ally burned out for lack of water. Administer good, well cooked, wholesome food at intervals of two to four hours, according to gastric conditions; if faulty, give less, but oftener than in those with strong digestions.

(7) Follow these rules and, with the rarest exceptions, your patients will recover, and have a brief convalescence.

THE DIETETIC TREATMENT OF ENTERITIS IN INFANTS.

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Pediatricians are more concerned in the treatment of enteritis than ever before, and the diseases of the alimentary tract probably hold first place. Text-books have been pretty well agreed concerning causes of bowel trouble, and our treatment has been largely based upon those theories, but of late investigation along those lines has been revolutionary in character, and has compelled us to modify our former views and make a radical change. Diarrheal diseases of infancy have never had a very definite line of demarcation, and rightly so, for it is practically impossible to have an inflammatory reaction in one spot without more or less trouble in neighboring localities.

We may have all grades, from a simple acute enteritis, involving the tract above and below, in a mild degree, to a chronic condition, involving not only the gut itself, but all the tissues of the body. We formerly believed the cause of diarrheal disease to be largely of mechanical or bacterial origin, but investigations have demonstrated that we must modify our views in the matter. These are certainly factors, but not of as much importance as once supposed; they are secondary, and increase the trouble when once begun. The real trouble begins long before the diarrhea, and may have been at work for a long time undermining the system, and preparing the way for more noticeable and acute symptoms. The more recent

investigators, Finklestein, Meyer and others, have been able to demonstrate that the main cause of diarrhea in infancy is the disturbance of balance between food elements taken into the alimentary tract and food requirements not alone in quantity, but more particularly in regard to the relationship of individual constituents. Certain factors enter in which make the ability of the child to assimilate elements vary to a considerable degree. Tuberculosis, syphilis or deficient thyroid cases may so alter and weaken the system that slight changes in the food elements quickly cause diarrhea.

Excessive humidity of the atmosphere or surroundings may be important predisposing causes, but even these cases can maintain their balance if the food is right. However, if there is any marked disturbance of balance for any length of time, not only those weakened by systematic disease, but normal, healthy children will become affected with diarrheal disorders. Our old friend, proteid, formerly bore all the blame, or a large share of it, for all diarrheal disorders, for we saw white curds in the stools, and knowing the casein to form white curds, we immediately said our trouble was the proteid, and contented ourselves with that: but basing our treatment on that supposition, we were often disappointed in the improvement of our patient. When once the balance of the food element is disturbed, bacterial invasion may begin, and augment our trouble, and the situation is complicated, decomposition sets in, and absorption of toxins follows. Pathologically, we find present all degrees of inflammation of the alimentary tract, from stomatitis to proctitis, and in the more chronic cases we find glandular hypertrophy and atrophy, cloudy kidney and all grades of secondary anemia, depending on the severity of the intoxication and the promptness of the treatment.

The symptoms are loss of appetite, restlessness, pain, fever according to the toxemia, frequent loose acid green mucus or bloody stools with tenesmus. If chronic, we are apt to find the trouble in the large intestines, evidenced

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not so much by the fever, but by emaciation, with frequent green mucus or bloody stools. The treatment of these cases is dependent upon the cause. If secondary to gastric or mechanical irritant, the alimentary tract should be thoroughly cleansed. Castor oil serves this purpose wonderfully well, if there is no vomiting; or, if vomiting be present, calomel, rhubarb and soda should be used to cleanse the stomach and intestines.

If vomiting is frequent and accompanied by retching, I usually resort to stomach washing with some alkaline solution to dissolve the mucus and allay the vomiting. You will find the stomach washing just as necessary as the thorough irrigation of the lower bowels. After a thorough cleansing of the alimentary canal, a twenty-four to thirty-six-hour rest, with only a little boiled water allowed, is certainly advisable. After the twenty-four hours' fast, proper food must be given, and here is where we come to a difficult problem of no little importance. In the breast-fed child it is usually safe to begin nursing on the third day, but great care must be taken to instruct the mother or wet nurse never to permit the child to have the full allowance of breast milk at first. It is well to give the child barley water or 5 per cent milk sugar water before each nursing so as to dilute the breast milk. This dilution should be kept up through excessive hot weather, since a child does not need as much food in summer as winter. Breast milk has some bactericidal effect, so we do not hesitate to return to it or use it in the midst of diarrheal disorders. In the bottle-fed child the classical treatment has been the initial cleansing of the stomach and intestines, boiled water for a period of twenty-four hours or longer, then a course of barley water, whey, peptonized milk and modified raw milk. The above is the treatment to be followed if the proteids are at fault. An analysis of the stools is of vast importance, since it gives us a hint at what element is at fault and undigested. A microscopical examination of the stools may reveal curds of proteid and fat or either one.

