

rendered, point to August, September, and February, as being those in which the greatest magnetic disturbances are seen, while April appears to be a tranquil month, in both Toronto and Van Dieman's Land, from which stations these results have been obtained. As far, again, as regards season, the fluctuations are greater in the summer than in the winter months. The constancy and regularity with which this excess occurs render this deduction one of considerable importance, and demand for it a closer attention.

Connexion of Magnetic Disturbance with Aurora.—

Of the 24 days of principal magnetic disturbance at Toronto, on 13 the aurora was visible, varying in intensity, from a faint auroral light, to brilliancy. On the remaining 11 days the sky was either densely overcast, or heavily clouded, so that its existence could be only inferential. The same days of disturbance, however, were also days of disturbance at Prague and Van Dieman's Land, at which places it does not appear that similar atmospheric phenomena were witnessed. The aurora, has, probably, then, a local manifestation, connected with magnetic influences, pervading, to an unusual degree, whatever may be its origin and its end, the whole surface of the globe.

We cannot pass this subject from our hands, without alluding to the meritorious services of Prof. Espy, of Washington, in this department of science. Of the various meteorologists in the United States, perhaps this gentleman stands pre-eminent, and has devoted his time and attention chiefly to a development of the laws which prevail over, and guide the course of storms. The House of Representatives of that country voted, a few years ago, a sum of money for the elucidation of this branch of meteorology, under Professor Espy's superintendence. The establishment of about sixty stations of observation, distributed over the whole territory of the United States, was immediately effected, and the direction of the wind at the same hours of observation, was carefully noted in all the storms which occurred in the first few months of 1843. A report by Prof. Espy, has been presented to the House of Congress, accompanied by an elaborate and interesting series of maps. These we have never had the gratification of seeing and perusing, but our knowledge of them is derived from other and incidental sources. We have understood that there is some danger of the Legislative grant not being renewed: we sincerely hope that this may not be the case. It is only by wide scattered observations, and a very extended series of co-operative efforts, that the general laws which affect meteorological changes, can be determined. The greatest practical benefits result from their correct appreciation. The pecuniary resources of individuals are

usually inadequate to the fulfilment of such grand designs; and we regard the appropriation of public monies to such purposes, as not only strictly legitimate, but also a matter of duty, on the part of the proper authorities.

It, in thus closing our review of the valuable statistic volumes before us, and which, with the characteristic munificence of the British Government, have been presented to this Province, and deposited in the Library of the Legislative Council by his Excellency the Governor General, our readers find that we have been diffuse, we can only plead in extenuation the importance of the subject, and our desire to place the results so elaborately obtained at the command of all, and thus to compensate for the difficulties which those who feel an interest in such matters would experience in obtaining access to them.

Nor can we here forbear paying a tribute to the memory of the late Robert Armour, jun., Esq., of whose active pen, the first paper of this review, and a small portion of the present one is the production. In him, the literature of this country has lost a warm supporter, and science an ardent admirer. Anxious for the success of his journal, and desirous of contributing to its pages, he commenced the task, which an overruling Providence, "whose ways are not as our ways," did not permit him to accomplish; and it has become the painful duty of one of the Editors, to conclude, under such circumstances, the intended paper of an early, and talented friend.

ANATOMY AND PHYSIOLOGY.

DIGESTION AND ASSIMILATION OF SACCHARINE AND AMYLACEOUS SUBSTANCES.

By M. MIALHE.

It is now commonly believed that the alimentation of animals is effected by means of three different classes of substances, the azotized or albuminous, the fatty, and the saccharine. The researches of late experimentalists have proved that the digestion of the first is effected chiefly through the agency of the gastric juice, and that of the second by means of the bile; but nothing certain was determined relative to the saccharine or amylaceous group of substances. M. Mialhe, in a paper on diabetes, presented to the Academy of Science in April, 1844, gave the first sketch of his views on digestion of these substances, and in the present paper enters into the details. He found that the active matter in the digestion of amylaceous and saccharine matters was the saliva, and by operating on it, discovered its active principle to consist of a peculiar matter perfectly similar in properties and composition to diastase.

This active principle of the saliva, which he proposes to name animal diastase, or salivaire, is a white or grayish-white amorphous solid, insoluble in alcohol, but soluble in weak alcohol or in water. Its aqueous solution is insipid to the taste, and has a neutral action on test papers. It is not precipitated by the subacetate of lead; when left to itself it speedily decomposes and becomes acid. The acid which results is the butyric, or one very closely allied to it. This