very marked with 7.5 per cent. of deviations from the normal, and all points in nutrition, nerve action, and mental status appeared more regular among them than with our English children. When it is pointed out that of English children 10.8 per cent., and of the Jew children 7.5 per cent. present deviations from the average development, it is obvious the proposition may be put thus: the English children to a percentage of 89.2 and the Jew children to a percentage of 92.5 have evolved an average type.

"It is very usual to see disordered conditions of the nerve system in children with defective construction of body; this was the case in 3071 children. We may also see these nerve disturbances in children of normal construction of body. This was noted in the report in 2416 children; here such signs would appear to result from the disorder produced by special circumstances rather than from defects in original construction. In illustration, children fatigued and in the condition of chorea may be described. Among the signs of fatigue are the slight amount of force expended in movement often with asymmetry of balance in the body; the fatigued centres may be unequally exhausted, spontaneous finger twitches like those of younger children may be seen, and slight movements may be excited by noises. The head is often held on one side; the arms when extended are not held horizontal; usually the left is lower; the hand balances in the weak type of posture often again more markedly on the left side. Facial expression is lessened, and the orbicular muscles of the eyelids are relaxed, leading to fulness under the eyes, while the eyes themselves fix badly.

"'Nutrition' is a somewhat vague word; as applied to children in this inquiry 'low nutrition' implies that the child as seen was thin, pale, or delicate-looking. It is not sufficient evidence as to good nutrition to look at the face only; this part may be well nourished, and yet the limbs may be thin. I usually felt the child's arms or legs. The most important fact noted with regard to these cases, which amounted to 2003, is that 1459, or 73 per cent., were cases presenting visible signs of deviations from the normal in development of the head, the features, and other parts.

"It seems, then, that there is a large group of children, amounting to nearly 3 per cent. of the children seen, who are so far defective in make as to be usually of low nutrition when seen in school. This fact is more marked in the 36,000 children in day schools; among them 23 per cent. of the boys and 38 per cent. of the girls who presented defects in development were noted as of low nutrition. It appears that these children are of lower general constitutional power, and tend to an ill-nourished condition under the stress of life and the many causes of mental excitement, which, while they render them sharper mentally, militate against nutrition of the body and its tissues. That the amount of mental stimulus received by children does lower their general nutrition seems to be further indicated as follows. If we divide the 36,000 day scholars into two groups, of 10,200 seen in day schools of the upper social class, presumably well-fed children, we find 5.2 per cent. of low nutrition, and among the 25,800 children in poorer day schools 3.9 per cent. The only explanation to be offered is that the upper-class children have more stress upon them than those of poorer social position. This subject will be pursued later on.

"*Methods of observation and research.*—The methods of examining the physical condition of children seen in schools must necessarily be more limited than those used in the consulting room. Arrangements already exist in the reports of Her Majesty's inspectors for determining the intellectual acquirements of school children; their family history and evidence as to their home life could not be obtained, and school managers naturally object to questions being asked of the children concerning their health, which, if put, would not be likely to elicit any trustworthy information; it is also impracticable to handle the children for the purposes of physical examination. The observer must then depend mainly upon inspection, and having determined beforehand what points to look for, he must record accurately what he sees. The importance of deciding on a number of physical signs for observation and record was appreciated before the work was commenced on a large scale. For the purpose of observing those finer balances and reactions of the nerve system which indicate neuro-mental potentialities, it is better to deal with the children in a uniform manner and not to handle them. The terms used in giving descriptions of children should each connote a fact seen and capable of verification and comparison, the essence of scientific description.'

A Clinical Lecture

ON

A SUCCESSFUL CASE OF CHOLECYSTOCOTOMY.

Delivered at the General Hospital, Birmingham.

BY THOMAS F. CHAVASSE,

SURGEON TO, AND LECTURER ON CLINICAL SURGERY AT, THE HOSPITAL.

