ADDENDA.

TREATMENT OF TRISMUS NEONATORUM.

(Note to page 67.)

Dr. Alois Monti, of the St. Ann's Child's Hospital at Vienna, reports in the *Jahrb. für Kinderheilkunde*, 1869, three cases out of five cured by calabar bean. He prefers subcutaneous injections, as he thinks the internal use uncertain. He repeats these injections every ten or fifteen minutes until the spasms cease; then intermits them even for several hours until the convulsions return. For new-born children he uses one-tenth of a grain of the extract per dose, and goes up to one-third, one-half, or a whole grain a day. Older children can commence with one-third of a grain at a dose. For internal use, from one to four grains a day may be given.

Reasoning from the facts that *chloral hydrate* has been employed with success in tetanus of the adult, both idiopathic and traumatic, and that the cause of trismus neonatorum is believed to be an irritation of the sentient extremities of the cutaneous nerves exposed in the unhealed surface left by the decadence of the cord, we venture to suggest the future use of this powerful sedative in cases of this hitherto almost irremediable disease.

TREATMENT OF DIARRHŒAL DISEASES.

(Note to page 156.)

Recently that multiform and serious group of diseases characterized by frequent and profuse discharges from the bowels, vomiting, etc., occurring in this country most frequently during the summer season, has been successfully treated by the bromide of potassium; and numerous cases have been recorded attesting its success. The theory is that, as these diseases are mostly due to nervous excitability and irritability of the mucous membranes, they are assuaged by the hypnotic action of the drug. Indeed, it would be difficult to mention any disease, directly or indirectly connected with any of the nervous

centres, in which this remedy has not been used with reputed success. Again, this drug is employed in all those diseases depending upon irritation of the terminal branches of the peripheral nerves, such as whooping-cough, spasm of the glottis, and affections of the alimentary canal generally. In the latter class of diseases it is claimed that the remedy acts by subduing the "morbid irritability of the mucous surfaces, by its influence over functional disorders of the nervous centres." Yet there are not wanting those who assert that bromide of potassium is contraindicated in diarrhœal diseases. Among these authors may be mentioned *E. Moutard-Martin*, who, in a paper read before the Imperial Academy of Medicine, of France, concludes by saying that "bromide of potassium should never be given to children suffering from diarrhœa."

I cannot lay claim to any very great success with this remedy in diarrhœal affections. In all affections of the nervous system it is of undoubted value, but, in the gastro-intestinal diseases of the nursling, attended by vomiting and profuse and frequent discharges from the bowels, I still give the preference to the opium-treatment, and always cause the remedy to be administered by injections per rectum. I am certain that the mortality would be vastly less in this class of diseases if treatment by injections per rectum were more frequently resorted to than now. I can point to several young children who were already *in articulo mortis*, and pronounced by both attending physician and parents as beyond all hope, whom I have been able to restore to life and ultimately to good health by repeated injections of comparatively large doses of laudanum. In one case, that of a child fifteen months old, who was already moribund, I administered an injection containing ten drops of laudanum, and two hours thereafter I repeated the dose with the effect of restoring the pulse at the wrist, and the natural color and warmth to the body. In another I achieved the same happy result by three injections, each containing eight drops of laudanum; and for three days, during which the stomach rejected every thing, I sustained the little patient by injections of egg-nog, milk, and Liebig's food for infants. I, however, never rely upon the nurse or relations of the patient to administer the injections, but always attend to them myself.

PATHOLOGY OF DIPHTHERIA AND CROUP.

(Note to pages 267–293.)

In order to complete the subject of the pathology of these two diseases, we append an abstract of the anatomical differences between them according to *E. Wagner*, from the *Archiv der Heilkunde*, 1867.

The author defines diphtheria to be that affection of the mucous

membrane in which it is more or less infiltrated, and thickened, and covered by a grayish membrane which adheres to it closely. In croup, on the contrary, the mucous membrane appears to the naked eye nearly normal or simply hyperæmiated and lined by a slightly adherent membrane.

The diphtheritic membrane of the pharynx and velum palati presents itself under the microscope as a clear homogeneous net-work, whose rounded, elongated, or irregular meshes are sometimes empty, sometimes filled with diverse elements (lymphatic or purulent globules; sometimes red globules or elements of indistinct cellular or nuclear nature). The trabeculæ which circumscribe the meshes of this net-work are habitually pretty thick, especially in the pharynx, while in laryngeal diphtheritis they are much more delicate. In the deep parts of the membrane the lymphatic globules are much more numerous, while on its surface are found still in a fresh state pavement epithelial cells, as they exist normally in the upper layers of the epidermis and mucous membrane. The limit between the deep part of the false membrane and the mucous membrane is always neatly defined, which, however, does not prevent their intimate adhesion.

