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REMARKS ON CLINICAL CASES.

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Gentlemen,—The case of *Typhoid Fever* which you saw at the last clinic died on Monday. The prominent features of the case were: Illness of over three weeks' duration before coming to hospital—fever, headache, and diarrhœa; in bed on and off during this period, but up and about for days at a time. Came to Dispensary on the 8th, and was admitted. The temperature was 103°F.; pulse 90, dicrotic. He was bright mentally, and did not present the appearance of a man who had been ill three weeks with fever. When you saw him on Thursday last he had all the appearance of a man with typhoid; the symptoms were not grave; temperature not high; pulse not over 100. There were two unfavorable features in the case,—the fact of his having been neglected for three weeks and allowed to be about while the fever was on him, and the nervous twitchings of the muscles. An unfavorable prognosis was given. The subsequent course was briefly as follows: On Friday evening the temperature rose to 105°F., and throughout Saturday and Sunday there was a constant tendency to elevation, kept down but feebly by quinine in 15 and 20 gr. doses, and cold sponging every hour or two. On Saturday the lowest temperature was 101-2°, and the highest 105°. On Sunday it rose to 106.2°. He retained

consciousness in a remarkable and unusual manner. He took stimulants and nourishment every alternate hour. The diarrhœa was never troublesome, but the stomach became a little irritable on Saturday and Sunday, so that the quinine had to be given at times by the bowel. It is exceptional for cases such as these to get well, and when a man walks into your office complaining of fever, headache, and malaise, says he has been ill a couple of weeks and has been fighting against it, and you find his temperature 104° or 105°, you may expect a case of severity. As I mentioned at the last lecture, there is no worse feature than such a history. The nervous or rather muscular twitchings are also of evil omen, indicating implication of the nerve centres. They may even amount to convulsive jerkings of the head, trunk and extremities, and I remember one case in which the muscular spasms were so prominent that the disease was thought to be spinal meningitis.

Heart Disease: Action of Digitalis.—This old man, aged 75, you also saw at the last clinic, and he is brought in to-day to demonstrate to you the beneficial effects of digitalis and rest. He has mitral disease, which probably followed an attack of rheumatism in 1854. On Thursday last, three days after his admission, he was, as you remember, very short of breath, the feet and abdomen were dropsical, the pulse was small and exceedingly irregular, and the amount of urine was reduced. He has had 10 ♏ of the tincture of digitalis every four hours, day and night, and has been kept quiet in bed. The changes are: 1st, The pulse is slower, fuller and only occasionally intermits. Those of you who saw him in the ward-class the day after his admission will recall the extreme feebleness and the irregularity of the pulse. 2nd, The breathing is quite relieved; he can lie down comfortably, and walking is not an exertion. 3rd, The dropsy has disappeared entirely from the legs, and has almost all gone from the abdomen, which, as you see, is relaxed, and only gives indication of a small amount remaining. 4th, The urine has increased from 3 and 3½ pints to 6 and 7 pints in the 24 hours. He has been taking the digitalis ten days, ʒi in the day—not a very large amount, but it has served our purpose.

Caisson Disease.—The man, J. Farrell, aged 30, who came to Hospital yesterday (17th) with a heavy cold in his chest, is also—or rather has been—the subject of an interesting disease to which the workers in the compressed air of the caissons are liable. Two months ago he went to work at Perryville, on the Susquehanna, where they are building a bridge, and in sinking the piers the workmen are in caissons, as they are called, in which the pressure may amount to two or three atmospheres. Until Sunday last (13th) he had never suffered any inconvenience, beyond occasional "bends," as he calls them, to which I shall refer later. At 4 a.m. on Sunday he came up from work feeling all right, but before he could get to his boarding-house the left leg became numb, cold and dead, as he puts it, from the hip down, so that he could not walk, and had to be carried home. It did not appear to be painful, but he says the sensation in it was gone. It remained in this state all day, but towards evening he could move it a little, and on Monday morning the power was quite restored. He did not attempt to go to work again; was too much scared! There were some pains about the legs and arms for a day or so, and a feeling of dizziness, particularly if he looked up or looked from a height. He has now quite recovered, except that on walking, if he looks up, he staggers, and there is a tendency to sway when the eyes are shut. The patellar tendon reflex on both sides is a little exaggerated; no ankle clonus; skin reflexes normal. No other special features. He says that the workmen are much subject to what they call "bends," which, so far as I can make out from his imperfect account, are attacks of pain in the arms or legs, often about the joints, but whether accompanied by spasm or cramp of the muscle does not appear very clear from his statements. These attacks never come on while in the caisson, but *always* a few hours or less after they have come up. So also with the more severe attacks; they invariably come on after leaving the caisson, never in it. He states that two men have died of the affection, and that one man is now in hospital paralyzed in both legs. In the building of the Brooklyn bridge, many cases of this curious disease occurred, and Dr. Andrew

