suffering a great deal of inconvenience. But life is not at stake, and it must be borne in mind that even allowing for the great facility and skill with which such operations are now being performed they are not altogether devoid of risk. My personal experience of the operation in neurasthenic cases has not been favourable, and I hesitate to recommend it. Even when performed with due skill and success the patient has not always been benefited by it; the old symptom of pain after food has persisted, while the general condition has in some cases been made even worse than before. The shock of the operation seems to be too much for the enfeebled nervous system, and I suspect that if the after-history of surgical proceedings in neurasthenic cases were followed up, it would be found that this is very often the case. It is safer in incurable cases to provide a stomach tube and teach its use, warning against its abuse, for some nervous patients will wash out their stomachs three or four times a day. It is enough to wash the stomach out at bedtime twice a week, but if there be any increase of discomfort, the tube may be used every night for a few nights in succession.

Lastly, a light abdominal belt fulfils an obvious indication and may in certain cases be worn with advantage.

CONCLUSION.

As the result of this survey the following propositions are submitted:

1. That atonic dilatation of the stomach is a common condition; that it occurs about twice as often in women as in men, and most frequently between the ages of 20 and 50, and that it is ten times more common than dilatation from obstruction, which generally occurs after 30 years of age.
2. That it is caused by neurasthenia or by any prolonged debilitating illness which may set up neurasthenia.
3. That there are no characteristic symptoms and no correspondence exists between the amount of dilatation and the severity of the symptoms.
4. That the diagnosis can in the great majority of cases only be made by the distension of the stomach by CO₂, evolved from 120 gr. of sodium bicarbonate and 90 gr. of tartaric or citric acid.
5. That the prognosis does not depend upon the extent of dilatation, but rather upon the duration of the symptoms, the general health of the patient, and the effect of treatment.
6. The treatment must be mainly that of neurasthenia, supplemented by the use of such drugs and diet as may be indicated by complications, for example, gastritis.
7. Gastro-enterostomy often fails to relieve these cases.

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HAIR-BALLS AND OTHER CONCRETIONS IN THE STOMACH.

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CERTAIN concretions are apt to form in the stomach and to give rise to severe abdominal symptoms accompanied by an abdominal tumour. As a rule they consist of hair, cotton, wool, or string, but occasionally they are composed entirely of vegetable fibre or resinous material.

Hair-balls of sufficient size to attract attention are very rare, and only about 24 cases are recorded in the literature.* When comparatively small the mass is round or oval in shape, and occupies the pyloric region, where it acts like a ball-valve; but as it increases in size it becomes moulded by the gastric contractions until it forms a solid cast of the stomach, and may even extend into the oesophagus (Best) or through the pylorus into the duodenum and jejunum (Gull, Pollock). It is smooth, compact, and heavy, and consists of a vast number of hairs, varying from 2 in. to 20 in. in length, which are closely interwoven and agglutinated by mucus and food débris. In Gull's case the component hairs were of three colours, and could be recognized as belonging to the patient and her two children. Sometimes the hair is mixed with

cotton, thread, or pieces of string. The largest concretion on record weighed 4 lb. 7 oz. (Russell). The habit of swallowing hair is not confined to the human subject, but is met with in many of the lower animals, and especially in cats, the Angora breed of which are said frequently to die from gastric concretions at those periods of the year when the fur is shed (Ohepmell). Lunatics usually prefer harder substances, such as nails and crockery, for periodic consumption, but in the case recorded by Quain fatal perforation of the stomach ensued from a ball of cocoa-nut fibre weighing 4 lb.

Concretions composed of vegetable matter are occasionally found in the stomachs of persons who have consumed large quantities of fibrous roots and such like substances owing to a perverted appetite, or from a superstitious belief in their medicinal properties. Thus in Kooyker's case a mass of starch and vegetable fibre, weighing 29 oz., was found in the stomach after death, while in that recorded by Schreiber the organ was completely filled by a mass of roots (*Schwarzwurzel*).

Stones or gastroliths are extremely rare, and only four authentic examples have been recorded. They usually consist of shellac, which has been introduced into the stomach in the form of polish or varnish, and may either be single or multiple (Friedlaender). As a rule they do not exceed 3 oz. in weight, but in the case recorded by Tidemand the mass weighed 1,500 grams.

The local effects of a concretion consist of dilatation of the stomach with ulceration of its mucous membrane, while occasionally the viscus becomes fixed by adhesions to the pancreas or the abdominal wall (May). When the mass extends into the oesophagus or duodenum, the corresponding orifice of the stomach is dilated and incompetent. Occasionally the irritation of the foreign substance gives rise to papillomata (Best).

SYMPTOMS.

