tory and urinary organs. It is thus the admitted disease inciter of such sundry conditions as enterocolitis, pneumonia, meningitis, encephalitis, phlegmon, peritonitis, etc. Its clinical, pathologic and biologic resemblance to the typhoid bacillus is being carefully considered.

Fraenkel tells us that, "pathogenesis is the most inconstant thing in the character of many species of bacteria." Fraenkel's pneumococcus, often a most virulent inflammatory exciter, is likewise a regular tenant of health salivary and nasal secretions as are the pus germs and Löffler's bacillus.

A. P. Ohlmacher in the *New York Medical Journal* April 27, reports finding the diphtheria bacillus in a pneumonic lung in which the diplococcus of pneumonia was absent. The diplococcus was obtained, however, in cultures made from the pus in the meninges of the same patient. Future research will probably throw light upon the curious analogies and associations of these microorganisms and their more definite relations to such diverse disease manifestations. Much work in this direction has, however, been accomplished in the study of infantile diarrhea. The non-specificity of this affection has been proved, as has also its general toxemic and septicemic origin.

Sévestré as early as 1887 said: "A general infection, especially a condition of pulmonary congestion and broncho-pneumonia, may develop, secondary to fetid diarrhea and infectious enteritis." Under his supervision, Gaston and Renard, by capillary puncture of pneumonic lungs during the life of children suffering from enterocolitis, secured therefrom and from the stools of the same patients, pure cultures of the staphylococcus, pneumococcus and bacterium coli commune and other microbes. Their control experiments upon animals demonstrated that these germs entered the general circulation through the intestinal lymphatics and lodged in the first filter, the lungs.

Rossi Doria publishes an epidemic of diarrhea due to the bacterium coli commune, that remaining *in loco* caused acute enterocolitis, that entering the circulation caused a systemic typhoid-like infection as proven by the pathologico-anatomic findings.

Czerny and Moser recognizing the general infectious character of infantile diarrhea, and traced its source through the lymphatics into the general circulation. They discovered the staphylococcus pyogenes, streptococcus pyogenes, bacterium coli commune, bacterium lactis aerogenes, and other well-known disease progenitors in the stools and circulating blood, of twelve out of fifteen babes suffering from uncomplicated enterocolitis. Their work was carefully controlled by experiments upon dyspeptics, healthy children and animals. Their pathologic findings in the lungs and kidneys corroborated their bacteriologic and microscopic work. All these careful observations but emphasize the dictum as to a general non-specific systemic infection in acute gastro-enteritis. The slighter and earlier intestinal disturbances are of toxemic origin and due to milk fermentation and contamination. Chronic enterocolitis is the result of a slower, more insidious poison or sepsis. Cholera infantum is either or both an overwhelming toxemia or septicemia. Associated conditions, or the so-called secondary complications are of clearly septicemic or pyemic character, in which not one but several different germs play an important rôle. Dyspepsia, acute and chronic enterocolitis, cholera infantum,

may be but different and various degrees of toxemia and septicemia dependent upon numberless and manifold saprophytic, pathogenic microorganisms.

BIBLIOGRAPHY.