The formation of the diphtheritic net-work is followed with difficulty. However, from comparing different preparations it is easy to convince one's self that it takes the place of the epithelium, and that it forms itself in reality by a special metamorphosis of the deeper cells, and never the superficial pavement epithelium cells; this metamorphosis presents three stages. The first stage consists in an augmentation of volume of the cells in all their diameters; which acts rather upon the protoplasma than upon the nucleus. In the second stage the protoplasma of the cells undergoes a peculiar transformation; at the peripheric part of the cell appear clear spaces augmenting gradually in volume and impinging on the cellular contents, which then appears as it were excavated; at the same time it becomes deeper and more refringent, and presents a great resistance to all ordinary microscopic reagents. The third stage is characterized by the continuation of this process, and the complete disappearance of the nucleus of the cell. Each cell is then replaced by a reticulated formation perforated with holes, the prolongations of which are united to the prolongations of the neighboring cells to constitute the net-work of the diphtheritic membrane.

The reticulated substance of the diphtheritic membrane and those of croup are not essentially distinguishable from each other in a chemical point of view. They closely approximate to coagulated fibrine. The diphtheritic net-work possesses a remarkable inalterability for chemical or ordinary reagents.

The modification of the mucous membrane itself consists in a new formation of cells and nuclei, sometimes in small quantities and sometimes in so great a number that the process takes the character of an intense purulent infiltration. True abscesses are seldom found. The blood-vessels are enlarged and filled with white globules. In most cases small hæmorrhages are met with, and in some cases a considerable infiltration of red globules. The submucous tissue, the interglandular connective tissue, and the intermuscular tissue, may also be the seat of infiltration.

The mucous glands take no essential part in diphtheria.

The *croupal* membrane consists in a close net-work of fine fibrillæ, whose meshes contain a great quantity of elements resembling purulent globules. Here and there this net-work recalls to mind the neuroglia of the cortical substance of the brain. The globules enclosed in the meshes of this net-work are much more numerous than those in diphtheria. The formation of croupal membrane is followed with much more difficulty than that of the diphtheritic. The mode of formation, however, is identical in the two cases; only in croup the greater fineness of the net-work is due to the much more active production of globular elements in the interior of the epithelial cells, while in diphtheritis the production of globular elements is very limited. The slight adhesion which exists between the croupal membrane and the surface of the mucous membrane is due to the interposition of a thin layer of muco-purulent liquid which separates them. On examination this liquid shows purulent globules, sometimes cylindrical epithelial scales with or without vibratile cilia, and some red globules. The very tissue of the mucous membrane is more or less hyperæmiated. In the large and middle-size bronchi the disposition is the same.

While diphtheria, in fatal cases, shows itself in the pharynx, croup in the lower portion of the larynx and trachea, the upper part of the larynx presents sometimes the diphtheritic membrane, and sometimes (though more rarely) the croupal membrane; sometimes, again, there is a combination of these two affections. The latter case is the more frequent. Under the microscope the net-work of the pathological membrane is ordinarily finer than in the pharynx, but thicker than in the trachea.

The author groups the cases which he has observed under the following heads: 1. Primitive croup of the pharynx, without coincident or consecutive affection of the larynx. 2. Ditto, with consecutive croup of the larynx and trachea. 3. Primitive croup of the larynx and trachea, without croup of the pharynx. 4 and 5. Primitive diphtheritis of the pharynx, with or without participation of the air-passages.

The author has observed the following combinations: *a.* Diphtheritis of the whole larynx, of the whole trachea, and large bronchi; croup of the medium bronchi. *b.* Diphtheritis of the larynx and upper part of the trachea; croup of the rest of the trachea and bronchi. *c.* Diphtheria of the epiglottis and upper part of the larynx; croup of the lower part of the larynx and trachea, with or without croup of the bronchi. Most of the cases of croup which he had occasion to see in children belonged to this category.

A single case in a child of eleven years of age, of primitive diphtheritis of the larynx and trachea, the pharynx being entirely natural, has been observed.

The author concludes, from the anatomical and pathological facts, that there is no defined limit between croup and diphtheritis. We meet equally in the pharynx, as in the air-passages, pure croup and pure diphtheria. Only in fatal cases diphtheritis affects preferably the pharynx, croup the lower part of the larynx, trachea, and bronchi, while the upper part of the larynx offers a combination of the two affections, or rather an intermediate form.