GENTLEMEN,—This patient, a painter by trade, aged forty-seven, was first brought under your notice on Oct. 23rd, 1891. The clinical history then detailed to you showed that in May last he was transferred to the surgical wards by my colleague, Dr. Simon, in order to undergo the operation of cholecystotomy, as his symptoms and intense jaundice were attributed to gall-bladder concretions. On May 25th, 1891, the abdomen was opened, and the gall-bladder was found to be deeply situated under an enlarged right lobe of the liver. On incision, eighty gall-stones of various sizes, weighing, when dried, ninety grains, were removed. One of these, the largest, was very firmly impacted low down in the common bile-duct, and was only with difficulty removed after chipping off small portions at its edges. The wound healed well, leaving a small sinus at the lower extremity of the incision, and the patient left the hospital on June 28th. From time to time he was seen in the out-patient department, but as the small fistula remained patent, several pints of bile were daily discharged through it, causing an eczematous condition of the surrounding skin, great physical discomfort, and inability to earn a livelihood. By his own request he again entered the hospital, in order to undergo further operative treatment. When exhibited he told you that so long as the fistula was open and the escape of bile was free he experienced no pain, but when the external opening scabbed over he had violent pain, high fever, and on several occasions rapidly supervening jaundice, only relieved by measures that re-established the external biliary flow; that his stools were regular, but always clay-coloured, unformed, and offensive; and that the average quantity of urine passed in twenty-four hours was under thirty ounces. Your attention was also directed to the fact that, although the bile had been escaping externally for several months, the patient was apparently in good health, well nourished, not to say stout, and had an excellent appetite, which he satisfied in a manner most agreeable to himself, without any serious consequences, provided the escape of bile externally was encouraged. On inspection, at the termination of the lower end of the cicatrix of the former incision, a fistula was found, its very minute orifice admitting with pressure the smallest sized Bowman's probe. From this small opening bile was constantly oozing; the exact quantity it was difficult to estimate; but an absorbent dressing, consisting of cotton and wood-wool pads, which, on being first applied in the morning, weighed 11 oz., in the course of twenty-four hours increased to 35 oz.

On Oct. 24th an effort was made to close the fistula by means of the following operation:—The cicatrix in the abdominal wall was cut through, the incision being prolonged downwards one inch below the orifice of the fistula, into which a fine probe had been inserted. The gall-bladder was separated as freely as possible from its adhesions, a step which caused free oozing of blood. The anterior wall of the organ, presenting the appearance of fibrous tissue, was opened up from the fistula, so as to admit the points of two fingers. A very small gall-stone, the size of a split pea, black and friable, was found at the internal opening of the sinus, and removed. The inside of the viscus presented no remains of anything that could be called a mucous coat. The common bile duct could be felt like a thickened cord, but no stone could be detected as far as the finger could be passed along its under surface, and a probe introduced from the external wound could not be made to travel as far as the finger could reach, and it was not deemed desirable, for obvious reasons, to exercise force. The ascending colon was therefore sought for and readily exposed. Trusting merely to the sponge packing of the abdominal cavity, no clamps of any description being used, the anterior wall of the bowel was incised near its flexure at a point where it could be most readily approximated to the under surface of

the gall-bladder. A Senn's bone-plate was then inserted into the bowel, and an incision made into the under surface of the gall-bladder. Another of Senn's plates, pared down to suit the capacity of the viscus, was then introduced into the gall-bladder through the opening in the anterior wall, and the mucous coat of the colon was stitched, with two interrupted catgut sutures, to the edges of the incision on the under surface of the gall-bladder. The two bone-plates were then approximated in the usual manner and a pair of dressing forceps inserted into the colon from the gall-bladder, in order to prove that a free communication had been established between the viscera. The edges of the old fistula were then refreshed and the anterior wall of the gall-bladder sewn up by a continuous catgut suture and two interrupted ones of the same material. A large glass drainage-tube was introduced into the right kidney pouch at the lower extremity of the external wound and the peritoneal and abdominal wounds closed in the ordinary way, a dressing of cyanide gauze and corrosive sublimate wool being applied.

After the operation the patient was restless, and in the first seven hours three ounces of fluid, almost pure blood, were drawn off from the drainage-tube. A drachm of hot water was administered by the mouth every hour, and there was no vomiting. For the next two days the patient is reported as being comfortable, the wound sweet and healing, and two ounces of blood-stained fluid drawn off through the drainage-tube every twenty-four hours. On Oct. 27th the note is as follows: "Wound looks healthy, but there is a slight faecal odour about it; stitches removed from upper portion and strapping applied; from the tube an ounce of fluid escaped, of a yellowish-green colour and faint faecal odour." The following day there was a distinct faecal smell about the wound, and also in the fluid withdrawn from the tube. The temperature taken every four hours never rose to 100°F. On Oct. 30th, at 8 P.M., the dressings were found soaked with bile, the nurse's attention being drawn to the same by the patient telling her that he had just felt something give way and a rush of fluid take place externally, as before the operation. On removing the dressings bile was seen issuing from a small orifice just above the drainage-tube, together with a small quantity of clay-coloured faecal matter. A simple enema resulted in a copious dirty-brown-coloured stool, not offensive. From this date till Nov. 2nd, on which day the drainage-tube was withdrawn, the discharge was profuse, and owing to the dressings being soaked they had to be changed three times in twenty-four hours. On the evening of Nov. 5th an aloes pill (five grains) was given by the mouth, and on the following morning the bowels were twice freely moved through the fistulous opening in the abdominal wall without any pain, nothing passing per rectum. After this a simple enema was given daily, the lower portion of the wound slowly granulated, the bile and faecal matter passed by the fistula gradually lessening in quantity, and ceasing entirely on Nov. 20th. By the 29th the wound had healed, and the patient was allowed to get up. His faeces now are of a soft brownish colour, but not offensive, and are evacuated daily without artificial aid. Since Nov. 18th the average quantity of urine passed in twenty-four hours has been fifty-eight ounces; the appetite, digestion, and sleeping powers are all that could be desired.

