

AAR. XXVIII.—*Cyclopædia of the Practice of Medicine*. Edited by Dr. H. VON ZIEMSEN, Professor of Clinical Medicine in Munich, Bavaria. Vol. IV. *Diseases of the Respiratory Organs*. By Dr. FRAENKEL, of Berlin; Prof. VON ZIEMSEN, of Munich; Prof. STEINER, of Prague; Dr. RIEGEL, of Cologne; and FRAENTZEL, of Berlin. Translated by J. Barney Yeo, M.D., of London; J. Solis-Cohen, M.D., of Philadelphia; A. Brayton Hall, M.D., and George M. Leferts, M.D., of New York; and Edward W. Schauffler, M.D., of Kansas City. ALBERT H. BUCK, M.D., New York, editor of American edition. 8vo. pp. xix., 805. New York: William Wood & Co., 1876.

THE present volume of this valuable series contains articles on almost all those diseases of the respiratory organs not discussed in Volume V., which was noticed in the last number of this Journal. It, therefore, includes chapters on Diseases of the Nose and Pharynx, by Dr. Fraenkel; on Diseases of the Larynx, by Dr. Von Ziemssen; on Croup, by Dr. Steiner; on Diseases of the Trachea and Bronchi, by Dr. Riegel; and on Diseases of the Pleura, by Dr. Fraentzel.

It may, indeed, be a question whether the discussion of diseases of the nose would not be more appropriate in a treatise on surgery than in one on the practice of medicine, since when at all severe they but rarely continue under the physician's care. They are often, however, even in their milder forms, very troublesome to the patient, and occasionally a source of mortification to him, and of annoyance to his friends. We think that Dr. Ziemssen has, therefore, done wisely in devoting a large portion of the present volume to their consideration. The task of describing them has been assigned to Dr. Fraenkel, a gentleman whose name is doubtless familiar to many of our readers through his contributions to the medical journals. It would, of course, be impossible to follow Dr. Fraenkel through his description of the various forms of apparatus used in the examination of the nose and pharynx, and, in fact, this would be unnecessary, as all the apparatus he recommends for this purpose is already in use by specialists in this country.

Although diseases of the nose are rarely the direct cause of death, they not infrequently interfere with nutrition by interposing an obstacle to the proper performance of the respiratory function. This is especially the case with children at the breast, who are, as is well known, often prevented from suckling in consequence of closure of the nostrils. But the impossibility to breathe through the nose will often also interfere very materially with their sleeping. Kussmanl has shown that in young healthy infants the mouth is generally closed during sleep, or, if open, takes no part as an air-passage, because the tongue lies in contact with the hard palate. If, therefore, the nose becomes obstructed through coryza, or from some other cause, it is very easy to understand that dyspnoea must occur and continue until the tongue learns to abandon its physiological position.

The attacks of asthma, which so frequently accompany tumours of the nose in adults, are not so easy to explain. They are probably due to reflex action, as Kratschmer has proved that an irritant acting upon the Schaeiderian membrane produces a narrowing of the nostrils, and an arrest of breathing in the act of expiration, as well as an arrest of the heart's action, which is followed by a series of retarded pulsations. This reflex action originates, not in the olfactory, but in the trigeminal nerve. The

tamoars, moreover, especially during sleep, prevent the free access of air to the lungs, and consequently the proper interchange of gases in the lungs—a condition which, according to Hæaisch, favours the occurrence of reflex action.

Another subject which Dr. Fraenkel discusses at some length is the contagiousness of coryza. Without positively committing himself, he evidently leans very strongly to the opinion that it may, under certain circumstances, be communicable, although he admits that up to this time all efforts to inoculate it have been fruitless. On the other hand, he says the nose shows itself unequivocally susceptible to the contagion of gonorrhœal matter, and he is inclined to think that the coryza of new-born children originates in the same way as *ophthalmia neonatorum*, that is, through infection of the nasal mucous membrane by the vaginal secretions of the mother during birth. In all cases, he adds, of coryza neonatorum that he has investigated, he has been able to show the existence of leucorrhœa in the mother.