Supplementary to the treatment recommended by the author in the text, we subjoin the following as important addenda to the therapeusis of this formidable disease:

In the local treatment of croup *Weber* uses lactic acid by inhalation, for the purpose of causing the membrane to dissolve. At first he used it only after the operation of tracheotomy, partly with a view to keep the tracheotomy-tubes clean, and partly hoping that the lactic acid might affect the false membranes which extended downward into the bronchi. The results were so favorable in both respects that he proceeded to try it in severe cases of croup before resorting to tracheotomy. Since then he has not once had occasion to operate, and has not lost a single case of croup. In some very severe cases in which inspiration and expiration were equally obstructed, and the condition of the fauces indicated an abundant fibrinous exudation in the trachea, the difficulty of breathing was completely relieved within seven to ten hours of using this remedy, and two or three days after no trace of the local affection remained.

During the treatment there was not, as is generally the case, tough membranous sputa, but gradually the whistling, barking inspiration and expiration were replaced by distinct rattling noises; the voice, before quite suppressed, began to assume a hoarse character, and considerable quantities of tough, loose phlegm were expectorated during the fits of coughing, until at last the struggle for

breath quite ceased, and the disease assumed more the character of a catarrhal affection of the throat.

The treatment consists in the local application of the remedy to the windpipe by means of inhalation. The patient is made to inhale a solution of lactic acid (fifteen to twenty drops in half an ounce of water), at first every half-hour, and afterward when the respiration improves, every hour, or every two hours, a solution of ten to fifteen drops in half an ounce of water.

The solution is discontinued as soon as the dyspnœa has subsided, and to promote expectoration camomile-tea is exhibited.

In using the inhalation care must be taken that the vapor does not affect the face and eyes.

With this treatment was conjoined the internal exhibition of carbonate of soda every half-hour or every hour, which was thought to exert a beneficial effect upon the exudation.

In diphtheritis *Rothe* employs a solution of carbolic acid, as in the following formula:

℞. Acidi carbolici cryst.
Spiritus vini ää ʒj—ʒij.
Aqua destillatæ ʒv.
Tinct. iodinii ʒj.

M. et sig. Brush the solution over the false membrane three times daily.

In addition, the patient is made to gargle the throat every fifteen minutes with ten or fifteen drops of the mixture in a large cupful of warm water; at the same time digitalis, for the fever, and tinct. ferri chlorid. are administered. By this treatment *Rothe* claims to have saved fourteen out of fifteen cases of undoubted diphtheria.

Dr. *Albu*, Director of the Lazarus Hospital at Berlin, in laryngeal croup, injects lukewarm lime-water into the larynx by means of a syringe and canula after tracheotomy. The injection causes violent coughing, during which shreds of diphtheritic membrane are also expelled. The treatment of diphtheritic croup by injections of lime-water is also indorsed by *Gottestein* and *Waldenburg*.

In the New-York Medical Journal for July, 1870, after a brief review of the pathology, prognosis, and diagnosis of croup, Dr. *Burge*, of Brooklyn, N. Y., gives the following as the result of his own experience in the form of propositions:

"Proposition VI. If the stomach be full, or indigestible food have been recently taken, a single emetic may be given. Proposition VII. Give a dose of bromide of potassium to quiet all spasmodic action, four to twenty grains, and repeat every six hours. Proposition VIII. Give one-half to one teaspoonful of liq. calcis every hour or

every half-hour. Proposition IX. Allow the patient to inhale the vapor of slacking lime. The lime to be slacked in an open pail or tube. If the patient resist violently, the lime may be freely slacked in the room to such an extent as to keep the air constantly moist. Proposition X. Take equal parts of impure carbolic acid and glycerine, pour upon a teaspoonful of this mixture, in an open basin, a pint of boiling water. Renew this every four hours, and allow the patient to inhale the vapor for a few minutes. Let the preparation stand in the room till renewed. Proposition XI. Give an enema of strong hop-tea at least twice a day. If the child be costive, add to the first enema one or two teaspoonfuls of table-salt. Proposition XII. Use externally some gently-stimulating and anodyne liniment; say, liniment. saponis (slightly ammoniated) ℥ ii, tr. aconite rad. ℥ ss. Apply this with a camel's-hair pencil to the neck. Let the diet in nursing children be the breast-milk; in older ones give meat-broth, milk, or wine-whey and water *ad libitum*. Proposition XIV. As a general rule, he is opposed to topical applications. Proposition XV. Tracheotomy is unjustifiable except as a *dernier ressort*, and even then it is a forlorn hope."

