Convalescence.—The only dressing now required is a piece of dry folded gauze over the wound, kept in place by adhesive plaster. The patient can get up, wearing an ordinary brassière for support. There is always a considerable indurated area in the breast at this period, and it persists for some time. Latterly I have placed the patient, during convalescence, upon iodine-in-milk therapy, similar to that described by Mr. H. Chitty for the treatment of actinomycosis. This has been followed by a more rapid absorption of the massive induration and an obvious improvement in the patient's general condition.

CONCLUSION

I submit that this technique, which largely follows that of Dr. J. E. Hobbs of St. Louis, is an advance on older methods. After a considerable experience of it I am confident that those who adopt the method will find that the patient is delighted with the painlessness of the post-operative period. Scarring of the breast is reduced to a minimum—obviously an important consideration. Convalescence is short—much shorter than when the classical treatment is employed. I have found that the after-treatment has received the unqualified approval of the attending nursing staff, and it seems probable that the method will appeal particularly to the more isolated practitioner, who, of necessity, must leave the after-treatment largely in the hands of a district nurse.

BIBLIOGRAPHY

- Benians, T. C.: *British Medical Journal*, 1911, i, 864.
 Chaput, H.: *Presse Méd.*, October 3rd, 1918.
 Hobbs, J. E.: *Surg., Gynecol. and Obstet.*, liv, No. 5, 839.
 Chitty, H.: *British Medical Journal*, 1929, i, 347.

A TREATMENT OF SYDENHAM'S CHOREA

BY

DONALD BATEMAN, M.R.C.S., L.R.C.P.

HOUSE-PHYSICIAN, HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET

The treatment of Sydenham's chorea, as conducted at present, may be said to resolve itself into enforced rest and the use of drugs. The most popular drugs for this purpose are probably salicylates, aspirin, chlorthal, arsenic, and nirvanol. Although much can be said in favour of the use of nirvanol, there are those who raise objection to it, and who state that harmful effects may arise from its administration even when the greatest care is taken. Of the others none is of proven and specific value in the treatment of this disease. Rest is the fundamental and most important mode of treatment; the drugs play a secondary part. It is almost impossible to secure complete rest in the patient's own home; especially is this so when dealing with the hospital class of patient, and it is among this class that the disease is most prevalent. Moreover, rest to be effective must be prolonged. The result is that we have throughout the country large numbers of cases of chorea occupying beds for extensive periods in the hospitals supported by voluntary contributions. If there could be discovered a satisfactory method of treatment that would bring about a quicker cure it would be a source of great economy and convenience, as well as of satisfaction to the patients' parents. The possibility that there is such a method has now been demonstrated with success by Dr. Lucy Porter Sutton of Bellevue Hospital, New York City. It was observed by her that an intoxication with fever resulting from phenobarbital therapy, when occurring in a case of chorea, caused a reduction in the choreic manifestations. The conclusion was drawn that the fever itself was responsible for the effect. On this basis it appeared that the deliberate provocation of fever during the course of an attack

of chorea would be a beneficial therapeutic measure. This proved to be so. The induction of fever is now used as a routine procedure in the treatment of chorea in the Children's Medical Service of the Bellevue Hospital. It is upon the observation of Dr. Sutton's methods and the experience derived from a number of patients with chorea whom it was my privilege to treat under her direction that this report is made.

TREATMENT BY INDUCED PYREXIA

Fever is induced by a triple typhoid vaccine containing 1,000 million typhoid and 750 million each of paratyphoid A and B bacilli per cubic centimetre. Other methods of causing artificial fever have been used and are at present being investigated, but the typhoid treatment is at present most commonly employed. The routine is as follows.