From the persistence of the fistula it was evident that the lumen of the common bile duct was practically obliterated, the result, probably, of inflammatory changes, as a thorough exploration at the second operation failed to detect any impacted gall-stones. That this duct may be so strictured is proved by a case operated on by Dr. H. C. Dalton of St. Louis,¹ for empyema of the gall-bladder, in which the post-mortem examination revealed a circular cartilaginous ring one inch and a half distant from the duodenum, which completely closed the tube. This condition was attributed to an ascending enteritis. In the case just recorded the irritation caused by the existence of impacted gall-stones, and the manipulation necessary for their removal, are, I think, quite sufficient to account for the obliteration of the lumen of the canal.

Given the presence of this stricture, the following methods of treatment are suggested:—

Dilatation, as recommended by the late Professor Parkes,² by forcing a steel sound through the stricture, a finger in the peritoneal cavity guiding the point of the instrument.

This is an unsatisfactory proceeding, for, even if successful, it is probable, as in the strictures of other mucous canals, that it would need repetition to preserve patency, and this could not readily be undertaken. Another objection is that the duct itself might be perforated by the force required, and then some other proceeding to divert the bile would have to be undertaken. It is better, therefore, to proceed at once to establish an artificial channel between some portion of the bowel and the gall-bladder, and the choice lies between the small and large intestine. By the method described the operation was carried out in its entirety at one sitting, but in the earlier cases some of the operators have deemed it advisable to subdivide it into two or three steps, not establishing the communication between the gall-bladder and the bowel until adhesion had taken place, and then resorting to a plastic operation to close the external wound in the abdominal wall. In 1880 Professor v. Winiwarter³ had under his care a workman, thirty-four years old, in whom he brought up and secured the ascending colon to the gall-bladder, and four days later established a fistula between the two by means of a trocar. But the external wound not closing later on, in November of the same year he reopened the abdomen, and fixed a coil of the small intestine to the gall-bladder and established a second fistula. Both fistulae remained patent and bile and faeces were discharged on to the abdominal wall. A year later (Nov. 1881) an effort was made to close externally both fistulae by means of a plastic operation. This was successful as regards the small intestine, but that connected with the colon only granulated slowly after many cauterisations. But in a year and a half the patient was quite sound.

In 1887 Kappeler⁴ had a male patient aged fifty-five in whom the common bile-duct was closed by the pressure of a tumour connected with the pancreas. The operation of cholecystotomy was performed and 350 grammes of bile evacuated. An effort was made to reach the duodenum; but, owing to the enlargement of the liver and the depth at which this portion of the gut was found to be situated, it was deemed prudent not to attempt to connect it with the gall-bladder, but a presenting coil of jejunum was readily drawn up, incised, and its serous and mucous coats stitched to corresponding surfaces of the gall-bladder. The wound healed in a month. Professor Socin has similarly operated upon a woman aged fifty-one with complete obliteration of the common bile-duct and dilatation of the gall-bladder. Professors Tillaux and Terrier have also had successful cases. In this country, Mr. Mayo Robson⁵ has published a case in which he successfully closed a biliary fistula that had existed for fifteen months in a woman aged forty-three, upon whom it was necessary to perform cholecystotomy for empyema. In this case the hepatic flexure of the colon was emptied of its contents, and clamped between two elastic ligatures, to prevent extravasation during the necessary manipulations. The gut and gall-bladder were then opened, and their mucous and serous coats separately secured. As in my case, bile and faeces subsequently escaped externally, but in two months the wound had quite healed. Mr. Alfred Willett,⁶ in some remarks upon a case of his in which a biliary fistula remained after the gall-bladder had been incised for empyema, thinks it would be advisable to make use of the colon rather than the small intestine, as it is nearer the gall-bladder, easier to reach, and gives more space for the necessary manipulations. He likewise points out that a fistula established in connexion with the duodenum might result in the regurgitation of bile into the stomach. The practical experience of a single case leads me to believe that a coil of the jejunum or the hepatic flexure of the colon are the two most accessible for utilisation. Physiologically, the former should be preferred. But as my patient had passed some months of his life without any bile entering his small intestine, had eaten and drunk whatever he pleased, and in spite of the annoyance of an active biliary fistula had maintained his general health, I resolved to open whatever portion of the intestine should appear most advantageous at the time of the operation. On examination the ascending colon was found almost touching the gall-bladder, immediately beneath it, and although the jejunum could have been drawn up to the viscus a loop would have been formed, somewhat stretched and out of position, lying over the great