"It appears, then," he says in conclusion, "that the nose does not differ from other mucous membranes in the capacity for being infected by secretions. Nor is there any ground for considering the secretions of the Schneiderian membrane as less infectious than those formed elsewhere. The question of the contagiousness of coryza, then, in spite of the negative result of experiments, must be considered as one and the same with the question of the contagiousness of catarrhal or purulent secretions in general, and in the light of clinical observations must, for the present, be answered in the affirmative; especially as regards purulent secretions."

Dr. Fraenkel recommends that coryza should never be neglected, as it is apt to be by physicians generally, who regard it as too trivial an affection to demand much notice. When it becomes chronic it is much less amenable to treatment than in the acute stage, and if allowed to run on it often induces a very much impaired condition of health, which will generally continue until after the disappearance of coryza. The treatment he recommends for its relief is very much the same as is in use here, and, therefore, does not call for special commendation herein.

The chapter on diseases of the larynx, by Von Ziemssen, possesses particular interest for the specialist. The general practitioner will, perhaps, on the other hand, agree with us that the author attaches too much importance to the use of the laryngoscope; urging a recourse to it even in cases where the general and local symptoms would seem to indicate with sufficient clearness the nature of the disease, and where it can scarcely aid as in the treatment. Unquestionably the laryngoscope has been of immense service to us in the study of the pathology of the larynx, but its use requires great skill on the part of the operator, and also some tolerance on the part of the patient, who frequently has to be gradually accustomed to its introduction into the throat. In acute cases, therefore, where it is especially liable to cause irritation, it need scarcely be resorted to. The ophthalmologist, too, will, we think, be disposed to dispute Von Ziemssen's assertion that, great as have been the improvements in diagnosis and treatment effected by the ophthalmoscope, they are scarcely as striking as those gained by the laryngoscope.

Dr. Steiner, who is the author of the article on Croup, rather surprises us by saying, in one place, that croup and diphtheria are "only varieties and modifications of one and the same process, which, in consequence of special influences and collateral causes, as yet imperfectly understood, makes its appearance at one time as croup, at another as diphtheria—now in a sporadic form, now as a wide-spread epidemic, now as a primary, and

now again as a secondary affection." And then a few pages further on, that "primary true croup is not a contagious disease," while "diphtheritic croup possesses this quality in a marked degree." If this opinion be correct, and we think the weight of testimony is in favour of it, there is here ground enough for distinction. The virulence of contagion may be modified by circumstances, but it is inconceivable that a contagious disease should ever wholly lose the power of propagating itself.

Dr. Steiner is an advocate of the view that there is a certain hereditary and family disposition to croupous inflammation in general, and to laryngeal croup in particular, instancing two families, in one of which all four, and in the other all three children died of membranous croup, within five years in one case, and within four years in the other. He regards the dyspnoea of croup as the combined result of several causes acting together or in succession. The most important of these he believes to be the mechanical one, viz., the swelling, relaxation, and intense congestion of the mucous membrane of the larynx on the one hand, and the false membranes and the muco-purulent secretion on the other. But a part of the dyspnoea, he thinks, is to be ascribed, in many cases, to the false membranes and to accumulations of muco-pus situated in the lower air-passages. The correctness of this conclusion is shown by the fact, that after tracheotomy the dyspnoea sometimes continues to be as urgent as before, although the larynx no longer takes part in the respiratory process. To these purely mechanical causes may be added another of subordinate importance—the paralysis of the laryngeal muscles.

Dr. Steiner apparently adopts E. Wagner's views in regard to the histology of the croupous exudation. The membrane, he says, "as it begins to form, is composed of a thick network of delicate, very fine threads, whose interstices are occupied by numerous bodies essentially like ordinary pus-corpuscles. This network is produced in croup, just as in diphtheria, by a peculiar metamorphosis of the epithelial cells, which consists in the cells at first becoming enlarged, and then developing long prolongations, by the coalescence of which a network is formed, which acts as a matrix for the newly-formed cells. According to F. Steudeuer, on the other hand, the croupous membrane consists of an exudation produced by the migration of numerous white corpuscles from the vessels of the mucous membrane, and the direct formation of fibrine from the transuded blood-plasma. The author also refers to the opinions of Oertel, Hallier, and others—only, however, to condemn them.¹ These gentlemen, it will be remembered, believe that they have discovered the nature of the croupous diphtheritic exudation in the generation of fungi; but Dr. Steiner regards the presence of these fungi upon the exudations as only accidental, and not as an essential part of the disease.

