INTRODUCTION

Our first experience in lengthening of the lower limbs to different lengths concerns operations on femora started by one of us in 1958, using Putti's technique (traction with weights).

After a series of cases operated on at the femur (5), we performed the first tibial lengthening in Italy in 1962 (4), and then went on - still in relation to limb length discrepancies - to Anderson's technique (6), and from 1974 Wagner's traditional technique followed by Wagner's technique modified by us, and finally to Ilizarov's method (1).

In 1976 we performed the first lengthening in a case of disproportionate dwarfism, of which achondroplasia is the emblematic expression (7-13).

We have found no publications in Italian or Western literature reporting limb lengthening in dwarfism prior to the cases operated on by us.

Inclusion of the qualification 'disproportionate' is fundamental when dealing with dwarfism to be operated on, since short heights in which the relationship between limbs and trunk is normal may not be included among cases in which surgery is indicated.

Much has been said and is being said of the arguments in favour of and against surgery for dwarfism. Merely technical and clinical considerations do not suffice to justify surgery; there are also subjective, psychological, environmental and family implications which should not be ignored. The issue is therefore complex and must be examined from many points of view.

From a general point of view, the objects of limb lengthening are: to improve appearance by an increase in height; to correct axial deformities; to promote solutions for daily functions and activities (such as use of the telephone, sanitary facilities, means of transport, driving a car and others), to improve social life, to reduce frustration.
The disproportionate dwarf, in fact, forced to live in a society organized by "normal" people, for "normal" people, fulfills an attempt to escape from a negative social identity and feels the transformation from his status as a "dwarf" to that of a "small person". That is to say, he feels that being considered part of the small-sized fringe of normal people is different from being looked at as an achondroplastic.

TECHNIQUES

The techniques adopted by us for surgical lengthening in disproportionate dwarfism were the traditional Wagner technique (from 1976 to 1981), Wagner's technique modified by us, and Ilizarov's technique (from 1983 onwards).

Wagner's technique

To the original instruments well-known to all, we added a centrepoint guide invented by us so as to allow the Schanz screws to penetrate more easily and exactly on the same plane into the segment to be lengthened (Fig. 1).

The operating procedure is described briefly below. It consists of three stages, with one intermediate phase of distraction of the bone stumps and one of consolidation. For the technical details refer to Wagners' original studies (14-15).

In the first stage, with the patient lying prone, and making small incisions in the side of the thigh, two Schanz screws, parallel and on the same plane, are driven into the proximal metaphysis and two into the distal metaphysis of the femur, and the distraction apparatus is fitted. With a postero-lateral skin incision, passing between the bicipital and

Fig. 1. Large and small size centrepoint guides created by us.