- Biedert: Ueber Kuhmilch, Milch sterilization und Kindernahrung; Berliner Klin. Woch. No. 44, 1895, p. 995.
 Knuffmann, J.: Beitrag zur Bacteriologie der Magengährungen; Berl. Klin. Woch. No. 9 and 10, 1895, p. 117.
 Booker, Wm. D.: Intestinal Bacteria of Children; Keating's Cyclo. of the Diseases of Children. Vol. iii, p. 170.
 Booker, Wm. D.: A Study of Some Bacteria found in the Dejecta of Infants Afflicted with Summer Diarrhea; Trans. 9th Internat. Med. Congress, Vol. iii.
 Baginsky, A.: Zur Biologie der Normal Milch koth-bacteria; Zeitsch. für Physiol. Chir. 1888; Bd. xii, xiii, p. 434 and p. 352.
 Moser, P.: Krankheiten Kinderu; Jahresb. f. Kinderheilk., 1894. Bd. 28, p. 430.
 Huebner, O.: Kuhmilch als Nahrungsmittel, reported from Transactions of Internat. Congress für Hygiene und Dermographie; Sept. 1894, in Archiv. für Kinderheilk., p. 148; Archiv. für Kinderheilk., 1894-1895, Vol. xviii, parts 1, 2, 34.
 Cfeimann, J.: Kurzgefasstes Handbuch der Kinderkrankheiten, 1893, p. 144; Ueber Darmbakterien in Allgemeinen und Diegenigen; der Sänglings in Besonderen Centralblatt für Bacteriologie, Bd. ii, Nos. 24-25, 1887.
 Buchmann, A. B.: Intestinal Indigestion; Jour. of the Am. Med. Assn., 1895, Feb. 2, p. 158.
 Sauerelli: Der Menschliche Speichel und die Pathogenen Microorganismen der Mundhöhle; Centralblatt f. Bact. Bd. x, 5-25.
 Huebner, O.: Ueber Kuhmilchs Sänglings nahrung; Berl. Klin. Woch., Sept. 10, 1894.
 Wells, W. S.: Summer Diarrhea of Infants; Cincinnati Lancet Clinic.
 Cameron, S.: Diarrhea in 1893; British Med. Jour., 1894, p. 317.
 Kloway, H.: Cholera Infantum; New York Med. Jour., 1894, iv, p. 301-305.
 Fraenkel, K.: Text-book of Bacteriology, 1895, p. 305-311.
 Starr, L.: An American Text-book of Disease of Children, 1894, p. 471 and 479.
 Huebner, O.: Ueber die Ausnutzung des Mehls in Darm des unger Sänglings; Berl. Klin. Woch., No. x, 1895, p. 201.
 Boas, J.: Bemerkungen zur Diagnostische bedentung und zum Nachweis der Gährungs Milchsäure in Mageninhalt; Berl. Klin. Woch., No. ix, 1895, p. 189.
 Fischl, Rudolph: Ueber Gastro-intestinal Sepsis; Jahrbuch für Kinderheilk. Vol. xxxvii, parts 3, 4, 1894, p. 288.
 Barcus, Paul J.: Summer Complaint; Fort Wayne Med. Mag., Vol. ii, No. 8, p. 295.
 Starr, L.: Diseases of the Digestive Organs in Children, p. 136.
 Stephenson and Murphy: The Pathology and Etiology of Infectious Diseases. Treatise on Hygiene; 1893, Vol. ii, p. 187, 188, 189, 337.
 Rente and Enoch, C.: Fund des Bacillus Finkler, Prior bei Einer Unter Profusen Durchfallen Gestorbenen Fran.; Deuts. Med. Woch. Dez. 6, 1894, p. 925.
 Kriesling, F.: Das Bacterium Coli Commune, Hygiene Rundschau, 1893, bd. iii, 5-724.
 Kuttner, H.: Ueber Einem Neuen Beim Menschen Gefundenen Eiter Erreger. Vol. 19, Part ii, p. 265, Zeitsch. für Hygiene und Infections.
 Sajous: Annal of the Universal Med. Sciences, 1894. Vol. ii, Sec. K., Vol. iv, Sec. I.
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COLITIS IN INFANCY AND CHILDHOOD.

Read in the Section on Diseases of Children, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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Colitis, in the adult, often occurs as a primary disease, but this is rarely the case in infancy. At an early age it usually begins as an enteritis and is most always caused by indigestible substances irritating and obstructing the small intestine. Bottle-fed infants are particularly prone to this disease and I believe that most of those who die, waste away from its effects.

Intussusception is spoken of, as of frequent occurrence in connection with it. I have never seen it, though obstruction more or less complete, I believe, is always present. Heat is an important factor in its causation, as is proved by its being confined almost exclusively to the hot months of the year. A heated atmosphere not only renders the infant's bowels incapable of digestion, but also its food unfit for use, even when we can not perceive it by the taste. An enteritis sometimes runs into a colitis, but the former is generally converted into the latter by treatment with opiates and astringents. A child that is deriving its sustenance from a healthy mother, when attacked by inflammatory diarrhea from being overheated or from any other cause, can generally be relieved at once by the administration of tincture of

opium, bismuth and chalk mixture, but not so the bottle-fed infant. It usually goes on from bad to worse under this same treatment, as does also the child beyond the nursing period.

I will not detain you with a lengthy discourse on the origin, symptoms and progress of this disease, with which you are familiar, but will cite three cases which I hope will prove of interest:

July 3, last, I was called to see a little three-months-old female child, in a family I had always attended. The parents had three other children, all of whom had been nursed at the mother's breast, and when attacked by diarrhea were almost immediately restored to health by the administration of opium, bismuth and chalk mixture, but not so this youngest, who was being raised artificially. The parents had become familiar with my prescription, as persons too often do, and had treated their older children successfully with it, but this youngest child they had treated into a case of ulcerative colitis with the same remedies. I prefer mechanical means in the treatment of disease, wherever they can be employed, so I attempted to use the syringe in this case but failed. It required some force to introduce the nozzle of the syringe and the water was thrown back as rapidly as injected. Had I persisted, the only question would have been which was the stronger, the bowel or the syringe. Having failed with everything else, I took a pill containing 2 grains of blue mass and half a grain of opium, that I always carry for adult cases, and divided it into twenty pills, ordering one such pill to be given every four hours. I continued this treatment for two weeks, by which time improvement was so great that the amount was reduced to three pills a day and enemata could be satisfactorily employed. When first called to see the child it was being fed on condensed milk which was changed for a more laxative diet, cow's milk with dextrine. At the end of a month this child was perfectly well and is now one of the most robust children I know.

From former experience I feel convinced that had this little patient been treated in any other way it would have wasted and died.