When speaking of the diagnosis of croup, Dr. Steiner says: "Experience shows that children who are subject to attacks of hoarseness and barking cough after catching cold, almost never suffer from genuine, but often from false croup." If this be really so—for, we confess, we have doubts of its absolute correctness—we certainly have in it a valuable aid in distinguishing the two affections.

We do not find much to comment upon in the author's remarks upon the treatment of this disease. He recommends, as soon as a membrane is detected in the throat, the use of gargles containing from 12 to 50 grains

¹ See notice of the first volume of this series in the number of this Journal for April, 1875.

of chlorate of potassa to the ooee, according to the age of the patient. If he be too young to gargle, the above-mentioned fluid may be injected into the throat, or the parts may be touched with lunar-caustic. The author also speaks favourably of various remedies which are believed to act as solvents of the membrane, but condemns the abstraction of blood either generally or locally by means of leeches. On the other hand, he considers that an antiphlogistic effect is produced by the rational use of cold, preferably in the form of frequently changed cold compresses about the neck, which are to be kept applied as long as the disease presents the character of an inflammation, or the exudation continues to spread. Their use should be discontinued as soon as the symptoms of carbonic acid poisoning or depression occur. Mechanical emetics are also recommended with a view of bringing about a dislodgment of the false membrane. They should be given in full doses, and repeated every fifteen minutes until they have operated freely. Dr. Steiner says, that, notwithstanding that he has given with this view large doses of copper and antimony, he has never known gastritis produced by them. Crupous diphtheritic gastritis may occur as a complication of croup, but it has no connection with the use of emetics.

As soon as symptoms of carbonic acid poisoning appear, the author recommends us to have recourse at once to tracheotomy, believing that very often the operation is so long deferred that the time when it will be of service is allowed to slip by. In addition to establishing a provisional air-passageway while the danger of death from laryngeal stenosis lasts, he tells us that "when properly performed, *tracheotomy may be a safeguard against the further spread of the croupous process.*"

Dr. Riegel's contributions to this volume include an article on bronchial catarrh, which, although exhaustive, we shall not notice in detail, simply because the frequency of the occurrence of this disease renders it difficult to say anything concerning it which would be new. He gives the following explanation of the process of "catching cold"—an expression which is often used without a very clear idea of its meaning. The experiments of Rosenthal have shown "that if the heated body, with its enormously dilated superficial vessels, is suddenly exposed to cold, there is not only a considerable amount of heat abstracted, but the blood of the superficial parts of the body so suddenly cooled now courses through the internal organs, and cools these off much more suddenly than would be the case from the simple influence of cold without the previous influence of greater heat. The cooling off, therefore, is not only more considerable, but also much more rapid. This sudden cooling may then, in itself, act as an injurious influence, and excite a disease in this or that organ, especially if it is already enfeebled, and hence less resistant."

According to our author, comparatively more legitimately born children die of respiratory diseases in the first year of life than illegitimate children. While not overlooking the fact that the latter class, in consequence of inherited vices of constitution, succumb in greater number to diseases of mal-nutrition, he ascribes this preponderance of respiratory diseases amongst the more favourably placed legitimate children to the too great care which is exercised by anxious mothers to guard them against cold, by which their resisting powers are materially diminished.

In the treatment of bronchitis, especially when the tubes are filled with liquid which the patient has not strength to expectorate, Dr. Riegel recommends the use of emetics, among which he has found the muriatic opomorphin especially useful, possessing the advantage over most of the

others of its class of being capable of subcutaneous administration. It acts very promptly, he says; is always certain, and does not produce much nausea. Besides this, there are no unpleasant after-effects from it, the last trace of any disagreeable sensation passing off in the course of a few minutes. These properties render it a very useful remedy in the treatment of croupous bronchitis, in which disease the author specially recommends it. He also advises the use of cold water externally whenever the thermometer indicates the presence of a high degree of fever.

