Lastly, the condition of the teeth, and the question that arises therefrom as to whether imperfect or arrested development was an etiological factor in the production of the growth, or an effect produced by the latter.

REFERENCES.

- ¹ *Diseases and Injuries of the Teeth*, p. 406. ² *Lancet*, October 10th, 1857. ³ *Archiv f. path. Anat.*, 1879. ⁴ *BRITISH MEDICAL JOURNAL*, 1883. ⁵ *Archiv. de Physiol.*, 1885. ⁶ *Lehrbuch der speciellen Path.-Anatom.*, 8th Ed., p. 488. ⁷ *Pathologisch-anatomisch. Diagnostik*, 5th Ed. ⁸ *Dental Surgery*, p. 630. ⁹ *Ibid.*, p. 476.

ON THE TREATMENT OF ABDOMINAL PALPITATIONS.

By SIR WILLOUGHBY WADE, M.D., F.R.C.P.,
Florence.

THIS well-known disorder, most common in women but not infrequent in men, is in all cases unpleasant, often distressing, and in some instances painful, so much so that patients are most grateful for relief.

Palpation of the abdomen during an attack reveals an abnormally forcible pulsation of the abdominal aorta. Not only so, but often in the intervals also we find a pulsation which is undue, whether compared with that of the patient during health, or with the average amount in other healthy persons. In the quiescent condition it is often more evident just above the bifurcation than in other accessible portions. It also may extend to one or both of the iliacs. And we also may find such a condition in persons who are not sensible of throbbing. On superficial pressure it may not appear to be so, but on deep pressure it is evident that the pulsation is confined to the aorta itself. Such pressure elicits distinct, sometimes extreme, tenderness. Whether this tenderness is situated in the coats of the artery itself, or in nerves distributed over its surface, or in both, may admit of difference of opinion, I incline to think that it is in the coats of the artery. We generally also find some, perhaps not considerable, disturbance, constant or intermittent, of some one or more of the splanchnic viscera. It is important to know that it may be associated, not only with functional or curable splanchnic disorders, but also with organic changes, such as carcinoma, and that in a position where it does not form a tumour in the *trajet* of the aorta, either in front of or behind it.

When we meet with undue pulsation in the radial artery we call it high tension. But in these cases there is no noticeable high tension in the radial, but often the reverse. Does this, then, prove that, contrary to all appearances, there is not an excess of tension in the abdominal aorta?

The throbbing of inflamed parts, the increased flow of blood and its more vehement projection through the arteries of an inflamed hand, Claude Bernard's experiments on the secretion of the submaxillary gland all show that there may be a tense state of limited arteries which does not extend to other parts of the circulation.

Experiments have led physiologists to the conclusion that in the rabbit the splanchnic vessels, inclusively, are capable of containing the entire blood of the body. Probably the same is true of man. They have also pointed out a fact which has, I fear, been but imperfectly assimilated by the practitioners of medicine. This is that the splanchnic and somatic (or skeletal) circulations are complementary the one of the other. That if we repress the blood from the other parts of the body it takes refuge in the abdominal organs and *vice versa*. Or, if we attract it to skin and muscles, we withdraw it *pro rata* from the abdominal organs and *vice versa*. Herein, it may be said in passing, is the chief, if not the sole and adequate, explanation of the benefits obtained by the Schott system. The baths attract the blood to the skin and the resisted movements to the muscles, and, by emptying the splanchnic circulation, relieve the stasis therein.

From all the above considerations, it seemed to me reasonable to conclude that in the case of abdominal palpitations appearances are not deceptive. That whatever may be the state of the somatic circulation, tested as it commonly is by the radial pulse, the abdominal circulation, as regards its

aorta and probably other arteries, is in a state of high tension.

The therapeutic test, suggested by these considerations, amply justified them. With the object of reducing arterial tension, our predecessors used to bleed. We have recourse most commonly to the nitrites, especially nitroglycerine, and it is this which I employ in these cases; it may be taken when the attack is on, but it is better to give it once or twice a day, or if needful more often. A small dose will be generally found sufficient to affect the disorder, and we thus avoid the unpleasant headache or flushing which larger doses produce. One two-hundredth of a grain every night is often sufficient, and this may be obtained either by a tablet containing that quantity or by cutting in half one of those containing $\frac{1}{100}$ grain.

The relation of the state of the aorta to the functional disorders of other organs is not quite certain. It may be that it causes them: or, on the other hand, it may be that they cause it. Possibly the relation may be in some cases the one and in others the other. But if, as the palpitations subside, the other symptoms remain, it will be necessary to attend to them. But it is surprising how the equalisation of the circulation affects the other miscellaneous symptoms in many instances.

An interesting illustration of this is curious though easily explicable. Nitroglycerine is commonly employed for the reduction of the force and volume of the pulse as tested by the radial artery. In the condition under consideration the radial pulse is at once rendered more full and forcible by the entrance into the somatic vascular area of the blood liberated from the splanchnic area.

I append short notes of the first and the last cases in which I have applied this method of treatment.

A lady past middle life had an attack of hæmatemesis to an alarming amount. This recurred twice in the course of four days. The last attack was as follows. In the forenoon she complained of great and painful abdominal pulsation. She then became pale, the pulse frequent, and very small and feeble, and she said she had "a faraway feeling." About six hours after she began to vomit, and brought up a large quantity of blood; a small portion was bright red, the remainder very dark. I came to the conclusion that all except the scanty florid first portion had been poured out in the forenoon, and that preceded as it had been by the vehement aortic pulsation, the hæmorrhage was due to an active determination of blood to the stomach. She had not had, nor did she have, any symptoms of ulcers.

I determined to administer nitroglycerine in such quantity and at such intervals as might be necessary to prevent any undue abdominal pulsation, and did so. She had no return of the hæmorrhage though many of incipient pulsation, and she made a slow but good recovery.

I have since seen two other similar cases. In neither did the hæmorrhage recur after the circulation had been controlled by nitroglycerine.

The second case also of a lady past middle life, has been under my care within the last few weeks. When I saw her she complained of uneasy and unrestful sleep, a total incapacity to think or to read, or to mix in society because of her inability to enter into conversation. In short, she felt perfectly wretched. She also had great, and often painful, abdominal pulsation, especially about 5 or 6 A.M. Her pulse was quiet and regular though rather small and feeble. She had been in a similar condition about two years ago, and, obtaining no relief from treatment, was recommended by her London physician to go into a "rest cure," which she did for five weeks, and came out very well. The same thing happened last year, and she was again sent to a "rest cure," and remained six weeks, but was not as well as at the end of the previous period. The present attack has lasted about a month. I gave her $\frac{1}{100}$ gr nitroglycerine at bedtime. The first night her sleep was more quiet and restful, and the next morning pulsation very much less. In three or four days all her symptoms had disappeared, and she was comfortable, bright, and happy. In both these cases the pulse developed under the treatment. This principle of treatment is applicable also to many cases of cold feet and hands; this symptom being due not to insufficient action of the heart, as is often supposed, but to contraction of the local arterioles,