especially liable to paroxysmal disturbance during sleep. The far greater prevalence of night-terrors than of day-terrors may well be related to the extraordinary sensitiveness and activity of some of the higher centres during sleep, which is seen in the readiness with which a stimulus which in the waking condition would produce little or no effect will during sleep start a whole series of reactions (dreams as we call them) in the higher centres. While, however, it seems most probable that both night-terrors and day-terrors should be regarded as paroxysmal neuroses, the attacks during sleep are in my experience rarely, if ever, idiopathic. Almost always an exciting cause can be found and its causal relation proved by the cessation of the attacks after its removal; and I should suspect, therefore, that day-terrors also will prove to be symptomatic rather than idiopathic. In the case of night-terrors my own experience has been that in the vast majority the exciting cause is some gastro-intestinal disorder, and by far the most common cause is that chronic catarrhal condition to which Dr. Eustace Smith gave the name of "mucous disease." The insidious character of this disorder may account for the discrepancy of opinion as to the part played by gastro-intestinal disorders in night-terrors. It is not the glaring case of diarrhoea or the troublesome case of vomiting that is to be looked for with night-terrors, but a much less obvious condition which has often not attracted the mother's attention at all. The children are "peaky" and thin, often languid and irritable, the face is pale or sallow with a bluish translucent puffiness of the lower eyelids, the appetite is capricious, the bowels are costive rather than loose, and the stools contain—not necessarily continuously but from time to time—an excess of mucus, or "slime" as the mother calls it. Sometimes there is some vague complaint of occasional abdominal discomfort and often threadworms are present. These are the symptoms which one finds so often with night-terrors, and whatever they may mean—and it seems probable enough that they indicate a chronic catarrh of the large intestine—their causal relation to night-terrors is made almost certain by the disappearance of the night-terrors when the gastro-intestinal disorder is cured. I have alluded to this point in some detail because it seems that day-terrors may be excited by this same reflex stimulus from the gastro-intestinal tract. In two of the three cases under my care this chronic catarrhal condition of the bowel was thought to be present and in both cases the good effect of potassium citrate, together with rigid dieting, was very marked. In Case 2 after a few weeks the child passed a large number of threadworms one day, and although the day-terrors had much diminished before this, both they and the night-terrors seem to have ceased since. The effect of constipation was marked in this case; it was particularly observed that the day-terrors were more frequent when the bowels were confined. In Case 3 the mother volunteered the information that the child complained frequently of stomach-ache, but apparently not at the time of the attacks. It seems, therefore, that the exciting cause of day-terrors is, in some cases at least, some gastro-intestinal disorder, but that the attacks are not due to any painful sensation. Some observers have thought that night-terrors are produced by respiratory difficulty, particularly by the obstruction caused by adenoids. So far as my own experience goes this is quite exceptional and there was nothing to suggest any such cause in the three cases mentioned above. At the same time it seems quite likely that if such peripheral irritation as the chronic disorder of the bowel mentioned above may be the exciting cause of day-terrors, other forms of irritation, such as interference with respiration by adenoids, might also cause them.

The immediate prognosis in day-terrors would seem to be good. They are easily diminished by treatment and probably the cure is permanent so long as the exciting cause, whatever it may be, is avoided. There is no experience at hand, however, to determine what the future of these children may be. It is an approved fact that epilepsy does occasionally occur in later years when night-terrors have occurred in childhood; and in such a case as the second, where there was a family history of neuroses, including epilepsy, the occurrence of day-terrors must cause some anxiety. The significance of day-terrors as a danger signal of tendencies to more serious neuroses in later life is probably graver than that of night-terrors, for the occurrence of day-terrors no doubt means that the nervous instability which favours night-terrors is present in larger degree.

The most important part of treatment is the cure of the

exciting cause. The chronic intestinal catarrh mentioned above calls for rigid dieting, particularly the exclusion of potatoes, pastry, and sugar, and at the same time the administration of an alkali. Potassium citrate is the drug I have found most useful, and this may be given with iron and compound decoction of aloes as recommended by Dr. Eustace Smith. Threadworms or other causes of irritation must be removed by suitable treatment. The intestinal disorders are not likely to be cured off-hand, and it may be desirable therefore to use sedatives as well. The good effect of bromides is almost immediate, and given in combination with belladonna they produce a very rapid diminution in the number and intensity of the attacks. Lastly, if night-terrors are, as Dr. Goodhart puts it, the "slacken-speed" to the engine-driver, then *a fortiori* I think day-terrors must be regarded as an indication for the utmost caution in the matter both of school and of play. A child who has had day-terrors is not the child to be goaded up to the inspector's standard, nor is it to be made the show-child of a kindergarten. In school and in play the child must be kept as far as possible from all excitement and mental strain. The cruelty and baneful effects of frightening such children, whether in punishment or in jest, hardly need to be mentioned here.