Dr. Riegel apparently adopts Kretschy's view that the membrane in croupous bronchitis "is formed by the transudation of a fluid albuminous substance (fibrin) hardening rapidly after its secretion, and the exudation of white blood-corpuscles, and that it is not due to a peculiar metamorphosis of the epithelium of the bronchial mucous membrane, in which the epithelium forms the cellular elements by endogenous formation of new cells, and the fibrinous framework out of the remaining cellular substance." In addition to emetics the author recommends the employment of remedies calculated to soften and loosen the false membrane, such as inhalation of lime-water, lactic acid, and the carbonates of the alkalies. He refers favourably to the use of iodide of potassium for the same purpose. Patients who have shown that they are liable to attacks of this kind should be carefully guarded against exposure to all the causes of bronchitis in general, and should take remedies applicable to scrofula, anæmia, and so forth, if any one of these conditions be present. There are, however, no means known by which attacks can be certainly prevented.

It would carry us far beyond the limits assigned to this notice were we to attempt to follow Dr. Riegel through his elaborate discussion of the various theories which have been proposed to explain the occurrence of bronchial asthma. Without definitely announcing his adhesion to any one of them, he gives us good reasons for preferring that which refers the symptoms to spasm of the bronchial tubes, which has recently found an eloquent champion in Biermer, and which is, on the other hand, opposed by Wintrich, who, asserting that a nervous asthma produced by spasmodic contraction of the smooth muscular fibres in the lung, is not possible, and that such a condition does not exist, teaches that the phenomena of asthma depend upon a momentary impediment to the respiration, due either to tonic spasm of the diaphragm alone, or a similar spasm of the diaphragm and the respiratory muscles together, in connection with which spasm of the glottis may or may not be present. The author refers to Bert's recent experiments, which are confirmatory of Williams's, showing that distinct contractions of the bronchi are caused by galvanization of the lungs as well as of the vagus. These, he thinks, render it no longer doubtful that the bronchial muscles are excited to contraction by irritation of this nerve.

Wintrich lays great stress on the depressed position of the diaphragm and the dilatation of the lungs which are always present during paroxysms of asthma, and which he cannot associate with a spasmodic contraction of the bronchi. Biermer, who recognizes the position of the diaphragm as a constant occurrence in bronchial asthma, says that in real bronchial spasm the inspiratory force becomes the antagonist of the bronchial muscles, and drives the air with force through the constricted bronchi into the alveoli. This air, however, escapes but slowly and incompletely, despite the assistance of all the expiratory forces in expiration, and hence follows distention of the lungs.

"Apert," he says, "from the improbability of a diaphragmatic tetanus continuing for hours, Biermer maintains that he has always been able to satisfy himself that the diaphragm contracts rhythmically during the asthmatic attack. The indistinctness of its movements is explained by the obstacle to its elevation during its relaxation furnished by the dilatation of the lungs." "The exception taken by Wietrich," he continues, "that the spasm of the bronchial muscles must be overcome by the greater antagonistic forces of expiration, such as elasticity of the lungs and thorax, the expiratory muscles, and the like, is rejected by Biermer, who denies that the role of the expiratory forces is antagonistic to the bronchial muscles. The expiratory pressure, moreover, acts by no means only upon the contents of the alveoli—the bronchial spasm would be readily overcome thereby, as a matter of course—but acts upon the bronchioles also. The bronchi, during expiration, are subjected to the general expiratory pressure and to the pressure of the morbid contraction of the bronchial muscles; and it is thus understood how the compressibility of the bronchioles favours their further closure, under the influence of varied expiration rather than their further dilatation."