On Aug. 10, 1894, I was called to see a male child five months old, suffering from ulcerative colitis. This child had been treated by another physician for two months and was gradually getting worse all the time. A sister at the same age had died a year before affected in the same way. I was put in charge of the case and treated it in the same way as I did the last, except that instead of directing the blue mass and opium pill to be divided into twenty parts, I divided them into ten, giving a fifth of a grain of blue mass and a twentieth of opium every four hours. After two weeks, fecal matter began to descend freely, when I ordered a syringe to be used after every action that was not perfectly satisfactory. At the end of a month this child was well and has remained so since.

About June 20, 1894, a little 5-year-old son of a Rockville druggist was attacked by inflammation of the bowels; the nature of which I could not clearly determine as he was attended by another physician of this place who had been their family physician before I settled in Rockville. He treated the case until July 18, when I was called in consultation. I not only met the attending physician but a prominent physician from Washington also. Another physician of at least thirty years' experience had been in consultation, but I did not meet him until later on. I found the child a mere shell, lying on his back and unable to move. He could not have turned on his side if a red-hot iron had been thrust in his face. When I entered the front door the house had the odor of a dissecting room, although the sick boy was upstairs. The mother said he had had but one action that day, which I requested them to let me see, and found it nothing but necrosed tissue. The father, who is one of the most intelligent and best informed men I ever knew, said not a particle of fecal matter had been passed for ten days. The attending physician never expressed an opinion in regard to the case, at least in my presence, but the consultants were of opinion that intussusception was present and rather favored the treatment then being employed, that by opium, bismuth and tannic acid, although the child was dying under its use. They did not speak decidedly as to what should be done with the little patient, but were opposed to my plan of treatment, which was to give a grain of blue mass and one-fourth of a grain opium every four hours, until the child improved sufficiently to have the number of doses reduced,

and then employ enemata. The consultant whom I met July 18 said he would be afraid to try an enema at that time, for fear the bowel would burst, as he believed that in many places there was nothing left of the colon but its peritoneal coat. I saw no more of this case until July 23, when I received a note from the child's father, asking me to take entire charge of the case, as he believed I was the only one who could save his boy. He notified the attending physician to that effect.

I had been giving my patient a grain of blue mass with one-fourth of a grain of opium every four hours for three days when the second consultant came up. He considered my treatment heroic, but said as the child would die anyhow, I was justified in trying it, but he would advise me not to keep it up for more than three days. I continued it for two weeks with improvement from the very first. I then stopped it for three days, when I was obliged to resume it on account of retrogression. I kept it up until September 13, when the boy was able to walk and eat solid food. This patient was fed with milk and dextrine mixed together, and with extract of malt, and I allowed him to chew as much beef, mutton and chicken as he wanted and swallow the juice. There was so much weakness present that two teaspoonfuls of whisky and a drop of fluid extract of digitalis had to be given every four hours, also one-sixtieth of a grain of strychnia three times daily to prevent sinking.

When I first saw the child he could take no nourishment; even a tablespoonful of milk had to be forced down his throat. Blue mass, on account of its sweet taste, is very easily administered to children, and can be dissolved in a few drops of water. In using this treatment in cases such as I have described, we should not restrict ourselves to a day, week or month, but give it until the patient is well, for it never produces constitutional effects in dysentery except in tuberculous individuals, and with them it should never be employed. It used to be thought and is now generally supposed that no one is as sound after a severe attack of dysentery as he was before, but I have never treated a case by the prolonged use of mercury where the health was not improved thereby except in tuberculous subjects. Why the mercury produces no constitutional effect I am unable to say, for it certainly enters the circulation, or it would not act on the kidneys as it does. In no other disease can it be given with such impunity. To sum up all I have to say, in regard to the treatment of this disease from which so many infants, and especially bottle-fed infants, slowly pass away and from which few, if any, should die: the child should be put on a nourishing liquid diet, which should be laxative in character; the colon should be irrigated with warm water from a fountain syringe as soon as the inflammation of that viscus has sufficiently subsided to retain it; blue mass and opium should be administered in doses suitable to the age of the patient, until all irritating and obstructing substances are removed from the intestines and their natural function is restored. In this way, mercury, the best of antiseptics, will be kept continually pouring over the diseased coat or coats of the bowel during the process of repair.

Diuretic Action of Calomel.—Dr. Finkelstein at Charkoff, Russia, summarizes his experience as follows: 1, calomel is an excellent diuretic and especially useful in cardiac dropsy; 2, the prognosis is less favorable in aortic disease; 3, the action is greater in the absence of renal complications (except suggestion); 4, the dosage must be guarded (maximum .12 gm. every two hours); the first symptoms of mercurial poisoning must be closely heeded; 5, in case of a weak heart, a combination of calomel and digitalis is recommended (R calomel .12-.13 gm., pulv. fol. digitalis .02-.30 gm. S. Dose, four times a day.); 6, the effects of calomel are continued longer than in the case of other similar remedies.—*Therapeutische Wochenschrift*, July 25, 1895.