his mother telling him he was "born short." His family history, as far as it can be ascertained, is unimportant, and he has never been seriously ill, but has suffered repeatedly from sciatica. He is strong, and, until recently,

are much shortened, and the bones of the distal segments of both upper and lower limbs are curved; the fingers are of equal length, and the same abnormality is observed in the toes; the abdomen is prominent, and

Fig. 3.

Fig. 4.

Fig. 5.

has been regularly employed as a road labourer. He is mentally acute and of average intelligence. He is of small stature; the vault of his cranium is high; the bridge of the nose is retracted; the humeri and femora

there is a considerable degree of lordosis; the palate is highly arched; and the central point of the body is nearer the ensiform cartilage than the umbilicus.

ACHONDROPLASIA: NOTES OF THREE CASES.

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THIS is a condition the considerable peculiarity and rarity of which are, I think, sufficient reasons for the publication of the following brief notes, with photographs, of 3 cases which have been under my observation during the last few months.

It would be impossible for me to add to the exhaustive description of achondroplasia which Dr. Guthrie Rankin published in the issue of the BRITISH MEDICAL JOURNAL for June 30th, and I therefore content myself with endeavouring to indicate certain points of interest which the patients present.

History.—W. W., aged about 80, is a widower, and father of the other two men mentioned below. He first came under my observation as a parish patient suffering from slight general indisposition, probably following a mild attack of influenza. Apart from this, and with the exception also of having become a good deal thinner during the past four months or so, he is in

good health. He has all his life been a bargeman, working most often on barges engaged in carrying ice, and being frequently occupied in pumping out the water caused by its melting. It is noteworthy that one so handicapped should be able to follow a calling entailing so much hard work and exposure to weather, especially as he frequently sailed as far down the river as Rochester and other towns on the estuary. His health has always been good, and he can remember no serious illness in his life, and only relinquished his work at the age of about 70.

Appearance.—He presents many of the characteristic features of achondroplasia—namely, marked micromelia, the shortness of the limbs affecting the upper segments more than the lower, as is usually the case, the upper arm and thigh being shorter in proportion than the forearm and leg. The affected long bones show considerable exaggeration of the normal curves, this being well exemplified in radii and femora. Long bones normally straight are also curved, notably the tibiae and fibulae, this condition being very probably attributable to superadded rickets in early life, an occurrence quite common in these people. The epiphyses are in nearly every case thickened and nodular, the result of excessive and irregular deposition of subperiosteal bone. This, though not a constant feature of the disease, is present in each of these cases in varying degree. There is but little departure from the normal in the angle formed by the neck of the femur with the shaft, the

upper border of the great trochanter being just on Nélaton's line. The feet are small, owing to the shortness of metatarsals and phalanges, and square in shape. The gait is decidedly rolling and waddling. The pelvis is small, but presents no striking disproportion to the rest of the body. The ribs appear normal, and show no definite beading. The sternum is curved, the gladiolus being convex forwards. The skull is of the usual type found in these subjects; the bones of the vault, which are developed in membrane, are of at least average size and usual shape, while those of the base, which are developed in cartilage and undergo an early synostosis, are small. The face is thus in general outline triangular, the small lower jaw producing a pointed chin, which forms the apex of the inverted triangle.

The features of the skull here alluded to, although present, are not very pronounced in the father, but are conspicuous in both sons, as may be seen by reference to the photographs.

In the father the parietal eminences are prominent, and the frontal suture is felt and seen as a well-marked broad ridge—further evidence of previous rickets. In each the nose is not of the usually described "snub" variety, but of average size, with normal bridge and generally well formed. When standing upright the palm of the hand is on a level with the trochanter, a position much higher than the natural one, but lower than that generally observed in children who are the subjects of this disease, in whom the fingers may reach but little below the iliac crest. Perhaps this may be taken to indicate that, although slow, the growth in the long bones is sufficient to diminish the disproportion between the length of the limbs and that of the trunk as adult life is reached.

In the father the lips are somewhat thick and protruding, but in the sons not so, neither is there thickening of the eyelids. Also, in the older man, the thyroid gland could not be felt, but I think this may be sufficiently accounted for by his age, the tracheal rings not being unduly distinct to the touch in the other men.

Lordosis is not as prominent a feature in these cases as usually described, and there is no dislocation of the hip, and, as I have said, little evidence of bending of the neck of the femur.

The abdomen is somewhat prominent, but no enlargement or other abnormality of its viscera was found. There were no congenital defects of palate, heart, extremities, or ears, and no herniae. The skin was normal, the usual parts well covered with hair, and the external genitalia were well developed. Their intelligence is good, especially in the case of the younger son, who is certainly well up to the average in this respect.

Family History.—This is of great interest, well showing

how great an influence heredity seems to exercise in the production of achondroplasia. W. W. had three sons, two of whom are shown with him in the photographs; the other was drowned; his father and brothers emphatically state that he was physically in all respects similar to themselves.

There were no daughters. His wife, now dead, was a normal woman of average height. He had one brother, also like himself; but again there were no girls in this family, the old man having no sisters.

He states unhesitatingly that his father was exactly like himself, and the sons also say that they remember their grandfather, and entirely agree with their father in his description of him. Here again the wife was normal. We thus have pretty clear evidence

(a) Of the disease occurring in 6 members of a family constituting three generations.

(b) Of its appearing only in the male sex.

(c) Of the interesting fact that in those three generations no females were produced.

