Original Communications.

ON DISEASES OF JOINTS.

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II. EXCISION OF THE KNEE-JOINT.

For many years a strong feeling has prevailed against the removal of a limb for disease at the knee-joint by amputation of the thigh. Experience has shewn that in a very large proportion of cases, and especially among the young, recovery sooner or later takes place, and that the disease does not kill the patient, however great the amount of suffering.

Pathological investigation has contributed to support this opinion. The surgeon has blamed his own precipitancy in cases like the following, which I had an opportunity of examining ten years ago. A man, of moderately healthy constitution, had suffered from disease of the knee-joint for two years; the leg was slightly displaced backwards and outwards, and bent. He suffered severe and constant pain, and requested the removal of the limb for the sake of ease. This was done; and upon examination, it was found "that the tibia, fibula, and femur, were healthy, but united by firm fibrous tissue; the cartilage was in greater part removed from the ends of the bones; the patella was united by fibrous tissue to the outer condyle of the femur; there were a few points of osseous union; the tissues round the joint were thickened." It was rightly concluded that the pain which this patient endured was owing to the partial yielding of the uniting fibrous structures; but the joint was undergoing repair, and proper mechanical supports would have at once afforded complete relief without the necessity of any operation whatever.

Then amputation of the thigh is shown to be far more fatal than at one time supposed. A mortality of 30 to 40 per cent. is not too high; of those who survive, very many never permanently recover their former health. According to Mr. Hussey of Oxford, the mortality is not affected by the duration of the disease nor the extent of disorganisation of the joint. He also found that the operation on boys or girls under puberty was not successful: a larger proportion, than in the case of adults, either dying from its immediate effects or never recovering their health.

It is under these circumstances that the operation of excision of the bones composing the knee-joint has suddenly acquired a popularity, which has drawn upon it much general attention. The last two or three years are termed an eventful epoch in its history; and such indeed is the fact, for by the results attained during that period must its claims for universal approval be determined. The operation at the present moment stands at the bar of public professional opinion, supported by able advocacy, but about to be judged by the stern test of practical results.

Mr. Butcher remarks that it is essential to divide the institution of this operation into two distinct epochs: the first comprising all the cases operated on from the time of Park's first case in 1781 up to the period of its abandonment after Mr. Syme's failure in 1830; the second including all those from the periods of its revival by Mr. Fergusson in 1850 "up to the present time" (1855). Park, Filkin, the Moreaus, Mûlder and others of the first epoch performed the operation 19 times, and with the following results: 7 are reported "cured;" 11 died; 1 "recovered from the operation, but was not cured."

I will not stop to inquire into the particulars of these cases, the results of which appear to be "undoubtedly unsatisfactory;" but I will pass to the second epoch, the cases illustrating which may be investigated by all.

Between July 20, 1850, and Oct. 11, 1854, resection of the knee-joint was performed 31 times. Of the patients, 5 died; 18 are reported cured; 4 rapidly recovering; and 3 under treatment.

The results, says Mr. Butcher, from the foregoing statistics, as summed up in his table, are most startling; thirty-one operations are recorded; out of this number five have died. After a further analysis of the causes of death, he concludes; "Thus, then, out of 31 operations, 25 have recovered, out of which 17 are walking about with perfect use of the limb; six have been operated on since August last, yet in four of these union between the bones is already accomplished, and the remaining two are rapidly recovering."

In spite of this report, which is beyond all measure satisfactory, if true, the operation makes but slow progress in all those hospitals where surgery is staided by present experience as well as historical reminiscences. This flattering tale is scarcely believed; and I, as one of the sceptics, venture upon a yet further analysis of Mr. Butcher's collection of cases.

First. Of these 31 cases of resection of the knee-joint, the operation has been performed 18 times upon patients under 19 years of age; and five times upon patients between 19 and 21; in other words, 23 times upon patients at an age least prone to die of the disease, and most likely to recover from mutilation. And as a proof, of these 23 cases, in every one of which the propriety of the operation may be called into question, only 3 died, all males, and 2 of the number were aged 18 and 21.

Secondly. The 17 "cures" can only be understood by personal examinations, and they are difficult of access. They may, however, be included under the same category as the cases "under treatment" and rapidly recovering; for we are led to the belief that in all convalescence is progressing favourably.

Now, in referring to a list of cases published in Mr. Butcher's pamphlet *On Excision of the Knee-Joint*, we meet with the expressions (p. 33), recovered "with perfect use of the limb," "with a limb most useful in progression." "Good ankylosis, nearly quite firm." And at page 43 there is the drawing of a man, in whom the operation seems to have been unattended by any sensible deformity.

