A DEMONSTRATION ON DWARFS: TRUE DWARFS AND DWARFS FROM RICKETS.

Made at the Meeting of the Cambridge and Huntingdon, the East Anglian, and the Midland Branches of the British Medical Association in Cambridge.

By SIR GEORGE HUMPHRY, M.D., LL.D., F.R.S.,
Professor of Surgery in the University of Cambridge.

I HAVE chosen this subject to bring before the meeting partly because I am able to show you what I believe is the only skeleton of an adult true dwarf which is to be found in the United Kingdom. By a true dwarf I mean simply a person who is of unusually small stature, not as the result of any particular disease or deformity, but merely from the growth having fallen much short of the usual standard. Such you will see to be the case with the skeleton I show you, which is about $3\frac{1}{2}$ feet in height, which is evidently that of a man of mature years, not below middle age, and in which the several parts—skull, vertebral column, and limbs—are in due proportion to one another, all being equally small. I know nothing of the history of the person. I bought the specimen at Paris, and had the pleasure of presenting it to the museum of the University. The dimensions are as follows:—height, 41 inches; skull, greatest circumference, 19 inches; antero-posterior measurements, 6.6; transverse, 5.2; vertical, 4.4; spine, 13.5; clavicle, 3.5; scapula, 4.5; humerus, 6.9; radius, 5.2; hand, 4.3; pelvis, between iliac spines, 7; transverse of brim, 3.2; antero-posterior (conjugate), 2.2; femur, 10; tibia, 8; foot, 5.8.

The skeleton of Nicholas Ferry, *alias* Bébé, in the Jardin des Plantes at Paris, is the only other specimen of the kind that I have met with in my visits to various museums at home and abroad. Bébé was about 3 feet 6 inches in height. He belonged to Stanislas, King of Poland. He is said to have been one of three dwarf children of peasant parents in the Vosges. He died at the age of 23. He is reported to have been weak in mind and body. Others have lived to greater age and shown no mental or bodily deficiency. Thus Richebourg, who was little more than 2 feet in height, died in Paris in 1858 at the age of 90. He was a servant in the Orleans family, and it is related of him that in the revolutionary period he was passed in and out of Paris as an infant in nurses' arms, and was thus employed as a carrier of despatches.

Borowlaski, a Pole, stated to have been about 3 feet 3 inches high, and to have had a sister shorter than himself, died at Durham in 1837, having attained nearly to the age of 100. It is reported of him that he was a handsome man, a wit, and something of a scholar, and that he had travelled all over Europe.

Charles Stratton, *alias* "General Tom Thumb," whom some present may remember to have seen in England in 1844 and 1857, was born in 1837 in America, married in 1863 a minute American lady born in 1842, and died, I am informed, in 1883.

Jeffery Hudson, born in Rutlandshire in 1619, and reported to have been presented to Queen Henrietta as he stepped out of a pie at a banquet before he had attained his full growth, which was 3 feet 9 inches, after a chequered life between Courts and prisons, was accused of participation in Popish plots, and died in prison in his 63rd year.

It is not a little remarkable that these diminutive beings should in several instances have shown so much vital tenacity and intelligence. As an illustration of their ability to hold their own against the giants, it is narrated that when, at the caprice of an Empress of Austria in the seventeenth century, all the giants and dwarfs in the empire were brought together in Vienna and lodged in one building, the giants were so tormented by the teasing, tripping up, robbing, and

various molestations to which they were subjected by the dwarfs—upon whom we may suppose they dared not adequately revenge themselves—that with big tears in their eyes they prayed to be relieved from the persecution of their tiny enemies: and the prayer was granted. We read, too, of a partnership between a dwarf and a giant, in which the dwarf, having the intellect, though the giant had the strength, reaped so much the best of the alliance that it was dissolved.

Being the appendages of Royal and important houses, because they were regarded as outside humanity, so that great people could enjoy the relief of condescending to familiarities with them, as with dogs and monkeys, without demeaning themselves, they were valuable possessions, and attempts were made, without success, to cultivate a breed of them. Marriages between them were promoted without gaining the object in view. I suppose the couples were usually childless. It appears, however, that a marriage promoted by Queen Henrietta Maria between two dwarfs—Gibson and his wife, whose united measurement was only a little over 7 feet—was more productive, though not more successful, for five of the nine children who were born and lived to grow up were of the ordinary stature. Gibson was miniature painter to Charles I and drawing master to the daughters of James II—the Princesses Mary and Anne. He died in his 75th year, and was buried in St. Paul's, Covent Garden. The last Court dwarf in England was in the service of the Princess of Wales, the mother of George III.