On the day following admission to hospital the patient is submitted to a thorough physical examination to make sure that there are no contraindications to treatment. The degree of chorea exhibited in the various limbs at rest and upon the performance of combined movements (walking, dressing, mastication) is estimated and classified as severe, moderate, or mild; this is done so that the daily progress may be roughly noted. It should be carried out each day before treatment. On the day treatment is commenced the patient receives a light breakfast (that is, no food within a short time of the induction of fever). The pulse and temperature are taken immediately before the typhoid vaccine injection. It is advisable to take the temperature rectally, as it is hard to estimate it accurately elsewhere once the fever is in progress. The vaccine is administered intravenously. It is customary to begin with 0.05 or 0.1 c.cm., as a reasonably high temperature is usually obtained with fairly small doses following the initial injections. The patient is then placed in a "blanket" bed, and is supplied with several hot-water bottles. It must be emphasized that the patient requires the most careful observation and attention from the nursing and medical staffs during the course of the fever. The desired object is the attainment of a temperature between 104° F. and 105.5° F. and its maintenance for four hours. At first it should be taken hourly, but once it is above 103° it is as well to take it every thirty minutes. The only objection to the temperature being taken frequently throughout the treatment is that each disturbance of the bed tends to lower the patient's temperature. Once the temperature is rising well it is advisable to remove the hot-water bottles.

During the course of the treatment the patient's thirst may be relieved by sips of water; copious draughts should not be allowed, as they may be harmful and also have an antipyretic effect. No food should be given; even without it vomiting may occur in a few cases. The earlier after injection the required degree of fever is reached the more likely is the temperature to go on rising. In these cases it is necessary to remove some of the bedclothes until the next temperature is read. The patient should be carefully watched. At the end of the period of desired hyperpyrexia the patient is placed between sheets and the temperature allowed to fall. But this is not an occasion for the relaxation of nursing attention. The temperature should be taken regularly until it is normal again. If it rises above 106° efforts should at once be made to bring it down. The bedclothes should be removed and the patient covered only with a sheet. A tepid sponging should be given and aspirin (5 grains) administered. In addition, an ice-bag may be applied to the head. The tepid sponging should be continued at intervals of a few minutes until the temperature is below 106°. It is not usual for it to reach this height, but if it does harmful effects do not ensue: 106° is used as an indication for active measures, as it is well inside the limits of safety. If the patient has been carefully watched this degree of pyrexia should not be reached at all, as it should have been possible to regulate the temperature by adjustments of the bedclothes, based on previous observations. In this connexion it is important to note whether the patient is of a type that sweats easily or not. In those who do not sweat much the temperature is apt to rise fairly rapidly to a considerable height, and close attention is therefore indicated. With patients who sweat easily there may be difficulty in getting the required temperature, and they should be wrapped closely in their blankets when it is seen that the temperature

is not rising. This measure may send the temperature up quickly, and the patient should be watched for this eventuality.

The treatment should be continued each day until the choreic movements have disappeared. It is usually found that the dose of typhoid vaccine must be doubled each day in order that it may be effective, but no general rule can be made as patients react differently. It is a good plan in starting to increase the dose by half that of the day before. A rough guide is that it should be increased freely when the previous day's dose gave a poor result and only slightly when the former one was attended with a very high fever. But even after a high fever a larger dose is usually necessary if an adequate fever is to be maintained. If it is found that a dose of vaccine has not been sufficient, it may be supplemented two to four hours later by another and smaller one.

Most patients show a marked improvement after two or three treatments, and are usually free from choreic movements in a week. As would be expected the milder cases improve more quickly than the severe ones. Patients with a long history of chorea before admission to hospital may be slow in their response to treatment, and it should be remembered that in these patients habit movements may be superimposed upon those that are essentially of choreic origin. At the end of the fever treatment the patients are kept in bed for a few days and are then allowed up for a week before discharge from hospital. The usual length of stay in hospital is three weeks. This compares very favourably with the seven weeks which most other modes of treatment require. Mention may be made of those cases of chorea which on admission to hospital show a cardiac murmur of rheumatic origin. This need not be regarded as a contraindication to treatment, unless it is thought that the circulatory system cannot support the effects of a high fever. The treatment so far has proved satisfactory. It has considerably shortened the duration of the stay in hospital and is not accompanied, so far as is at present known, by complications. The patient's discomfort attendant upon the treatment is much less than might be expected, and is probably preferable to the weeks in bed and long continuance of the choreiform movements associated with other methods.

I have to thank Dr. Charles Hendee Smith and Dr. Lucy Porter Sutton of the Children's Medical Division, Bellevue Hospital, New York City, and the Department of Paediatrics, New York University, for allowing me to treat cases under their direction, for teaching me their methods, and for permitting me to write this note.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

POST-OPERATIVE INTESTINAL OBSTRUCTION

A case reported by Mr. A. Davies under this heading in the *Journal* of January 7th was interesting and helpful. The following case, which came under my care, involved a similar sequence of problems, but with variations.