³ Prag. Med. Wochens., 1882, Nos. 21 and 22.

⁴ Korrespondenzblatt für Schweiz Aerzte, Jahrg. 17, 1887; also quoted by Klingel, Beiträge zur Klin. Chirurgie (Bruns), Band v., 1889.

⁵ Med. Chir. Trans., vol. lxxiii.

⁶ Brit. Med. Jour., vol. ii. 1886.

¹ Annals of Surgery, vol. ix., 1889.

² American Journal of the Medical Sciences July, 1885.

gut, possibly of no consequence, but perhaps liable to pressure if the colon became much distended. This decided me to open the large intestine. No elastic ligatures were used, as in Mr. Robson's case, as it was thought that a thorough sponge packing of the abdomen would prove effectual in keeping the peritoneum from being soiled, and also that the insertion of a Senn's plate directly the gut was incised would offer a firm point for sponge pressure whilst the gall-bladder was being prepared. This expectation was fully realised, and the ultimate result proved satisfactory to both patient and surgeon.⁷ These biliary fistulae are rare; for, as a rule, after the operation of cholecystotomy, unconnected with malignant disease, the wound heals quickly and well provided that the common bile-duct is patent. For this reason I would impress upon you the desirability of counselling patients, when sufficient evidence has accumulated to make the diagnosis of retained gall-stones possible, to submit to the operation for their removal. For, as in other chronic diseases of the internal organs in which time, rest, and climate fail to relieve, surgery must be resorted to for palliation or cure. The irritation caused by the retention of one or more gall-stones may possibly be a factor inducing malignant disease of the liver, and a calculus firmly impacted in the common bile-duct, in its efforts to reach the duodenum, is a serious complication in cholecystotomy necessitating crushing, as advocated by Mr. Tait, or incision and suturing of the duct as successfully carried out by Mr. Knowsley Thornton, or a series of manipulations, such as boring or chipping off pieces of the stone to permit of its extraction, all of which may directly and indirectly result in a stenosed condition of the duct, and subsequently rendering such an operation as we have been considering imperative. To describe the method here carried out I have used the term "cholecystocolotomy" in preference to that of cholecystenterostomy, employed by other writers, as pointing out definitely that the fistula was established in connexion with the colon.

In conclusion I have to express to my house surgeon, Mr. James Lea, B.A., M.B. Cantab., the indebtedness of the patient and myself for the time, the skill, and unremitting attention he so willingly devoted to the case.

⁷ The total loss of weight from May to the end of December was just under two stones.

ON AMPUTATION AT THE HIP-JOINT; WITH
RECORD OF TEN CASES.
By RICHARD DAVY, F.R.C.S. ENG., F.R.S.E.,
SURGEON TO THE WESTMINSTER HOSPITAL.

FOR fifteen years I have been most interested clinically in cases of hip-joint disease that demand surgical severity. I trust that a summary of my experience may have a practical value, and may render somewhat less the anxiety and responsibility of surgeons undertaking this the gravest

amputation of all—viz., amputation at the hip-joint. The gravity of such procedure ought to forcibly impel surgeons to take measures to prevent its necessity. Early diagnosis of ilio-femoral disease, intelligent treatment, and perseverance with general and local measures should be written in bold type on the title-page of its history. Yet, in spite of warning, care, and weariness of well-doing, cases even-tuate whose only solution rests in ablation of the joint or of the limb. Traumatism plays an important initial part; insanitation and poverty supplement it; an amputation at the hip-joint amongst the well-to-do classes is almost unknown, bearing out the accepted dogma, that "circumstances alter cases." Let us take an instance where continued and exhaustive suppuration, hectic, hill and dale on the temperature chart, emaciation or commencing lardaceous disease of the viscera compel interference; then as a rule it is better to excise the joint in view of giving a patient the chance of improving, and as a preliminary step in any future operation. Yet personally I do not view excision of the hip-joint very favourably in any but young subjects; children up to and below ten do admirably after excision of the hip; over that age the dangers are greater, and the ultimate usefulness of the limb not so good.