Gower-street, W.C.

SOME REFLECTIONS UPON APPENDICITIS.

By J. O'CONOR, M.A., M.D. T.C.D.,

SENIOR MEDICAL OFFICER, BRITISH HOSPITAL, BUENOS AYRES.

NOTWITHSTANDING the results universally obtained by the timely adoption of surgical measures in appendicitis many still maintain that a large percentage of recoveries follows medicinal or expectant treatment and that surgery is, to say the least, superfluous in those cases which they designate catarrhal or simple appendicitis. Also opinions are by no means in unison as to the etiology of this complaint; some claim the universal provider, uric acid; some attribute it to the irascibility of the bacillus coli; others give mechanical reasons; while not a few, including the writer, consider it to be of mixed origin. I should like to suggest for the consideration of bacteriologists the possibility of the germ (or a congener) of acute infective arthritis (rheumatic fever), which seems to have a partiality for waging war *viâ* the lymphoid tissue, taking a prominent part in the attack.

The general practitioner may well say, "For modes of faith let graceless zealots fight," but what am I to do or think when called on to treat a case of appendicitis? He may console himself with the idea that the majority of observers agree that the disease is primarily a local one, probably caused by some mechanical irritation which lessens the vitality of the tissues and thus renders them an easy prey to infective microbes, and that this apparently functionless organ is particularly prone to infection, congestion, ulceration, and gangrene on account of its peculiar anatomical formation, limited blood-supply, and trap-door situation. As to treatment, it may with advantage be remembered that "the heresy of one generation is the creed of the next." It appears somewhat paradoxical that pathology cannot be reckoned on to give much assistance in simplifying matters, for many medical men of high repute refuse to admit the justification, much less the necessity, of examining the affected organ except by touch through the thick layers of the abdominal muscles, and to a great extent they draw their pathological inferences from general clinical manifestations, while others hold that inspection of the lesion is a *sine quâ non* in arriving at a correct conclusion. Considering the ubiquitous prevalence of the malady and the thousands of operations which have been successfully performed for its relief, surely such conflict of ideas is not consistent with the advanced state of our science.

From a personal experience of 72 consecutive operations for appendicitis I have learned not to place much value on ante-operative classifications, such as catarrhal, suppurative, and gangrenous, for I have frequently observed that such fine-drawn distinctions are illusory; to say the most they only imply mere transition stages of the same disease, which cannot be differentiated with certainty without abdominal exploration. I should think there are few surgeons who if called into consultation in a case of appendicitis, and finding

the patient with a drum abdomen, rapid pulse, and vomiting, would not sum up the condition as perforation with diffuse infective peritonitis, or if they met with a tense, painful, circumscribed swelling in the caecal region would not diagnose appendical abscess. Place aside these two obvious and late phases of the affection I venture to ask, Is there a physician or surgeon to be found who can define the pathological condition sufficiently correctly on which to base scientifically an expectant plan of treatment? Is it possible to exclude a rapidly thinning stricture? Can early abscess formation between adjacent coils of bowel be eliminated? Can it be positively stated that the appendix is only congested, not distended with feculent pus, or that it is not rapidly becoming gangrenous, that there is not some foreign body or infective concretion on the verge of bursting into the abdominal cavity, and can the formation of protective adhesions be divined? I make bold to assert emphatically that these questions can only be answered by the introduction of the sense of sight and that clinical inferences are often miserable delusions in this disease. Imagine the feelings of an educated medical man on finding the patient whom he left at night with a flat abdomen and in a good general condition on his arrival the next morning with a blown-out abdomen and all the symptoms of peritonism—no retreat but the grave. Is this a fanciful picture? I challenge anyone who has had any experience worth mentioning in appendicitis to deny the insidious rapidity with which a "simple" case may become converted into a fatal one.