The fact that various foreign bodies are frequently found in the alimentary tract of lunatics has given rise to the impression that gastric concretions only occur in persons of unsound mind. This belief is not only erroneous but has been the cause of serious mistakes in diagnosis, since more than one writer has stated that had he been aware that sane persons were liable to the complaint, he might have suspected the nature of the abdominal tumour and have saved his patient's life by a timely operation.

(a) *Hair-Balls*.—Out of the 24 cases recorded of this kind no fewer than 23 were females, the youngest of whom was 18 and the oldest 34 at the time of death.† There was never any indication of mental disease, and in several instances it was expressly stated that the patient was neither hysterical or particularly emotional. The habit of hair swallowing is usually acquired in early life when the hair is worn loose upon the shoulders. In the majority of cases it originates in the trick frequently practised by young girls of holding a lock of hair in the mouth while reading a book, or of biting the ends of a coil when angry or excited. In other instances it seems to arise from the inclination which is so strong in some

* Schönborn stated in 1883 that only 7 cases had been recorded, but he appears to have ignored English and American literature.

† Since this article was written Paton has reported the successful removal of a hairball from a girl 8 years old.

people to fill the mouth with any substance with which they happen to be working, such as cotton in the case of dress-makers, wool or thread among weavers, or tow, flock, and cocoa-nut fibre among those engaged in making mattresses or mats. Finally, it may be due to some eccentricity of which the patient herself is often quite unconscious. Thus in one of the cases the husband stated that whenever his wife became deeply interested in a subject she used to pull two or three hairs from the back of her head and put them into her mouth, while in another it had long been observed that the lady would pluck hairs from her children's heads whenever she played with or caressed them. In the case related by Inman, the patient was accustomed to clean her comb with her fingers and quite unwittingly to put the little bunch of detached hair into her mouth instead of into the toilet tidy. In each of these several conditions it is probable that the mouth and throat become so tolerant of the presence of the foreign body, that hairs are constantly swallowed with the saliva without occasioning any unpleasant symptoms.

Until the concretion has attained a considerable size and has seriously diminished the capacity of the stomach, it seldom produces any special symptoms, and even when the organ is completely filled with hair the patient may be quite free from pain or vomiting (Russell, Thornton). As a rule, however, after a prolonged period of intractable dyspepsia the patient begins to experience severe pain after meals, accompanied by flatulence, distension, and nausea. Gradually the pain becomes localized to the epigastrium or left hypochondrium, and is increased by pressure and physical exercise. Vomiting is seldom absent, and sometimes occurs after every meal. The vomit is scanty, acid, and sometimes bilious or slightly blood-stained, but hair is seldom if ever observed in it. Anaemia is always present, any may be accompanied by dyspnoea, palpitation, and oedema of the feet. The appetite is variable, but occasionally continues good; the tongue is foul, the breath offensive, and attacks of diarrhoea are apt to alternate with periods of constipation. Emaciation proceeds very slowly unless the vomiting is excessive.

Physical Signs.—In every case there is a well marked abdominal tumour, which is often large enough to be visible through the parietes. When comparatively small the tumour is globular in form and occupies the epigastrium, but as it enlarges it approximates closely to the shape of the stomach, and has been variously described as "kidney-shaped," "crescentic," or "like a spleen." As a rule, it is situated in the epigastrium or right hypochondrium, but it may involve the umbilical or left lumbar region. In Russell's case the stomach was so displaced by the weight of the hairy mass that the pylorus lay in the pelvis, while the tumour occupied the whole of the left side of the abdomen. On palpation the swelling feels hard, smooth, and superficial, and has a well-defined lower border. It is dull on percussion, and seldom exhibits any tenderness unless it has been subjected to prolonged manipulation or there is coexisting ulceration of the stomach. One of the principal features of the tumour is its extreme mobility, which permits it to be displaced downwards and to the left, or to be pushed upwards beneath the costal margin in the direction of the spleen. If secondary ulceration has occurred, however, adhesions may form which fix the organ to the pancreas or abdominal wall (May). Peristaltic movements are seldom visible, but the passage of flatus between the concretion and the gastric wall may sometimes be both seen and felt (Best). Occasionally other hard, globular, and movable masses may be detected to the right of the navel or in the iliac fossa, owing to the formation of secondary hair-balls in the duodenum or ileum. In every case the growth of the tumour is very slow, and except, perhaps, for a sensation of weight or dragging, it does not give rise to any special inconvenience.

Duration and Complications.—The duration of the disease is difficult to determine, but it probably averages about fifteen years. In May's case the patient was said to have practised hair-swallowing for twenty-two years, and in that recorded by Russell the tumour was known to have existed for seventeen years. With the exception of two in which laparotomy was performed, all the cases terminated fatally. In nearly one-half of the entire number death was due to ulceration and perforation of the stomach, and in two others the duo-

denum was the seat of a similar lesion. Fatal haematemesis occurred in one instance, while in two cases intestinal obstruction was responsible for the fatal issue. In the rest death ensued from exhaustion consequent upon vomiting and diarrhoea.