H. Smith of New York made a special study of it, and was, I believe, the first to give the name by which it is now generally known. According to his description, it is characterized by pain in one or more of the extremities, sometimes with pain in the stomach and vomiting. There is paralysis, local or general, but most often in the lower limbs. Headache, vertigo, and coma may occur. Cases may prove fatal with these symptoms, and, *post-mortem*, congestion of the brain and cord has been found. In sinking the piers for the bridge at St. Louis, there were many cases, and there were twelve deaths among the 352 men employed. The disease has been known to French observers for many years, and has also been met with in miners working in compressed air, and in sponge divers in the Mediterranean. There appears to be no difficulty, in the majority of the workmen, in standing a pressure of two or three atmospheres, and, as a rule, no inconvenience is felt further than the temporary pain in the ears, due to the pressure on the drums, which disappears gradually. Naturally, there is a tendency for the blood to be driven into the deeper parts, the superficial vessels are compressed, there is less blood in the skin and more in the viscera. The brain and cord, enclosed in solid, incompressible cases, will also have an additional amount of blood. But this does not appear to produce any inconvenience, and men can work for hours under a compression of three or even four atmospheres. The danger is in the transition from a high to a low pressure, and, as this patient has told us, the men are never affected in the caisson, but always on coming up. The occurrence of sudden death, or a rapid paralysis, suggest hæmorrhage as the cause, but it has been shown by Hoppe-Seyler that there may be a sudden development of nitrogen gas in the blood on removal from high to a low pressure atmosphere, and he attributes the symptoms and the fatal result to the evolution of this gas, the bubbles of which plug the capillaries in the lungs and produce dilatation and stoppage of the heart. Bert states that in an animal under very high pressure, the blood, when withdrawn at low pressure of the atmosphere, will foam from the rapid evolution of nitrogen. The paralysis is probably also due

to this cause, and in one case Leyden has found, 15 days after the onset of the paraplegia, lacerations in the cord, which he attributed to the action of the gas bubbles, distending and tearing the capillaries. Schultze, in another case—death 2½ months after the onset,—could only find disseminated areas of sclerosis. This really seems to give a satisfactory explanation of the cases, and in this man we may suppose that he has had local development of gas in the lumbar region, limited in extent, probably not destructive, but only expanding the capillaries and inducing a monoplegia, which disappeared with the absorption of the gas. Paul Bert found that if the animals which had been exposed to the pressure of several atmospheres were to be kept alive, the transition to the normal atmospheric pressure must be slow and gradual, so as to permit of the gradual diffusion of the superfluous gas absorbed by the blood under the high pressure. So also it is recommended that, on the first onset of symptoms in men working in caissons, they should be submitted again to the pressure, which should be gradually reduced to the normal standard.

Emphysema—Bronchitis.—This man, J. S., aged 35, came to hospital complaining of great shortness of breath and cough. When stripped, he carries, as you see, the diagnosis in the form of the chest and the peculiar mode of breathing. Inspection shows a short, well-nourished man, with a full, barrel-shaped thorax, into which the head seems set by a very short neck. Watch the peculiar mode of breathing. The inspiratory act is labored, accompanied with more elevation than expansion of the chest-walls, but the abdomen rises considerably. Expiration seems still more labored, and is fully twice as long as inspiration. It looks as if the air were forced by muscular exertion out of the chest; and so it is. With each act there is very audible wheezing, most marked with expiration. The finger tips are a little livid, but there is no cyanosis of the face. On placing the hands upon the chest, ronchial fremitus can everywhere be felt, but most intense at the right apex, in front. Percussion gives a hyper-resonant note over the various regions, except the left base and lower axillary regions, where there is

defective resonance. On auscultation, there are innumerable whistling and sonorous râles over the whole chest; nothing else can be heard with both inspiration and expiration. The high-pitched ones are most prevalent. There are two places where there are special features. At the right apex the sounds are extremely hollow, and there may be here either a cavity or, what is more likely, dilatation of the bronchial tubes; at the left base, with the piping rhonchi, there are many liquid râles, and there is possibly here some infiltration—œdema of the lung. The cough is most distressing, frequent, and the sputum is got rid of with difficulty. It is tenacious, thick, and purulent. The area of heart's dulness is covered by lung, and the liver is depressed. The points in the history are briefly as follows:—He is a jeweller by trade, and has used the blow-pipe a great deal for 15 or 16 years. He tells us that sometimes he would require to keep up the flame for 15 or 20 minutes, only intermitting enough to catch the breath. The family history is good, and he was always pretty healthy until three years ago, when he was laid up with a severe bronchitic attack for three months, and ever since he has been specially liable to catch cold, and has had four or five spells of shortness of breath and severe cough; none have been so bad as the present one, which came on a week ago, with fever, cough and dyspnœa. Two conditions are here present: Emphysema, a permanent and irreparable affection of the lungs; and Bronchitis, a transitory and curable condition, upon which his chief symptoms now depend. Two weeks ago this man could get about satisfactorily, and, if he took it quietly, could go up stairs without difficulty, whereas now he puffs and blows on the slightest exertion. The emphysema has no doubt been caused by the habitual use of the blow-pipe in his occupation, and every such attack as the present one leaves the lung in a worse condition than before. Just now the bronchitis is the main trouble, and the swollen state of the mucous membrane retards the access of air to the alveoli, while the loss of elasticity in the lungs renders expectoration very difficult, and the cough is in consequence hard and distressing. On his admission, he was ordered a relaxing expectorant (chloride of

ammonium grs. x, with ipecacuanha wine 20 ♏) every three hours, and already, after two days, he is much relieved. Jacket poultices, frequently changed, are very useful when there is much soreness in the chest. The existence of local trouble at the right apex may delay convalescence, but the bronchitic symptoms should disappear in a few weeks.