The curds formed by the action of H. L. C. or lactic acid or the para-caseins are hard, smooth, yellow outside and white within, with cheesy odor, and will not dissolve in ether. The curds are smaller, not so tough and do dissolve in ether. A foamy, bubbling acid stool is usually of sugar origin. The reaction of the stool is very important, for if the stool is alkaline and loose, we have proteid decomposition, but if acid, or even the litmus unchanged, acid fermentation is going on, due to the breaking down of the fats and carbohydrates, blood and mucus may be readily detected, but we should remember a certain amount of mucus is normal, if well mixed through the stools. Since the examination of the stools has become common practice, we find the proteids less often at fault than was formerly supposed. In fact, curds that we once supposed to be simply undigested casein often are only curds formed by substances in the lower bowels. We have learned that the sugars play a more prominent part; also that the salts are to be reckoned with. Some of our investigators are willing to lay all or most of the fault in diarrheal disorders to the salts and sugars in the milk, and believe that casein has no more harmful effect in infant digestion than water. They appear to have made their point good, for in their clinic the problem has been given a fair test. Others in this country have demonstrated the same fact. Finklestein claims to have taken groups of healthy infants and by increasing the salts and sugars caused diarrheal disorders, being due to fats in the presence of excess of salts and sugars. Also groups of children have been cured by reduction of salt and sugar constituents and being given almost wholly casein diet. Bacteria play a secondary part in diarrheal disorders, and it is a hard matter to determine exactly, but we certainly do know that once the balance of assimilation is disturbed, bacteria are quick to assert themselves. Many varieties of bacilli have been demonstrated, ordinary colon bacillus, Shiga bacillus, and others too numerous to mention, most of which are as yet poorly

understood. A few points, however, have been demonstrated with considerable certainty, and one of the points is that lactic acid bacilli seem to be inimical to the myriads of hostile bacteria within the tract.

Also we note that the particular form bacillus acidophilus of the lactic acid group is normally formed in the larger intestine, and the bacillus bulgaricus is normally found in the smaller intestine, the clinical significance of which will be referred to later. With this knowledge before us, the matter of treatment becomes all important. If our case by analysis of the stool shows itself to be plainly one of proteid incapacity, a reduction of proteid is all that is necessary, provided the case has not gone on and formed lesions from bacterial actions. In the later stages the dietetic treatment is rather varied, but agreeing in the main in certain important points, namely reduction of sugars and fats, increase of casein and addition of lactic acid bacteria. The different foods used are: (1) Plain buttermilk; (2) artificial buttermilk made from the two strains of lactic acid bacilli; (3) buttermilk cooked with flour and sugar; (4) casein milk. The composition of plain, fresh buttermilk: raw, is proteid, 2.6; fat, 6; sugar, 3, and it is used largely as an infant food in some countries.

The chief advantages claimed for this food are that the fats and sugars especially are low and the casein is coagulated in the form of casein lactate and it contains much lactic acid and lactic acid bacteria. This form of food is used in either acute or chronic conditions and at all ages. There are some advantages to the raw fresh buttermilk, though at first the child may not like it, and it may cause vomiting; but if persisted in it will show good results in a few days.

Trouble is often experienced in returning to a diet of fresh milk. In its favor it may be said that the stools quickly become normal, and the infant begins to gain in weight. Artificial buttermilk made from the cultures is a good deal like the raw product, but can be controlled in the making more definitely, as

was mentioned previously. Two varieties of lactic acid bacteria are used, the bacillus acidophilus, found normally in the large intestines, and therefore used when the lesion seems more marked in that region, and the bacillus bulgaricus when the lesion is in the small intestine. Buttermilk, with flour and sugar added, is frequently used. One quart of buttermilk is cooked for twenty minutes; suitable dilution with barley water is made and cane sugar is added to make up the caloric value. The good results gotten from modified buttermilk cannot be due to the presence of lactic acid bacteria, since the food is sterilized by cooking, but the value seems to lie in the low percentage of fat, presence of lactic acid and a changed proteid. Still another food used in diarrheal disease is casein milk, exploited largely by Finklestein in his clinic. The method of preparation is as follows:

Heat one quart milk to 100° F., add half an ounce of essence of pepsin; stir well, allow to stand at same temperature one-half hour, then filter. Force the curd through a fine sieve several times; add one pint of water and one pint of buttermilk. The composition of this mixture is: Proteid, 3 per cent; fat, 2.5 per cent; sugar, 1.5 per cent; salts, 0.5 per cent. One quart contains 370 calories. This food is used in all grades of intestinal disturbance and the results have been very gratifying. This feeding may be used for some time until the stools are normal and a gain in weight has begun, when return should be made to the regular milk mixture. In conclusion, I think we can safely say that the newer methods in the dietetic treatment of diarrheal disorders are a distinct advance over the old routine, although it is hard to say just what element is the main factor in the improvement. The results clinically show that the diarrhea is stopped much quicker than by any other method and a satisfactory gain in weight occurs.