(b) Vegetable tumours are much less common than the preceding, and usually consist of fruit-skins, fruit-stones and stalks, or of the fibrous roots of certain medicinal plants. For several years there is complaint of pain and vomiting after food, with loss of appetite, emaciation, and an irregular action of the bowels. Haematemesis and cachexia are occasionally observed. The tumour seldom attains the size of a hair-ball, and is usually situated in the epigastrium. As a rule death ensues from perforation of the stomach, from haemorrhage, or from exhaustion, but occasionally the foreign body undergoes disintegration, and is either vomited or voided by the bowel.

An individual, 52 years of age, came under medical treatment for severe pain and vomiting after meals, with progressive loss of flesh. Haematemesis had occurred at intervals, and there was marked cachexia. In the epigastrium a rounded tumour, about the size of a small apple, could be felt, which was dull on percussion, movable, and slightly tender. The diagnosis was obscure, and opinions varied between enlarged spleen, floating kidney, and cancer of the stomach or colon. Death took place from exhaustion at the end of three years. At the necropsy the tumour was found to consist of a kidney-shaped mass of vegetable material within the stomach weighing 29 oz., along with two other masses each about the size of a hen's egg (Kooiker).

(c) *Gastroliths.*—The subjects of this curious complaint are usually men about middle age, who, from a morbid desire for alcohol in any form, have been in the habit of drinking varnish, polish, or any other resinous fluid containing it. As a rule the mass is too small to be detected by palpation, but in the case related by Tidemand a large tumour of stony hardness was present in the epigastrium. Pain, vomiting, and other symptoms of gastric irritation are almost always present, and haematemesis sometimes occurs. Death ensues from exhaustion, perforation of the stomach, or from intestinal obstruction (Friedlaender, Langenbuch).

Diagnosis.—It is probable that small concretions not infrequently occur in young girls who constantly bite or suck their hair, but that discontinuance of the habit when the hair is dressed in the adult style is followed by a gradual evacuation of the ingested material. In one very obstinate case of dyspepsia which came under my notice, both sides of the head had been almost denuded of hair by continual biting at it, and it was only after the dangers attendant upon a hair-ball had been explained to the young lady and her friends, and measures adopted to prevent a repetition of the practice, that the gastric symptoms gradually subsided. It is therefore advisable in every case of obstinate dyspepsia in a girl to make inquiries with regard to her habits and occupation, and whenever a painless tumour in connexion with the stomach or intestine is found in a young adult to bear in mind the possible existence of a concretion.

The fact that in most of the recorded cases the concretion was mistaken for a malignant growth renders its differentiation from gastric cancer a matter of primary importance. In this connexion three points are deserving of special attention, namely, the age and sex of the patient, the duration of the complaint, and the physical characters of the tumour. Cancer of the stomach is very rare before the age of 30, and its precocious development is more common in men than in women, while hair-balls almost always originate before puberty, and are almost exclusively met with in females. Malignant disease in early life usually develops rapidly, and often runs such an acute course that life is destroyed within a few months; concretions, on the other hand, are accompanied for a length of time by symptoms of dyspepsia, and seldom prove fatal in less than ten years. Lastly, a cancerous tumour is nodular, tender, more or less fixed in the upper abdomen, and increases rapidly in size; while in most cases the stomach is somewhat dilated, and its contents are devoid of free hydrochloric acid. Hair tumours, on the contrary, are globular or crescentic in form, situated in the epigastrium or left side of the abdomen, smooth, hard, painless, and so freely movable that they can be pushed upwards beneath the left costal arch. The outlines of the

stomach cannot be distinguished from those of the tumour, free hydrochloric acid is usually present in the vomit, and it is found impossible to insert a tube more than 2 in. into the viscus.

When a concretion gives rise to a palpable tumour, but is not accompanied by gastric symptoms, it is most likely to be confused with an enlarged spleen, a floating kidney, or with a faecal accumulation in the colon.

If the stomach happens to be dislocated, as in Russell's case, the differential diagnosis from enlarged spleen may be very difficult. It is usually to be observed, however, that the tumour is exceptionally movable, and that its length is out of proportion to its width. The inner margin is also less distinct than in the case of the spleen, the characteristic notch is absent, and the passage of a soft tube or an attempt to inflate the stomach will at once show if that organ is empty and in its proper situation. A loose kidney upon the left side is generally associated with a similar dislocation of the opposite one. It is more movable than a gastric concretion, and can be displaced low enough to permit the organ to be grasped between the hands. Owing to its situation behind the bowel, the percussion note is resonant instead of dull, and manipulation is often accompanied by pain. In case of doubt, inflation of the stomach should be practised, when the relation of that viscus to the tumour may be readily ascertained.