Such an amount of success does not, unfortunately, appear to be permanent, at least if inferences may be drawn from the opinions and conclusions of others less enthusiastic in the cause of excision of joints. I lately heard of a provincial surgeon having operated, with scarce a bad result, nine times on the knee-joint; and yet ere many weeks had passed a very different version of the proceedings was narrated to me by an eye-witness. As statements are so conflicting, I propose publishing, as occasion offers, an account of the present condition, from personal observation, of the subjects of these operations.

On December 10th, 1857, two boys, strangers one to the other, presented themselves for relief at the Royal Orthopædic Hospital. The first, John S., æt. 12, entered the out-patient room, resting on a single crutch, with the right knee semi-flexed, the toes just touching the ground; the limb appeared well nourished and not much smaller than the opposite; the tibia and fibula were drawn slightly backwards and outwards; the tendon of the biceps flexor cruris muscle was tense. Around the joint there were the marks of four fistulous passages, which had been healed some time. The disease had existed from the first about three years; and he was now free from pain. We directed that the limb should be supported by a roller and a jointed iron splint, to which a screw was attached so as to allow of gradual extension. The case is doing very well, and the boy will, before long, be able to use the straitened limb in progression with the aid of a stick.

I should not have related this case, but for two reasons. First, because the limb had been condemned for operation, according to the statement of the lad and his friends, in three of the large public hospitals, and it was only from the invincible repugnance of the patient that some surgical proceeding was not attempted; and secondly, because by the side of the boy stood the other lad, aged 9, upon whose left knee the operation of excision had been performed three years previously. It appears that about an inch or more of the tibia had been removed; the case went on most favourably, and in the list recorded in the work which I have quoted, it is included among those where firm union has taken place.

The boy supported himself on a pair of crutches; the limb was withered and shrunken, the muscles soft and atrophied; it was three inches and a half shorter than the sound limb; there was some amount of flexion and extension of the leg, but the lower limb could also be moved laterally. When the leg and foot were raised and examined by the hand, there was an evident and very strong inclination of the foot to turn inwards. The boy could put the foot to the ground and walk a few steps with a most irregular gait; it was said, however, that he could manage to go up and down stairs without much help. The limb appeared to me nearly worthless as an organ of support or progression, and in this opinion many of my colleagues concurred. Were the lad obliged to obtain a living by active exercise, it would be better for him to undergo at the present time amputation of the thigh, than to be encumbered with what was little more than a useless "flail."

This case, unless I am very much mistaken, is one of those quoted and recorded for the brilliancy of its result. And yet

the condition of the patient, as compared with that of the boy who had allowed the disease to pursue its course, offered a most strikingly unfavourable contrast. There was no prospect of amelioration; for it appeared that the mutilated limb had not become ankylosed at the knee, and, moreover, had ceased to grow with the rest of the body; every year, therefore, would make its difference with the opposite more marked, and give it a lower value. Any attempt at progression was accompanied by such distension of the spine, as would in a very short time have produced a permanent curvature of the severest form; while artificial support could only be obtained by means of a complicated apparatus, which would embrace the thigh about the middle, and, terminating in a very high-soled boot, surround the useless and withered member as a sheath.

ON THE MORTALITY OF INFANTS IN FOUNDLING INSTITUTIONS, AND GENERALLY, AS INFLUENCED BY THE ABSENCE OF BREAST-MILK.

By C. H. F. ROUTH, M.D.

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PART I.

THERE is an outcry everywhere against *red tape* and *routine*; yet surely these are very prevalent among ourselves and our medical institutions. Most of the latter, except a few which stand out in honourable contrast, do not give us the benefit of their experience; and thus it is that, in England, much information which might, if regularly published, lead to a just comprehension of subjects in medicine, is lost to the profession. The subject of my paper is in this category. The books and pamphlets that have been written on it are *legion*. De Watteville enumerates a hundred and thirty; yet all this foreign and British experience has, after all, effected but little good. I have, however, been compelled to use chiefly French returns, although of course wishing to make them bear almost exclusively on England and Ireland. Exactitude in the figures given is thus not to be expected. At most, I can only seek to bring out results which shall be *true relatively*; and this I hope I have done. Still, in many cases, my conclusions may be also *true absolutely*. Vital statistics, in the present day, are found to be governed pretty generally by the same common laws; and, although the actual figure of per centage may occasionally vary to a small degree, the difference is not by any means so great as it may appear to be at first, even where populations of different countries are spoken of. Hence it is often allowable to deduce from foreign data, which we do not possess for our country, conclusions which, nevertheless, are perfectly true when applied to ourselves. Take, for instance, Paris and London. The mortality may vary by 1 or 2 per cent., but nevertheless it is still governed in the two cities by the same general laws.

With these few remarks, necessary as an introduction, I proceed at once to the consideration of my subject.