The fact that catarrhal symptoms attend every attack of asthma shows that, in seeking an explanation for the phenomena of this disease, congestion of the respiratory mucous membrane must not be left wholly out of consideration. In fact, Störck has recognized with the laryngoscope this condition of the upper air passages. But it is going too far to say with Weber that the collective manifestations of asthma are most naturally explained by "the supposition of a tumefaction of the bronchial mucous membrane in consequence of dilatation of its bloodvessels through vasomotor nervous influence." The author also refers to the theory of Leyden, who has found in the expectoration of asthmatic patients numerous colourless octahedral crystals, which, he believes, by irritating the peripheral terminations of the vagus nerve in the bronchial mucous membrane, and hence exciting reflex spasms of the muscles of the smaller bronchi, occasion all the symptoms.

In addition to those already noticed, Dr. Riegel is the author of Chapters on Tracheal and Bronchial Stenosis, and on Foreign Bodies in the Trachea and Bronchi, which want of space prevents us from noticing in detail.

If Nothongel is right in maintaining that irritation of the pleura does not excite cough as his experiments on the lower animals have gone to show, it is difficult to know to what cause to assign the occurrence of this symptom in pleurisy. Dr. Fraentzel offers the following explanation. As soon, he says, as there is any effusion, some slight pressure must be exercised on the lung tissue and the bronchi; a pressure, however, which can still be overcome by the act of inspiration. Hence arises an unnatural strain on the lung tissue and the finer bronchi, and this excites coughing. The same cause of strain will arise in cases of considerable effusion when the patient changes his position, which, as is well known, almost invariably causes him to cough. If the lung is completely compressed by the pleuritic effusion, he continues, then no actual strain on the alveoli or the bronchi can arise. In such cases there is no cough, but it returns when the effusion decreases in quantity, and quite violently if this occurs suddenly, as, for instance, in puncture of the chest.

Dr. Fraentzel considers the condition of what he calls the *half-moon shaped region*¹ as of the greatest diagnostic value in extensive left-sided

¹ Inasmuch as Dr. Fraentzel thinks that the diagnostic value of this semilunar space is much too highly estimated in manuals and text-books, we append the following description of it, taken from the text:—

"We have learned from Traube's researches, that at the anterior base of the

pleuritic effusions. The greater the amount of such an effusion the more it must press the diaphragm down and the smaller this space becomes. If the effusion is not as yet very great, and the diaphragm therefore not yet actually displaced, the percussion note in the anterior part of the chest may be obscured, while this semilunar space still remains unchanged in extent; with increase of effusion this space diminishes, and finally disappears. A re-appearance of the semilunar space will, on the other hand, indicate a decrease in the quantity of effusion.

Dr. Fraentzel attributes the sudden deaths occasionally occurring in cases of pleurisy with effusion to torsion of the great bloodvessels, especially of the ascending aorta. This may, through the displacement of the heart, suffer an almost rectangular twist at the point where it perforates the central tendon of the diaphragm to reach the pericardium, a position at which it is firmly attached to the margins of the quadrilateral foramen. Such a twist of the inferior aorta, we can readily understand must lead to an imperfect filling of the heart with blood, and hence, since the mass of the blood is already very much diminished in cases where the effusion has been rapidly poured out, to syncope. In the cases in which this accident has come under the author's observation, the effusion has been left-sided. This accident is very frequently the result of a sudden movement by which the twisting of the vessel is very much increased.

The author is an advocate for the active treatment of pleurisy in the first stage, believing that we have the power thereby of reducing the inflammation and of bringing about a complete absorption of the deposited exudation. He recommends the local abstraction of blood by means of leeches and cups, and even goes so far as to advise venesection to the extent of from six to eight ounces in cases marked by very high fever and by rapidly increasing effusion. This is to be followed by calomel and digitalis, and by nitrate of potassa, and in some cases by mercurial inunction and by counter-irritants. Quinia is also, in his opinion, possessed of valuable antiphlogistic properties, and so are drastic purgatives, but he does not consider the application of cold bandages or ice bladders advisable because the cold very often brings on violent fits of coughing, which are very apt to increase the inflammatory action. On the other hand, after the removal of the effusion by operative measures, he is in the habit of applying a small ice-bladder over the situation of the wound for twenty-

left side of the chest there is a region where the percussion note is tympanitic. This region is half-moon shaped, that is to say, it is bounded inferiorly by the margin of the thorax, and superiorly by a curved line whose concavity is turned downwards. This space, which for want of a better name we call the *half-moon shaped region*, begins in front below the fifth or sixth costal cartilage, and extends backwards along the margin of the chest as far as the tip of the ninth or tenth rib. Its greatest breadth is from four inches to four inches and a half.