It would seem then that dwarfs, occurring among people of ordinary stature, are quite exceptional varieties, and that even if continued by inheritance, which does not seem hitherto to have taken place, they would, like other varieties occurring in a like manner, soon fade out under the species-preserving influences of the laws of propagation. Yet, when found as a racial feature, dwarfism appears to be propagated indefinitely. Witness the pigmy tribes in Africa who, have had a height of about 4 feet and well formed, and seem to have had the persistency to maintain their characters for unknown generations and the ability to defend themselves against, and be a source of terror to, the surrounding tribes. By what process such a race originated may be a fertile subject for speculation. When broken in upon, and broken up, by the advancing and levelling tide of human curiosity and commercial tendency they will, doubtless, like other so-called inferior races, disappear and leave little mark behind.

The same remarks with regard to the appearance and disappearance of exceptional features and persons apply to the cases of giants as well as to those of dwarfs. In neither does it appear that the parents have deviated from the ordinary stature. Though tallness and shortness of stature within ordinary limits are often long-continued in families, yet the excesses, giantism and dwarfism, seem less likely to recur than certain other exceptional peculiarities and vagaries in development, such, for instance, as varieties in the number of digits, etc., though these also are eventually lost. It is worthy of note that in the instances of Bébé and Borowlaski other children of the same parents are said also to have been dwarfs.

Let me ask you to contrast with the well-proportioned, rather elegant dwarf skeleton which I have shown you, this remarkable specimen of an ill-proportioned and unseemly skeleton dwarfed from rickets, which is also from our museum, and which I had the opportunity of buying some years ago. It is from a woman who lived to 85 years, and was well known about the beginning of the century as a beggar crawling about in the streets of Paris. In this instance the head and trunk are of, or nearly of, the usual size, though the spine and the pelvis present the usual curves of rickets. But the limbs are remarkably short and small; the arm bones measure 7.3 inches, and those of the forearm 6.5; the hand 5.2; the thigh bones measure 8.0, are thin and much curved; the leg bones, also much curved, measure 7.5, and the feet 5.5. You will note also the bulging of the epiphysal lines which is manifested at the upper part of the humerus and slightly in the tibia, and is peculiarly observable at the lower ends of the thigh bones, causing a sudden expansion or flattening out there, which has been, though not very aptly, compared to the head of a nail spread out upon the shaft. This is due to the imperfect calcification of the bone-forming material,

which is the special feature in the pathology of rickets. The epiphysal lines of cartilage, by the growth of which the shafts of the long bones are lengthened, are not formed in undue quantity, as has been stated, but, in consequence of the imperfection of calcification, they exist in undue proportion, and, yielding under pressure, they bulge or are squeezed out, and, becoming subsequently ossified, form the circular projecting ridges so prominent in this and some other specimens. This condition, which is sometimes thought to be a result of rheumatic arthritis, but has no relation to that disease, is most common and most marked at the lower end of the thigh bone, because the epiphysal line here is the one in which growth takes place longer and at a greater rate than in any other part of the skeleton, and in which, therefore, defect in the growing processes, and especially in the ossification of the growing line of cartilage, is most likely to take place. Indeed, it is not infrequently the only part in which this bulging is observed in the adult skeleton; and, occasionally, the bulging here is the only persistent feature of rickets. I say in the adult skeleton, for it is curious and rather difficult of explanation that, although the bulging of the lower epiphysal line of the radius and the sternal ends of the ribs is so often found in rickety children, this feature commonly disappears as the children grow up, and it is seldom found in any marked degree in rickety skeletons in any part except the lower end of the thigh bone and the upper end of the arm bone.

It is mainly owing to this deficiency of cartilage growth and cartilage ossification at the epiphysal lines that rickety persons are usually short-limbed, their limbs not growing up to a due proportion with the head and trunk. This is especially the case with the lower limbs, and, above all, with the thighs. In many rickety skeletons, the thigh bones are not so long as the leg bones, and the expressed epiphysal lines are then, as in this specimen, very marked. In some instances there is more or less inequality in the length of the thighs, one femur falling short of the other in its growth. In some instances, as in our specimen, the bones are thin and bent; in some they are thick, even thicker, and with more pronounced ridges, than natural, as though the periosteal tissues not being, as usual, stretched or carried along the bone shaft by the extension resulting from the epiphysal growth at the ends, which growth is deficient in these cases, remain thicker, more vascular, and with more bone-forming capacity than usual upon the shafts. In some instances, where the bones are thus thick as well as short, there is little, or, it may be, no abnormal curvature of the shafts, the only evidences of the rickety condition then being the expressed epiphysal lines and the shortness of the bones, with perhaps this abnormal thickness and some asperities of the shafts. This is the case with a skeleton in the Musée Dupuytren in Paris, in which the flexures are slight, and it is the same in the skeleton at Norwich, of a man, aged 35, described by Mr. Hutchinson in the *Transactions of the Pathological Society*, xl, 229. The latter skeleton I have often seen, and notwithstanding the doubts expressed by that high authority—Mr. Hutchinson—I cannot but regard it as an example of rickets. The bulging of the lower epiphysal lines of the thigh bones, so marked in that skeleton, would alone appear to me sufficient evidence that rickets had in early life been the cause of the dwarfing and other peculiarities in this skeleton.