Nearly all writers, who have endeavoured to explain the mortality of foundlings, have usually and chiefly attributed it to want of breast-milk; alluding, as examples, to the hospitals of Paris, Lyons, Rheims, a place called X, and Parthenay. Thus, in Lyons and Parthenay, where the children are suckled at the breast, the mortality is respectively 33.7 and 35; whereas, in Paris, Rheims, and X, where artificial feeding is either extensively or very generally employed, the mortality is respectively 50.3, 63.9, and 80 per cent. Many years ago, Sir Hans Sloane, in a letter to the Vice-President of the Foundling Hospital, quoted at length in Mr. Brownlow's Memoranda of that hospital (pp. 215-16), gives the following results:—

Date of admission.	Total.	To wet nurses.	Deaths.	To dry nurses.	Deaths.
March 5, 1741	30	2	—	28	15
April 17, 1741	30	7	1	22	11
May 8, 1741	30	17	4	13	8
	90	26	5	63	34

Six of the latter were taken out. The mortality of the former was 19.2 per cent., against 53.9 of the latter.

Facts like these appear certainly to tell very strongly against dry nursing. It is usual to add the figures of mortality in other hospitals, whose circumstances are often very different; and, these figures being very heavy, the inference is, that these children have died chiefly from want of breast-milk. Thus, the following may be taken as an example:—

Mortality in Foundling Hospitals in different parts of the World.

	Per cent.	Period.
Dublin	91	Close of last century.
Marseilles	90	
St. Petersburg	40	
Florence	40	
Barcelona	60	
Paris	80	1824
All France	60	
"	75	
Dublin	48.7	1818
Paris	50	1750-60
Mean	63.4	1838

A more recent and succinct account by M. De Watteville, who has very ably treated the whole subject, includes all France, and gives the following results.

Mortality of Foundlings in the Departments of France.

(a) Departments shewing the highest rate of mortality.		(b) Departments shewing the lowest rate of mortality.	
	Per cent.		Per cent.
East-Pyrénées	33.3 to 50	Haute-Saône	0
Seine-Inférieure		Haute-Garonne	2.2 to 2.5
Gironde	25 to 33.3	Haut-Rhin	2.5 to 3.3
Loiret		Jura	3.3 to 4
Seine-et-Marne	20 to 25	Hautes-Pyrénées	3.3 to 5
Aube		Ardeche	3.3 to 5
Cantal	20 to 25	Finisterre	3.3 to 5
Cher		Moselle	3.3 to 5
Côte-d'Or	20 to 25	Vosges	3.3 to 5
Ile-et-Vilaine		Gers	3.3 to 5
Loire-Inférieure	20 to 25	Lot-et-Garonne	3.3 to 5
Seine		Nièvre	3.3 to 5
		Basses-Pyrénées	3.3 to 5
		Bas-Rhin	3.3 to 5
Mean	26.5	Mean	3.6

Mortality of Foundlings in France in regard to the number of Expositions.

Highest.	Per cent.	Lowest.	Per cent.
Basses-Alpes	83.3	Haute Saône	0
Loire-Inférieure	76.9	Haut-Rhin	5.6
Loiret		Vosges	6.3
Seine-Inférieure	76.9	Moselle	11.3
Vaucluse		Ponts	13.
Ardeche	76.9	Finisterre	15.8
Aude		Ariège	15.9
Aveyron	71.4	Hautes-Pyrénées	16.3
Cher		Jura	17.4
Gers	71.4	Nièvre	17.5
Gironde		Bas-Rhin	17.8
Ile-et-Vilaine	60	Haute-Garonne	18.4
Manche		Lot-et-Garonne	19.2
Seine	60		
Mean	72.4	Mean	13.4

In comparing the deaths of *enfants trouvés*, whether with the total number or that of the *expositions*, this is the result obtained. One dies out of seven, from 1 to 12 years, or about 78 per cent.; and the mortality of such children in the first year of their existence is 50 per cent.

There is but one foundling exposed in every 39 births in France, while the number of foundlings in institutions is one to every 353 inhabitants. Again, the number of foundlings exposed is one-fourth the entire number of foundlings actually existing in institutions, whence it would follow that the mean duration of life of foundlings is four years. Fortunately, of late years this mortality has been diminishing. Thus, for all France, it was for children from 1 to 12,

Year.	Per cent.	Year.	Per cent.	Year.	Per cent.
1838	14.02	1841	13.30	1844	11.33
1839	13.37	1842	12.60	1845	11.30
1840	13.25	1843	11.35		

These results, albeit the mortality is lessening, are nevertheless bad enough. It is manifest, however, on closer examination, that, although these figures may represent the mortality of foundlings, their difference is too great to be referrible to one cause only, and that cause want of breast-milk; for, however fatal and injurious this want may be, it will appear in the