A faecal accumulation in the colon has a less defined shape, is less movable, and is much softer than a gastric concretion. The passage of a tube will show that the stomach is empty and situated above the tumour, while the administration of several large enemata will either diminish the size of the mass or remove it altogether.

Treatment.—If the tumour is small in size it may be possible to secure its removal by an emetic, but this method is always fraught with a certain amount of danger on account of the frequent coexistence of secondary ulceration of the stomach or duodenum. In the case of large tumours medicinal measures are useless, and recourse must be had to gastrotomy. In the cases recorded by Thornton and Schönborn the concretions were successfully removed after the nature of the tumour had been ascertained by an exploratory incision, while in that related by Schreiber a correct diagnosis of bezoar was made from the history and general features of the case.

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DYSPEPSIA AND ITS TREATMENT BY
ANTISEPTICS.*

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IF I may trust my own experience, I should say that there is probably no disease which is more constantly brought under the notice of the general practitioner or the out-patient physician of a hospital than dyspepsia. It affects all classes of the community, is dependent upon a wide variety of causes, and presents itself in several different forms. So common is it that it ceases to possess much interest for the large proportion of practitioners, and is too frequently dealt with empirically by the administration of alkalies or acids combined with a course of mercurial or other antibilious pills. Too little attention is paid to laying down the law clearly as regards

dietary, exercise, and general habits of life, and the unfortunate dyspeptic is dismissed as being too unimportant to deserve much attention being given to his case. It cannot be wondered at that, under such circumstances, satisfactory results are seldom attained, nor that the sick man, having exhausted his patience by unavailing seeking relief from one doctor or hospital after another, ultimately either falls into the hands of the omnipresent quack, or resigns himself to what he comes to believe is a hopeless condition of ill-health from which he is condemned to suffer for the rest of his life. He knows, as all the world does, that no danger to life is involved, and the certainty that his ailment, though probably permanent, is not serious only serves to add to the discontent he feels at the martyrdom he is doomed to endure. It is probably not fully recognized by the profession generally that as great a depth of distress may be engendered by long-continued dyspepsia as by the most deadly diseases, and that there is no derangement of function to which the human system is liable which can more effectually wreck the happiness of both the individual and those with whom he is brought into daily contact, or more certainly interfere with the quality and quantity of the world's work which he is called upon to perform.

It is true that those cases which depend upon excess of food and irregular habits get rapidly well under the influence of a limited dietary and a simple life, but "to earn sixpence a day and live on it" is not a rule, however commendable theoretically, that many patients can be induced to follow, nor is it one likely to prove, under any circumstances, more than temporarily useful.

The importance of dyspepsia as a factor in the sum total of human misery has for many years been strongly borne in upon me as a result of a fairly extensive experience of the disorder, both in private and hospital practice, and I am induced to record my belief in the method of treatment I am about to relate by the satisfactory results which it seems to me to have produced. It goes without saying that every case is not cured, nor, it may be, is the relief afforded always permanent; but taken as a whole, it has answered better than any mere haphazard system, and has at least provided a working plan by which cases may be roughly classified and treated medicinally on well-defined lines according as the combination of symptoms justifies their relegation to one variety of the disorder or another. I make no attempt to produce statistics in support of this assertion, as I might easily do from the out-patient records of the Waterloo Road Hospital. Figures may be made to prove almost anything, and treatment statistics, especially in such a variable disease as dyspepsia, can possess but little practical value.

In perfect health the various processes of digestion go on unconsciously. We only become aware that we possess a digestive apparatus when its functional activity becomes perverted by abnormalities either of food, or of the mechanism or chemistry of digestion, or of micro-organic activity within the alimentary canal. Age, sex, heredity, occupation, and environment are secondary factors in the etiology of the disorder, but they have to be borne in mind as conditions often requiring consideration in the scheme of treatment adopted. Many cases arise secondarily to disease in other organs, but their treatment becomes merged in that of the primary affection.

FORMS OF DYSPEPSIA.

One, or more frequently a combination of several, of these causes is responsible for the condition which we call dyspepsia. The disorder may be acute or chronic, and the chronic type is capable of differentiation into subdivisions. These are, of course, arbitrary, and no hard-and-fast line can be drawn between them; they are interdependent and overlap at every corner; but there is, as a rule, such predominance of certain signs and symptoms as to stamp every case with sufficient individuality to allow of its being classified under one of three headings—*atonic*, *acid*, or *nervous*. The same general symptoms are found more or less in all cases, and their various combinations are almost as numerous as the cases themselves. Many of them are undoubtedly dependent upon the production and absorption of poisons. Sir Lauder B. Burton says:

Not only do undigested articles of food act as mechanical irritant to

* Read before the South-West London Medical Society.