The record of my own personal experience shows that I have operated on ten patients in fourteen years, all except one have been markedly inveterate cases of morbus coxae; four of them had suffered excision prior to amputation at the hip-joint, profuse suppuration and resultant enfeeblement have been the immediate conditions necessitating amputation; all these doubly operated upon patients have recovered, one good argument in favour of subdividing an amputation at the hip-joint into two stages, as advocated by Keetley; the mortality is 20 per cent; both were men, aged twenty-nine and forty-three respectively. Two of the patients have subsequently died, one eleven, the other eight years after operation. The first of these (Case 2 on the table) was supposed to have had lardaceous disease of his viscera, at any rate he had copious albuminuria and epithelial casts in his urine in 1878. In speaking of this boy in 1880 it was remarked: "This boy had lardaceous disease of his viscera, with distressing ascites. The rectal lever was used. It would have been impossible to compress his aorta or common iliac artery through the abdominal wall, by reason of the distension. This boy's recovery is pleasing, and the albumen in his urine is daily diminishing." On April 7th, 1890, he was readmitted into Westminster Hospital from Dr. Barnardo's Home, the subject of urgent and uncontrollable sickness, with a puffy and discharging right stump of thigh, and an oedematous foot (left). His urine was albuminous, alkaline; sp. gr. 1016. The patient passed about 11 oz. of urine in twenty-four hours, and there was persistent diarrhoea. On May 1st a piece of bone was removed from the stump and sinuses were laid open. He got weaker, duller, and more helpless, dying on May 23rd, 1890. Appended are Dr. Hebb's notes of the necropsy. "These I need not state fully, but will give an excerpt. The kidneys weighed 9½ oz. and 9¼ oz.

TEN CASES OF AMPUTATION AT THE HIP-JOINT.

No.	Sex.	Age.	Date of admission.	Nature of disease.	Operation.	Departure.	Result.	Blood lost.
1	Boy	9	July 10th, 1876.	Morbus coxae (right).	Jan. 16th, 1877.	May 16th, 1877.	Recovery.	1½ oz.
2	Boy	5	Aug. 14th, 1878.	Morbus coxae (right). Excision previously.	July 16th, 1879.	Oct. 21st, 1879.	Recovery.*	1 "
3	Boy	3	Nov. 28th, 1879.	Caries. Left dislocation. Sequel of scarlet fever.	Jan. 20th, 1880.	June 24th, 1880.	Recovery.	5 "
4	Man	29	June 30th, 1880.	Pelvic necrosis (left).	Oct. 15th, 1880.	Oct. 15th, 1880.	Death from shock in 5 hours.	4 "
5	Boy	16	April 18th, 1882.	Excision, July 11th, 1882 (right).	Nov. 21st, 1882.	Feb. 24th, 1883.	Recovery.†	1½ "
6	Girl	13	Oct. 4th, 1885.	Old dislocation at 2 years old (left morbus coxae).	Nov. 13th, 1885.	March 28th, 1884.	Recovery.	2 "
7	Girl	23	Jan. 16th, 1885.	Excision of right hip-joint, Jan. 22nd, 1883. Flail limb.	Jan. 27th, 1885.	May 1st, 1885.	Recovery.	3 "
8	Man	43	May 4th, 1886.	Necrosis of left head, neck, and shaft of femur.	June 8th, 1886.	June 9th, 1886.	Death from syncope (18 hours).	2 "
9	Boy	10	Oct. 21st, 1886.	Morbus coxae (left).	Oct. 29th, 1886.	Jan. 25th, 1887.	Recovery.	2 "
10	Boy	14	Oct. 20th, 1890.	Morbus coxae (left). Excision, Nov. 9th, 1890 (elastic tourniquet.)	Jan. 20th, 1891.	April 21st, 1891.	Recovery.	2½ "

* Boy died May 23rd, 1890.

† Ambulanced to Harlington. Death in the Royal Free Hospital from pelvic necrosis on Feb 6th, 1890