The patient, aged 10, was admitted to the St. Albans and Mid-Herts Hospital on November 6th, 1930, with the history that for three days she had had abdominal pain with vomiting.

On November 7th an appendicectomy was performed. The appendix was found to be ulcerated but not perforated, and the abdomen was closed without drainage. Subsequent progress was uneventful and the patient was discharged as fit fourteen days later.

On February 28th, 1932, the patient was re-admitted with a history of sudden onset of abdominal pain on the previous day, frequent vomiting, and pain on micturition; temperature was 101° and pulse 146. On examination there was no abdominal distension, but rigidity and tenderness, especially in the right lumbar and right iliac regions. A laparotomy was performed that evening, and a nine-inch loop of small intestine was found constricted by an adhesion. The constricting band was incised, and the gut, which was dark purple in colour, on being treated with warm saline so improved in appearance as to be considered viable. The abdo-

men was closed without drainage. During the following three days the patient's condition was satisfactory: the temperature fell gradually to normal on the third day, and the pulse rate decreased. Much abdominal pain, with occasional vomiting, was not considered abnormal. Anti-gas-gangrene serum was given with morphine and heroin, and on the third day an enema was administered with good result and passage of flatus. On the fourth day blood and mucus was passed per rectum, vomiting increased in frequency and became faeculent, and the abdomen became more distended. An exploration was undertaken, and the affected loop of bowel was found to be gangrenous and perforated. The pelvis was full of foul intestinal contents, which welled out of the abdominal wound. A Paul's tube was inserted into the healthy gut proximal to the gangrenous portion, the latter being brought into the lower margin of the wound and left *in situ*; the pelvis was drained. Resection was considered inexpedient in view of the condition of the patient, but especially in view of her age. Subsequently the ileum drained freely through the enterostomy; the wound gaped widely and ten days later the segment of bowel, together with its mesentery, separated through the lower extremity of the wound.

On April 19th a further operation was undertaken, the skin of the abdominal wall having become severely excoriated by the digestive action of the ilial contents. There was an extensive "matting" between coils of gut. The ileum above and proximal to the enterostomy was clamped and divided, the distal end invaginated, while a lateral anastomosis was performed between the proximal portion of ileum and the transverse colon. On April 22nd the bowels opened naturally. The patient was again discharged on June 4th, both the local and the general condition being very favourable.

After re-admission three months later the functionless enterostomy was closed by dissection and invaginated extraperitoneally, and the patient finally discharged on October 29th.

This case demonstrates, as did the one previously recorded, the difficulties of diagnosis in surgical conditions of the abdomen. In the interim between the initial operation for intestinal obstruction and the following exploration, the patient's general condition was no criterion of the pathological state. The case also illustrates the inherent faculty of the peritoneum to procure the restoration of vital functions. This has been the only case in my experience of the separation of a segment of gut together with its mesentery by natural means and its extrusion through the abdominal wound.

D. S. MORGAN JONES, F.R.C.S.Ed.
Honorary Surgeon, St. Albans and
Mid-Herts Hospital.

P.S.—Since the above was written the recurrent formation of a mucocele necessitated a complete resection of the blind gut, which was undertaken on March 7th with an entirely successful issue.

A CASE OF GENERALIZED VACCINIA

Although, after vaccination, secondary pustules are sometimes seen round the primary mark, a case of generalized vaccinia is comparatively rare.

On December 1st, 1932, I vaccinated D. H., a well-nourished, healthy baby weighing 15 lb. and aged 3 months, using Government establishment lymph, and making one scar on the left arm. At the same time I vaccinated an elder child, H. H., aged 10 years, in the same house, using the same lymph. On December 7th I inspected both arms, and found them clean and healthy, presenting the features of a normal six-day vaccination. On December 20th the medical officer of health asked if I would call and see the younger child, as some spots had broken out over the body.

When I saw it I learned that the spots had begun to appear about three days previously. The outer surface of the left arm was bright red, the colour extending from 1 inch below the shoulder to about 1½ inches above the elbow. This arm was covered by necrosed skin, and presented the appearance