Care must be taken, however, that none of these forms of feeding be continued too long, for rickets and scurvy occur, and have oc-

curred from a too long continuance of these seemingly rational diets. The malted foods, especially the malted soups, are valuable at this point to more rapidly increase the weight. Another important point to be remembered is that calorimetric standards must be maintained, for overfeeding is as bad as underfeeding or poor feeding.

We believe that this subject never will or can be arbitrarily settled, since the infant stomach and the test tube never can be made to show like results in our tests, but by a more thorough study of the end products, chemically and bacteriologically, great improvements have become possible and the brilliant results obtained justify further study along these lines.

BOOK REVIEWS.

AN INTRODUCTION TO THE STUDY OF INFECTION AND IMMUNITY.

Including Chapters on Serum Therapy, Vaccine Therapy, Chemotherapy, and Serum Diagnosis. For Students and Practitioners. By Charles E. Simon, B.A., M.D., Professor of Clinical Pathology and Experimental Medicine at the College of Physicians and Surgeons, etc., Baltimore, Md. Lea & Febiger, Philadelphia and New York.

The author of this very interesting volume gives his readers thorough, up-to-date information upon the subjects under consideration. He believes in aiding nature by protecting patients against additional infection, and supporting them against the ravages of diseases already contracted.

That he does not believe doctors cure their patients is evident from the following quotation: "Nature herself cures 75 per cent of the pneumonia cases, the physician fails to cure any, for surely he cannot claim as his own what nature does, and he evidently loses the 25 per cent that nature loses." Dr. Simon discusses the subjects of infection and immunity in a thorough, systematic manner.

The student or physician who carefully reads the book will be thoroughly informed as to the results of the latest investigations, whether practical or theoretical, yet our author to a remarkable degree avoids the employment of the many long, loose-jointed, so-called scientific terms that usually occupy prominent positions in such studies.

Though not one of those books that "every doctor must have," yet every doctor will be all the better equipped professionally by a knowledge of its contents.

A PRACTICAL TREATISE ON FRACTURES AND DISLOCATIONS.

By Lewis A. Stimson, B.A., M.D., LL.D.; Professor of Surgery in Cornell University Medical College, New York; Consulting Surgeon to New York, Bellevue, St. John's, and Christ Hospitals, etc. Seventh edition, revised and enlarged, with 459 illustrations and 39 plates in monotype. Lea & Febiger, New York and Philadelphia. 1912.

The seventh edition of this standard work on fractures and dislocations has been enriched by additional text on the operative treatment of recent fractures and the treatment of old dislocations, together with new sections on some fractures of small bones of the hand and foot, etc. Many new photographs and skiagrams have been added.

Dr. Stimson's work has for years been rightly popular with the profession, both as a reference text and working manual of diagnosis and treatment. The excellence of the text and illustrations, the conciseness of details of pathology, diagnosis, and treatment makes the work invaluable to the practitioner and surgeon.

Perhaps no cases receive, in general, poorer treatment with more unsatisfactory results, than do those of fractures and dislocations. Careful study of Dr. Stimson's work will aid greatly in achieving satisfactory results in such cases.

THE PRACTICE OF GYNECOLOGY.

For Practitioners and Students. By W. Easterly Ashton, M.D., LL.D., Professor of Gynecology in the Medico-Chirurgical College of Philadelphia: Fifth edition, thoroughly revised. Octavo of 1,100 pages, with 1,050 original line drawings. Philadelphia and London: W. B. Saunders Company. 1912. Cloth, \$6.50 net; half morocco, \$8 net.

The demand for five editions of this work since its appearance in 1905 bespeaks its popularity. The new fifth edition shows many additions and changes, notably the chapter on the application of the X-rays and of fulguration to gynecologic conditions; the chapter on the blood in relation to surgery, etc. The work is in every way up to date.

An excellent work on gynecology, both from the medical and surgical viewpoints. The subjects of diagnosis, pathology, surgical and medical treatment are each clearly and fully considered. The illustrations are numerous and excellent.

The work may be classed as one of the best works on gynecology and will serve excellently both as a text-book and as a working manual.