Dr. *Fabius*, of Amsterdam, in the *Journal für Kinderheilkunde*, has an article on the treatment of croup. He is opposed to debilitating remedies. Of late years he has ceased to bleed in croup, and been more successful than formerly. An emetic, a warm poultice to the neck, and a large quantity of steam in the room, are useful preliminary measures. If false membrane has actually formed, he objects to antimony, as a frequent cause of sudden death in young children; to sulphate of copper and chlorate of potassa. He ascribes more efficacy to carbonate of potassa, with which *Leuzsinsky*, of Vienna, saved seventy-five per cent. of pure croup, and to which *Vogel*, of Dorpat, gives the preference over all remedies. It should be used in doses of ℥ ss to ℥ ij, daily, diluted with water; it is not debilitating nor dangerous; it is the *carbonate*, and not the bicarbonate, which is recommended. Emetics, poultices, steam, and carbonate of potassa, are his remedies until tracheotomy becomes needful. This is to be performed when the disease is becoming worse, and the difficulty of breathing greater; when the anxious expression of the face begins to be permanent, and cannot be removed by emetics; when the scrobiculus cordis, and the region above the clavicles, are drawn in upon inspiration; when, finally, double pneumonia is not present, nor any other inevitably fatal condition, and when the strength is not too far gone, tracheotomy should be performed, with a care like that required in making an anatomical preparation.

Prof. *Fordyce Barker*, of this city, in an unusually interesting article, contributed to the May number of the *American Journal of Obstetrics*, after expressing the opinion that false and true croup are identical in nature and seat, but differ only as to intensity and extent of tissue involved, and premising that what he has to say on the treatment of croup will have no reference to the treatment of diphtheria, and that success depends in a great measure on the use of efficient remedies in the very commencement of the attack, proceeds as follows: "I always commence the treatment by an emetic of turpeth mineral (hydrarg. sulphas flava), in doses of from three to five grains, according to the age of the child; repeating it in fifteen minutes if it does not act; which, however, is rarely necessary. It is prompt, efficient, tasteless, and easily administered, and does not exhaust and depress the vital powers like antimony." He regards it as very important that this emetic should be given immediately on the appearance of the symptoms which threaten croup; carries it constantly in his pocket; and has it kept in all families with young children which he attends, where the slightest tendency to catarrhal laryngitis has been manifested. After this, if he finds the evidence of catarrhal laryngitis simply, he relies mainly upon opiates, which he regards as almost the specific for acute catarrh of the respiratory apparatus, whether it occurs in infantile or adult life. If, however, he finds the child with a quick pulse, hot skin, somewhat hurried breathing, and an occasional ringing cough, but with no thoracic râles, he directs that it should be kept quiet in bed, comfortably covered, and prescribes the veratrum viridi, in one or two drop doses, according to the age of the child, every two hours, until the pulse is below 80 per minute, and then continues the veratrum in half the dose he found necessary to bring it down to that point. If thoracic râles and other symptoms indicate that the disease is extending downward, he then combines the veratrum in a mucilaginous mixture with carbonate of ammonia, giving it every second hour. He has, occasionally, in cases of increasing laryngeal and tracheal obstruction, repeated the emetic of turpeth mineral on the second or third day, but never the third time. Several times, a few hours after the emetic, but never during its immediate operation, the child has thrown off more or less detached portions of membrane; in two instances, perfect casts of the trachea with its bifurcation, and some of the primary branches of the bronchi. In some cases of croup, in the advanced stages, when the respiration is hurried and irregular, paroxysms of cough less marked, the intermissions less distinct, and the cough husky instead of ringing, he combines with the carbonate of ammonia the sulphate of quinine in two-grain doses. When the croup is complicated with lobular pneumonia,

he usually gives the quinine separately, four to five grains three times a day, while the patient takes the last of the prescriptions containing veratrum viridi. During the twenty years Dr. *Barker* has practised in this city, he has never lost a case from croup.

(Note to page 452.)

In an article on the treatment of incontinence of urine in childhood and youth, Sir *D. J. Corrigan*, Bart. (*Dublin Quarterly Jour. Med. Sciences*, February, 1870), describes the result of a successful mechanical treatment by collodion. While the prepuce, slightly curved up, is held with the left hand, collodion is smeared over the little cup thus formed by the extremity of the prepuce by means of a camel's-hair pencil, or other blunt instrument; the collodion, instantly solidifying, draws closely together the edges of the prepuce, and closes the exit for the escaping urine. A fortnight's use of it every night, carefully and diligently, is sometimes sufficient for the cure. When it is desired to pass urine, the little wedge or cap of collodion is easily removed by the finger-nail. Contrary to what might be expected, the patient is not compelled to rise at night to urinate; on rising in the morning, the prepuce is found slightly distended with urine. From this, Dr. *Corrigan* infers that the escape of the urine is rather due to the want of apposition in the sides of the canal of the urethra or to a feeble state of the circular fibres, which are supposed to constrict the sphincter of the neck of the bladder.

The bed should be raised at the bottom so as to form an inclined plane from the hips to the feet, so as to allow the urine in the bladder to gravitate toward the fundus, rather than toward the trigone. Dr. *Corrigan* objects to the usual practice sanctioned by the recommendation of some medical authorities, that the child should be awakened at stated intervals to pass his urine; believing that the bladder is thus trained to empty itself at stated periods, instead of being accustomed to retain its contents.

PLATE I.