantation. The observation of results in a large number of cases done by various operators at the Hospital for Ruptured and Crippled, the Mount Sinai, Post-Graduate and City Children's hospitals, with which Prof. P. W. Roberts is connected, has furnished evidence that when properly done the operation leaves a foot which is almost perfect and in which the deformity is trifling.