Some may ask, Why operate in every case when a large percentage undergo spontaneous cure? My reply is: (1) I cannot say at the onset of any case that spontaneous cure will take place; (2) I am unable to guarantee that perforation without previous formation of protective adhesions may not suddenly occur, which complication in my experience is invariably fatal; (3) coeliotomy with removal of the appendix is the most accurate method of diagnosis and cure with which I am acquainted, the operator is to be congratulated for his promptitude if he only encounters the catarrhal variety, and, moreover, the patient is comforted with the assurance that the operation, proved to be a simple one and devoid of risk, ensures that he will never again suffer from appendicitis; and (4) I am sceptical as to large numbers of expectant "cures." An appendix once infected is always infected and remains a weak spot, and although in some cases no actual recurrence takes place yet in a great many permanent adhesions have formed around the appendix and the caecum which cause chronic digestive disturbance with or without dragging pain and tenderness in the right iliac fossa. The appendix during an attack frequently becomes glued to adjoining structures. On two occasions I found it adherent to the right ovary and in each instance it caused chronic ovarian irritation. Occasionally I found it adherent to the pelvic floor, tying down the caecum in a tent-rope fashion. In such cases pain, tenderness, and flatulence had been complained of for a long period. Removal of the adhesions and the tent-rope appendix effected a permanent cure.

Another condition which deserves mention is the influence of an abnormally short meso-appendix on the movement and shape of the appendix. On four occasions I operated purposely to relieve chronic indigestion, with pain and tenderness at McBurney's point, and found that the appendix was bound down below the caecum by a stunted meso-appendix, with kinking, at the point of the distal attachment of the mesentery. In each instance it was impossible to raise the appendix to the surface until the meso-appendix was divided, whereupon it could with facility be lifted out of the wound. It is not hard to realise that each time the caecum became distended with faeces and gas a kind of tent-rope action came into play and caused the above symptoms. I cannot imagine a more dangerous condition in case of the supervention of an attack of appendicitis, for it is obvious that stricture and perforation would rapidly take place at the site of kinking. I may mention that the four patients were cured of their chronic trouble by removal of the appendix.

The following case affords a good illustration of such a danger. A few months ago I had the pleasure of being assisted in an operation for appendicitis by Dr. Barry of H.M.S. *Pegasus*. We found the appendix bound down behind the caecum by a stunted meso-appendix and at the point of the distal attachment of the latter there was marked angulation. The distal end of the appendix was intensely

inflamed and contained a concretion of about the size of a pea, while the proximal portion appeared to be perfectly normal. After removal it was found that there was a stricture at the site of the kink, with ulceration extending through all the coats excepting the serous one; and as no external adhesions were forming it may be reasonably inferred that the operation not only cured the appendicitis but saved the patient's life. He would indeed have been a far-seeing clinician who could have inferred the pathological lesion of this most interesting case.

It would be superfluous for me to mention anything about the danger of intestinal bands forming after inflammation in this region further than to refer anyone interested in this matter to Mr. Treves's most excellent work on "Intestinal Obstruction." Another proof of the difficulties which attend diagnosis came under my observation on Nov. 5th, 1899. A strong young man was suddenly seized with severe pain in the umbilical region on Oct. 26th. He vomited frequently during the next three days and complained of fever and constipation, with pain and tenderness in the right lower abdomen. The first medical man in attendance was said to have diagnosed gastric influenza and administered a purge which acted freely; nothing abnormal was found in the stools. A second medical man was reported to have said that it was inflammation of the liver and advised his removal to Buenos Ayres, which meant a long drive and a train journey of 350 miles. On admission to hospital on Nov. 5th his temperature was 100° F., the pulse was 80, the tongue was furred, and his gait was "down on the right." He volunteered the statement "that he felt better"—in fact, he thought "the trip did him good." Abdominal examination showed that there was no distension or limitation of normal respiratory movement and no redness or localised tumefaction. He complained of slight pain in the right inguinal and umbilical regions, with slight tenderness on palpation, not particularly marked at McBurney's point. No tumour could be detected, but there was a distinct board-like feeling of the right oblique muscles, and movement of the right lower limb caused him some pain. On Nov. 6th the morning temperature was 99°, the bowels responded readily to a soap-and-water enema, the tongue was cleaning, muscular resistance was diminished, and the pulse was 76. In the evening the temperature was 99.6°. On Nov. 7th the morning temperature was 98.2°. There was no further development in the abdominal symptoms and he felt "almost well." Diagnosis, convalescence from appendicitis. Considering the out-of-the-way place in which the patient resided I advised the removal of the appendix as a matter of future safety, to which he consented. The evening temperature was 98.6°; the bowels again acted with an enema. On Nov. 8th the temperature and pulse were normal and the patient felt "quite well." Chloroform was administered and on deep palpation a hard tubular form of swelling was found in the caecal region extending upwards along the line of the ascending colon. Coeliotomy was then performed; the caecum presented a normal appearance, but on searching for the appendix the caecum and the ascending colon were found to be densely adherent on their posterior surfaces to a hard mass deeply situated in the right iliac fossa. The adhesions were being gently separated from the outer side when a sudden gush of foetid green pus (about four ounces in all) took place, which came from a long narrow abscess cavity situated directly behind the caecum and the ascending colon, and extending from the brim of the pelvis almost to the lower border of the liver. The pus was sponged out and the pyogenic cavity was laid open in its entire length. After a prolonged and difficult search the appendix was found to be disorganised and firmly adherent to the posterior surface of the caecum, with a small perforation at its junction with the latter. (The absence of marked tenderness at McBurney's point I presume was due to the position of the appendix.) The appendix was cut off flush with the caecum in order to embrace the perforation and the wound in the bowel was closed by a layer of sutures. A large drainage-tube was placed alongside the caecal wound and the usual dry dressing was applied. Three days later a faecal fistula occurred; an abundant discharge of faeces continued for a week and then spontaneously ceased. An uninterrupted recovery followed. I do not take the least credit for the successful result, for I failed to recognise the true nature of the condition until chloroform was administered for quite a different purpose—viz., to remove the possibility of recurrence.

