

invited to co-operate in these simultaneous observations; and this invitation was, among others, quickly responded to by the directors of the Observatories at Boston and Philadelphia. The observations of these latter bodies, as far as they have been made, have been communicated to Lieut.-Colonel Sabine, and the whole have been projected upon a similar scale for comparative reference with those made at Toronto. The remarkable harmony in the curves of the three American Observatories on every one of the Term days, attests the reality of the phenomena, of which each affords an independent representation. The perturbations which took place in Toronto in the magnetic direction, and in the intensity of the magnetic force, are obviously common to a large portion of the North American continent. To effect a comparison of similar simultaneous observations made in Europe, the plates containing the American curves, embody also the results obtained from the observations made on the Term days, at Prague or Breslau, and which embody the magnetic perturbations common throughout the largest portion of the European continent. The correspondence so strikingly manifested in the fluctuations of the declination and horizontal force in America, and which has its counterpart in Europe, is not found to prevail in the same degree between the curves of the two Continents, when exhibited in comparison. Nevertheless, instances are not unfrequent of individual perturbations common to both Continents, having their culminating points at the same observation instant. There are sometimes disturbances in the same direction in both Continents, and sometimes in opposite directions. On the other hand, there are perturbations, and occasionally of considerable magnitude, on the one Continent, of which no trace is visible in the observations of the other.

Having thus premised these general observations on the work before us, we purpose, in our next, to present to our readers some of the tabular results, which have been deduced from the extended observations made and conducted in so creditable a manner to the parties invested with the charge.

PRACTICE OF MEDICINE AND PATHOLOGY.

ON THE DIAGNOSIS OF ANEURISMS OF THE AORTA.

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The present memoir comprises the diagnosis of aneurism of each of the three anatomical divisions of the aorta.—Aneurism of the *ascending* portion, when it becomes evident externally, appears in the form of an hemispherical circumscribed swelling, which pulsates isochronously with the heart. The skin is not altered in colour till the latter periods of the disease. The patient generally complains of pain in the tumour, which is increased during the systole of the heart, and which becomes oftentimes much increased by motion, and during the digestive process. The tumour is more or less painful to the touch, and pulsates strongly,

If the aneurism be so small as not to have arrived at the walls of the chest, it may be recognized still by its impulse and by a dull sound on percussion, which indicates that the corresponding portion of lung is pushed on one side. Auscultation also reveals a double "*bruit de choc*," and a dry friction sound; a to-and-fro sound, in fact, is sometimes interposed between the systolic and diastolic bruits. If the site of the aneurism, and the heart be simultaneously examined, it is easily perceived that the sound given out by the aneurism is different both in seat and quality from that of the heart. The diastolic sound of the aneurism does not coincide with the second sound of the heart, but precedes it.

When the aneurism of the origin and ascending portion of the artery consists in simple dilatation of the arterial tunics, it gives rise to certain peculiar signs. Auscultation at the right border of the sternum, and over the cartilages of the second and third ribs on the *right* side, reveals the existence of only one bruit, combined with an impulse, which is synchronous with, and in some cases difficult to distinguish from the systole of the ventricles.

The aneurismal bruit, however, is heard almost as distinctly behind as before—while the heart's action is nearly inaudible in the back; moreover, the bruit depending on the heart is heard on the left side, between the scapula and spine—the aneurismal bruit on the right. This difference in the sounds in the posterior aspect of the thorax is sufficiently diagnostic.

There is in some cases but little pain in simple dilatation of the ascending aorta; and in general it gives rise to no more than a sensation of uneasiness and fulness under the sternum. In this respect it differs widely from aneurism depending upon erosion of the arterial tunics.

If the ascending aorta becomes the seat of considerable dilatation, or be enlarged by aneurism from rupture of its coats, the trachea is usually pushed slightly to the left side. A difference in the pulse in the two wrists is generally considered to be a diagnostic sign of aneurism of the aorta; this sign, however, is equally perceptible in simple arteries, and therefore has no value as a diagnostic. Dyspnoea is one of the signs of aneurism; but when the tumour is situated in the ascending portion, it is not constant, but occurs only upon exertion or mental disturbance. If, however, the aneurism be sufficiently large to compress the principal divisions of the bronchi, the difficulty of breathing is continuous, and becomes suffocative when muscular exertion is made; and in such cases the compression is indicated by the existence of a sibilous r le. When the walls of the bronchi become inflamed in consequence of the pressure, expectoration of tenacious mucus is superadded, and should warn us of the near approach of one of the terminations of the disease, by rupture into the respiratory passages.

In some cases the compression is not limited to the bronchi, but is exercised also upon the origin of the pulmonary arteries, particularly those on the right side; the dyspnoea is then greatly aggravated, and the patient usually is attacked with h moptysis. Lividity of the countenance is likewise present in these cases, on account of the deficient arterialization of the blood.

The dyspnoea in cases of aneurism of the origin of the aorta, is often the result of a coincident affection of the heart or pericardium. Valvular disease and endocarditis form a serious complication, as they induce in general a greater or less amount of a ventricular hypertrophy. The proficient in auscultation will not confound the symptoms of these complications with those of the original lesion; but still the diagnosis often becomes sufficiently difficult to require attentive investigation.

It is a common opinion that the asthmatic paroxysm frequently depends upon disease of the heart and large vessels; it is not difficult, however, to distinguish real asthma from the dyspnoea of cardiac disease. The former