Dr. Guthrie Rankin tells us that statistics indicate a

slightly greater prevalence of the disease among females, but other writers have stated the reverse to be the case. Perhaps the history of this family would lend support to the theory that in families such as this with a strong hereditary predisposition to achondroplasia the disease really affects the female fetus more severely than the male, often preventing its ever reaching maturity, while the less severely afflicted males manage to survive and become the only representatives of their line. I tried to find evidence bearing upon this point by questioning the old man upon his wife's and his mother's obstetric histories, but, having regard to his age and entire immunity from educational influences, I did not attach much importance to his inability to give me any information on the subject.

Consanguinity of parents has been invoked as an etiological factor in the disease under consideration, but it has played no part in its production in these cases. Of syphilis there is no history, and there have been no serious illnesses during infancy or childhood.

The diagnosis of achondroplasia in the adult is both easier and less important than in children—easier because the occasional difficulty met with in the child of distinction from cretinism no longer exists; less important because the cases which call for treatment must be

extremely few in number and limited to the very rare necessity for an osteotomy to correct a particularly severe bony curve.

Prognosis.—The prognosis is well set forth by this family:

one of the men has already well exceeded the allotted span of human life, while the other two have passed 50, and should not fall far behind their father's record of long and healthy life.

The appended table gives in parallel columns for purposes of comparison some measurements taken from one of these men, with corresponding figures obtained from a

normal man, 5 ft. 8 in. in height, this being generally taken as the average for healthy men in England and Wales. Some of the striking features of the achondroplastic skeleton are there well seen. Thus with a total deficiency of 16 in. in height, the shortness of the legs is responsible for all but 2½ in. of this amount.

	Normal.	Achondroplastic man.
Total height	5 8	4 4
Height sitting	2 10½	2 8
Anterior superior spine to internal malleolus	2 11¼	1 9½
Anterior superior spine to inner tuberosity of femur	1 7½	0 11½
Tubercle of tibia to internal malleolus	1 2¾	0 7½
Clavicle	0 7¼	0 4¾
Acromion to external condyle	1 0¾	0 8¾
Radius	0 8¾	0 6
Ulna	0 10	0 7½
Chest: full expiration	2 10	2 4½

The photographs are by Hermann C. T. Gardner, F.C.S.

ON THE USE OF TAXIS FOR HERNIA, AND ON SOME COMPLICATIONS THAT MAY ARISE DURING AND AFTER ITS EMPLOYMENT.

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In bringing before you to-day such a simple subject for your consideration I need make no apology, for at the present time opinions are changing, and differ considerably as to the propriety of employing taxis as a remedial measure.

The term "taxis" means the reduction of a hernia by manipulation, and in extension would include also the ordinary reduction effected by the patient himself in putting back his hernia. The expression is more usually limited to that procedure of a more purposeful character which is adopted when the hernia fails to return as it should, and where there are associated symptoms which indicate some altered relationship of parts.

To-day we are going to deal with taxis as a measure to be employed when there are signs present of strangulation. There are many that urge that taxis should never be tried for strangulation, and would advocate operation for all cases. It must be allowed that inspection of the contents of the sac is the only ideal method that is consistent with a maximum of safety and a minimum of risk. If all, or even the majority, were submitted to operation, there is no doubt that a certain number of cases where had symptoms subsequently arise would be satisfactorily dealt with, and our statistics would considerably improve. I myself am at one with those who insist that for safety's sake operation is the ideal method of treatment; but I feel sure that the complete abolition of taxis for strangulated hernia is not at the present time likely to be generally accepted, and that you in general practice would have some difficulty in dealing with some of your cases should taxis be altogether abandoned.

If we, then, assent to the proposition that taxis for strangulated hernia is not likely to become a dead-letter, we must have a clear conception as to the right way to do it, and as to the cases in which it may be, and those in which it should not be, attempted.

In performing taxis the pressure on the hernial sac must be gentle, steady, and equal all over the tumour, and it should be in the reverse way to the normal descent of the hernia. At the same time support should be given by the other hand to the neck of the sac, so as to steady it. If intestine is in the sac it will be gradually emptied of its fluid and flatus, and should then return with the characteristic gurgle. It is usually directed that the tense structures pressing on the sac should be relaxed, and for this purpose the thigh is flexed, adducted, and rotated inwards.

By some this has been taken exception to; it being considered that the taxis is more likely to succeed when the fibrous tissues outside the sac are tense; thus, with an inguinal hernia the thigh would be extended, and in a femoral it would be adducted and rotated outwards. Perhaps if this is true it is the support given by the fingers to the neck of the sac when the fibrous rings are relaxed that prevents disaster. What, however, is very certain is that if the taxis is improperly done mishaps can easily occur.

Irrespective of the length of time it may be tried, one knows that the attempt to reduce the hernia is frequently a continuous push on the lower pole of the sac, forcing the whole up towards the abdomen, and if this procedure is done without any support to the neck then certain dire results may ensue, about which I shall speak to you presently.

With experience, the manipulation of a few moments will, as a rule, decide whether reduction is likely to take place; when it does occur, the contents go back with a characteristic gurgle, especially if gut occupies the sac. Success is more likely to be obtained if it is done under chloroform, and particularly after a hot bath.

Now, when the sac contents have been apparently satisfactorily reduced, we have, however, taken a leap in the dark, for what do we know as to the pathological conditions

* Read before the Norwood Division of the South-Eastern Branch.