In my 72 cases there have been four deaths—three due to ante-operative perforation with diffuse infective peritonitis and one to pyophlebitis in a suppurative case of one month's duration before admission to hospital. In 26 cases there was suppuration with localised peritonitis, which in some instances had invaded by direct contiguity two or three coils of adjacent bowel. Needless to state, no selective process was adopted in this series and the death-rate—5·5 per cent.—may not compare unfavourably with other methods of treatment.

It has been my practice for some few years past to operate as soon as possible after diagnosing the complaint. The local skin disinfection having been gently carried out McBurney's coeliotomy is performed, and if any tumefaction is felt the incision is made directly over it. I cannot see any necessity for semilunar or median incisions, for in the majority of cases by careful sponge packing the general peritoneal cavity can be more easily shut off through the oblique incision. Some time ago Sir William Banks called attention to the value of attacking an appendical abscess extra-peritoneally, and my experience tends in every way to confirm the teaching of that distinguished surgeon.

Many surgeons still advocate leaving behind the appendix when obscured by adhesions in the face of pus. In this I cannot agree, for I know of four cases where suppuration recurred, eventually necessitating removal of the organ. I make it a rule never to quit the abdomen when operating for appendicitis without removing the appendix, and on three occasions I proved the value of my resolve, for I discovered a second collection of pus when searching for the appendix which undoubtedly would have been otherwise overlooked. I have over and over again broken down intestinal adhesions and have never yet caused fresh infection, which I attribute to the fact that I strive to let the light into a pus collection and clean up before proceeding further.

The key of the situation is, without doubt, *patience*. It is surprising what changes can be wrought in a foul appendical abscess cavity by five minutes' gentle sponging and a pair of good retractors. The trouble and time taken are amply rewarded when the *fons et origo mali* is brought into view and removed. Leaving a moribund appendix in a living abdomen is not sound surgery.

Buenos Ayres.

FURTHER OBSERVATIONS ON PERNICIOUS ANÆMIA (SEVEN CASES): A CHRONIC INFECTIVE DISEASE;

ITS RELATION TO INFECTION FROM THE MOUTH AND STOMACH; SUGGESTED SERUM TREATMENT.

By WILLIAM HUNTER, M.D. EDIN., F.R.C.P. LOND.,
PHYSICIAN TO ELECTRICAL DEPARTMENT, JOINT LECTURER ON PRACTICAL
MEDICINE, AND PATHOLOGIST, CHARING-CROSS HOSPITAL;
SENIOR ASSISTANT PHYSICIAN TO THE LONDON
FEVER HOSPITAL.

(Continued from page 224.)