There are, however, other rickety features in that remarkable skeleton, which is now in the museum of the Norfolk and Norwich Hospital. Not only is there the peculiar bulging of the epiphysal lines at the lower end of the femur, at both ends of the tibia, at the upper end of the fibula, at the upper end of the humerus, and at the lower ends of the radius and ulna; there is also distinct curvature of the fibula backwards with the ridge, usual in rickets, thrown out in front. Both radius and ulna are preternaturally bent backwards, and the like is the case with the humerus in its lower half; the femur is bent a little forwards, the linea aspera is somewhat pronounced, and the neck of the bone has descended so as to form a right angle with the shaft. Moreover, the pelvis presents the antero-posterior flattening often observed in rickets, which is due to flexures in the sides of the iliac bones

above the sacro-sciatic notches, and the sacrum has yielded under the weight on its promontory so as to be turned on its transverse axis, and to have assumed an almost horizontal position. The ribs, from the third to the sixth inclusive, are slightly bent in front, so as to cause some flattening of the chest, and they are remarkably broad. The clavicles are bent upwards, and their external ends are flattened beneath, instead of presenting the usual truncated form. The vertebral column is well developed, and the skull fairly developed, but the limbs have not grown in due proportion to them.

In contrasting the rickety dwarfs with the true dwarfs, I must add that the moral, and perhaps the intellectual, balance appears, on the whole, not to be in favour of the former. Possibly the consciousness of disadvantage resulting from deficiency of stature or from deformity, or the indulgences accorded to such sufferers in childhood, may operate prejudicially upon the moral character, or there may be a closer relation between the development of the intellectual, the moral, and the physical than we are in the habit of recognising. The Norwich skeleton is that of a man who was executed in 1819 for the murder of his child and the attempted murder of his wife, and it is said of him that his personal deformity was in singular unison with his moral depravity. That acute observer and portrayer of men and manners—Charles Dickens—has well exemplified this point in the person and character of Quilp given in the *Old Curiosity Shop*: a large-headed, ugly-faced, bent-legged dwarf, who bullied and whipped his wife, and gloated in all sorts of cruelty, malice, and mischief. It is worthy of remark, as bearing upon the relation of the moral with the physical, that Mr. Roberts, whose observations on anthropometry are well known, finds that lunatics and criminals both show some deficiency in stature and weight as compared with the general population.²

REMARKS

ON

RENAL DROPSY:

A CRITICAL EXAMINATION OF DR. DICKINSON'S THEORY.

By GEORGE JOHNSON, M.D., F.R.S.,

Consulting Physician to King's College Hospital, Physician Extraordinary to Her Majesty the Queen.

DR. DICKINSON, in his learned and eloquent Harveian Oration,¹ has propounded a theory of renal dropsy which appears to me to be inconsistent with some well ascertained facts and acknowledged principles relating to the physiology of the circulation.

The orator refers to the indisputable fact that, in cases of cardiac dropsy, the dropsical effusion is the result of backward pressure through the veins upon the capillaries; and he now maintains that renal dropsy is the result of pressure acting from the heart through the arteries upon the capillaries. He admits the existence of hypertrophy of the left ventricle and of the muscular coat of the arterioles, and accepting this as evidence of an impediment to the onward flow of the blood, he says "the next question is where precisely is the arterial exit impeded, in the arterioles or in the capillaries?.....If the primary obstacle is in the arterioles, as Johnson supposes, the blood must be in a measure shut off from the capillaries, the pressure on them reduced, exudation from them lessened, and the view of renal dropsy which I am about to submit abandoned; but the doctrine of capillary obstruction preponderates, and, to use a political expression, holds the field. It has been urged that the capillaries are not muscular; on the other hand, it has been shown by Roy and

¹ See remarks on this in paper on Growth of Bones, etc., by me in the *Medico-Chirurgical Transactions*, xxliv, 120.

² Report of the Anthropological Committee of the British Association, 1883.

¹ BRITISH MEDICAL JOURNAL, October 24th, 1891.