"The sound in this region, in the natural condition of the stomach and large intestine, is distinguished from that of the lung above it not only by its tympanitic quality, but also by its higher pitch. We must not, however, percuss too strongly if we wish to define accurately this half-moon shaped space, for with very strong percussion we may get a note of tympanitic quality even higher up than this.

"Under normal conditions this semilunar space will be diminished by deep inspiration, as the lung is thereby increased in volume, and with the diaphragm descends lower. From this circumstance we can always conclude that the anterior inferior border of the left lung is movable.

"Conversely, a considerable increase in the width of this space during respiration is usually connected with immobility of the lower border of the left lung, and is one of the most important signs of the existence of contraction of this lung."

fnor or forty-eight hoors. He makes oo allusion to the treatmeot proposed by Roberts of strapping the affected side with adhesive plaster, as in fracture of the ribs, which ofteo, by limiting movement, gives great relief to the patient.

It is with some surprise that we learn from Dr. Fraentzel that there are many physicians in Germaoy, who still hesitate to have recoorse to paracentesis thoracis in soitable cases. He is himself an earnest advocate of this operation, resorting to it in acute cases, where there is danger to life from immediate suffocation, and when the effosioo is very large, i.e. when there is absolute dulness over the whole of ooe side anteriorly, or when there is only a small strip where the dulness is not absolute, and this yields a high-pitched tympanitic oote; "for we are taught by experience," he says, "that in the case of such extensive effusions death may often supervene quite suddely either from syncope or from acote œdema of the soond lungs." Again, in extensive effusion absorption will frequently go ou much more briskly after the removal of a portion of the liquid, since generally, in these cases, absorptiun is prevented by the pressure which the pleuritic effusion exerts on the orifice of the lymphatics. Moreover, if absorption is delayed, patches of caseous pneumonia are very readily developed in the compressed lung, to which miliary tuberculosis is sometimes added, or very thick pleuritic membranes remain behind as residoo of the effosion, and these forever impede the re-expansion of the lung, and generally lead to contractioo of the chest. It needs scarcely be added, that he recommends os to poncture whenever we are satisfied that the effusion is porulcot, no matter whether it is large or small in amoont. Very full directions ore given as to the proper method of performing paracentesis, to which we must, as it would occupy more space thao we have at oor disposal to reproduce them here, refer the reader who is specially interested to this subject. If the fluid reaccumulates, in cases where the effusion is fibrino-serous he advises us to repeat the operation, and if again unsuccessful in effecting a cure, oo longer to pot off doing the radical operation. After an incision has been made, preferably in the fourth or fifth intercostal space, midway between two ribs, und parallel to them, and the effosion has been cleared oot of the pleural sac, "we must proceed," Dr. Froentzel says, "to cleanse this cavity, and this we can do by introducing two Nélaton's catheters haviog several openings at their lower eods, as deeply as possible into the pleural cavity, in the direction of the spine, and then through one of the catheters allow pore distilled water of a temperature of 100° to 103° F., oot of an irrigator, to ruo io till the pleural sac is full, then withdraw this floid agaiu through the other catheter by means of a dooble-cock exhausting syringe, and repeat this cleansing process until the water withdrawn from the pleoral cavity is quite pure. . . . The wound is then to be dealt with io the following manner: We place io the wound a silver canola which can pass easily between the two ribs, but which is wide enough io the other direction to allow two of Nélaton's catheters of medium size to pass through it." This will allow the freqeot cleasioog of the cavity, which, io the oothor's opinioo, should be dooe twice daily. He also recommeods the ose of *Lister's protective* as a coveriog to the caoola and wound, and wheoever this is removed, that the spray of carbolic acid should be directed opoo the wound.

Dr. Fraeotzel is also the aothor of articles oo Hydro-, Hæmo-, and Pneo-mothorax.

J. H. H.