THE first part of this paper will serve to explain the origin and development of my interest in the mouth in connexion with pernicious anæmia. In all of the cases, it will be seen, there was found some morbid condition sufficient by its character or its intensity to attract the special attention of either the patient or myself. The actual conditions met with were:—1. Marked cario-necrosis of the teeth, antecedent or existing, in all cases. 2. Conditions of glossitis or stomatitis, characterised by great tenderness, presence of sores, and salivation (in four cases): (a) In no fewer than four cases the condition of the mouth formed one of the chief subjects of complaint on the part of the patient (Cases 1, 2, 4, and 8). (b) In all of the four cases the morbid condition of the mouth seemed to be connected with the origin of the disease, either preceding the weakness (Cases 1, 2, and 8) or being most troublesome in the early stage of the disease (Case 4). In other words, the condition was not simply the result of weakness; on the contrary it was most marked at the commencement where the anæmia was slight, and in each case became less marked as the anæmia increased. (c) In two cases (Cases 2 and 8) the patients themselves in their own minds connected the onset of their weakness in

some mysterious way with the stomatitis. As one of the patients strikingly put it, "the trouble of the mouth seemed to go right through him." 3. In all cases there was evidence of gastric or intestinal trouble, or both—discomfort, sickness, retching, vomiting, diarrhoea—and in two cases (in which were present morbid conditions of the mouth, dental caries, glossitis, or stomatitis) there was gastritis (Case 1) and infective gastric catarrh (Case 8). 4. Lastly, the possibility of any connexion between the dental and oral condition and the gastric condition was elucidated by the case (Case 7) in which I was able to demonstrate in the most striking manner the origin of infective gastric catarrh from infection with the organisms of dental necrosis.

IV.—DENTAL DISEASE AS A CAUSE OF INFECTIVE GASTRITIS.

Case 7 I regard as specially interesting. It demonstrates to my mind a relationship between cario-necrosis of the teeth and gastric catarrh, of a closer and more direct character than I had hitherto recognised, or, so far as I know, had been recognised by others. That relationship I may thus describe: that there is a limit to the capacity even of the stomach to resist indefinitely for periods of years the continuous presence of pyogenic (pus-forming) and other organisms in its contents derived from cario-necrotic conditions of the teeth; that its powers of destroying such organisms, although great, are never complete even in health; that these powers become progressively weakened when through any cause an increased and continuous supply of infective organisms is associated with a diminished and continually lessening acidity of the gastric juice; that these two conditions are precisely those produced by chronic cario-necrosis of the teeth; and that in time the catarrh of the stomach, so common a sequel of imperfect dentition—possibly of simply irritant nature to begin with—may in time become infective in its character, leading in time to the deeper-seated changes which always result from chronic catarrh—viz., atrophy of secreting structures, with increase of fibrous tissue (chronic gastritis with atrophy of the glands).

These statements as to the relation between dental cario-necrosis and gastric catarrh I have elucidated and supported elsewhere;¹ but some brief reference to the subject is here necessary to a right understanding of our present subject—to wit, the meaning and significance of the dental and oral conditions met with in pernicious anæmia.

The relation between dental disease and ill-health.—That health is to a large degree conditioned by the state of the teeth—their presence or absence, their soundness, their freedom from pain—is generally recognised; but if inquiry were made as to the nature of the connexion opinions would be found to differ. 1. In the minds of most, probably, the relation is what one may term a "mechanical" one. Carious teeth mean imperfect mastication, consequent increased and unnecessary work for the stomach, this leading in course of time to the various ills and worries connected with impaired digestion. Such a mechanical relation is by no means the only or the most important relation of dental disease to general health. 2. In the minds of others the connexion between bad teeth and bad health is supposed to be of another kind—viz., that bad teeth denote bad nutrition and bad health. They are the result of ill-health rather than the cause of it. 3. A third possible relationship—one that appears to me to be altogether insufficiently recognised, still very obscure, but in my opinion even more important than either of the two above mentioned—is dental disease as a cause of ill-health in consequence of being a continual source of septic poisoning and septic infection, both local and general.

Local infections.—Among the obvious conditions of this nature are the various local inflammatory and suppurative conditions met with in the mouth (periostitis, alveolar abscess, suppuration around decayed teeth, and pyorrhœa alveolaris); or in the jaws (periostitis, osteitis, osteomyelitis, necrosis, and suppuration in maxillary sinuses), or in tissues adjacent to the mouth (inflammation and suppuration of the glands of the neck, cellulitis of the neck, post-pharyngeal abscess, thrombosis of the vein, and even meningitis by direct extension).

Remote infections.—Among the remote conditions of infective nature the origin of which is still obscure and

¹ Relations of Dental Disease to General Diseases and to Infective Gastritis, Transactions of the Odontological Society of Great Britain, Feb. 6th, 1899.