tain muscles of the face or extremities, or nausea and vomiting, or perhaps dyspnœa. The convulsions are exactly the same as those occurring in epilepsy. There is the initial tonic spasm more or less marked, followed by clonic spasms, with biting of the tongue, foaming at the mouth, twitching of the eyes, inequality and alternate dilatation and contraction of the pupils, which are generally insensible to light; though it is asserted by E. Wagner (4) that the pupils are generally dilated and seldom insensible; while Fagge (5) says, "at Guy's Hospital from the time of Addison it has been usual to describe them as being more often contracted, or of the normal size, and as usually retaining their sensitiveness to light."

There is also frequently an involuntary discharge of urine and fæces, and sometimes of semen, and the temperature generally rises three or four degrees and may even reach 106° F., the frequency of the pulse being at the same time increased. Then follows the stage of stupor or coma, when the temperature and pulse fall to normal or lower, the patient passes into a deep sleep of several hours duration, and remains perhaps for some days in a stupid dazed condition. Or, before the insensibility of one attack has passed off, another convulsion supervenes, and the paroxysms may rapidly succeed one another till death puts an end to the distressing scene, after perhaps twenty or thirty separate convulsions.

Again, in place of the comatose stage, there may be violent maniacal delirium generally terminating fatally; and also, what is very important to bear in mind, the initial convulsions may be wanting, and there is only a sudden onset of coma with stertor, as described by Addison (6), which has frequently been diagnosed as cerebral apoplexy.

Here I may venture to remark that probably many cases of so-called apoplexy or cerebral hemorrhage not attended with motor paralyses, would, if submitted to post mortem examination, fail to furnish any evidence of intra-cranial effusion of blood, and are really due to uræmia, even when there has been no suspicion of the existence of renal disease during life.

In other cases there may be nothing but delirium marking the uræmic seizure, which may last for days. Or there may be only a rigidity or tremor in one or more of the limbs, while the mental faculties are in no way disturbed. It is important also to note that the symptoms are often very similar, if not identical, with those of Jacksonian or cortical epilepsy.

Amaurosis, generally associated with cephalalgia, is another remarkable symptom which is sometimes the result of uræmia. It arises suddenly and as suddenly disappears. It is bilateral and generally complete, and is to be distinguished from those disturbances of vision which depend on chronic structural changes in the retina and optic disc, which so often occur in the course of chronic Bright's Disease (though amaurosis may be associated with albuminuric retinitis), for the ophthalmoscope reveals no pathological alteration of the visual apparatus sufficient to account for the sudden blindness. It was supposed by Dr. Crocq (7) to be due to œdema of the retina; and Gowers cites two cases where slight œdema of the discs was observed, which disappeared when the amaurosis passed away, and he says, that even where the blindness is complete the pupils generally still react to light. This would seem to show that the lesion must be above the corpora quadrigemina. Sometimes amaurosis is the only symptom of the uræmic condition; but not infrequently it follows, or may even precede the epileptiform convulsions. Tinnitus aurium, or perhaps complete deafness, is occasionally also a sequel.

Finally, instead of the well-marked ecclamptic seizure, uræmia may give rise to only a few weak spasms in the facial muscles, or in those of the eyeballs or extremities, or to a slight trismus, consciousness being retained with perhaps some degree of confusion.

Associated more especially with the chronic forms of Bright's Disease, and perhaps too with the typhoid state which sometimes follows cholera, are certain phenomena, some obviously of nervous origin, others not, which we may call *chronic uræmic symptoms*. These are headache, vertigo, increasing drowsiness, stupor continuing

(4). WAGNER, ERNST. Handbuch der Pathologie—translated by Drs. Van Duyn and Seguin, New York.

(5). FAGGE. Practice of Medicine, Vol. II. p. 468.

(6). Guy's Hospital Reports, 1839.

(7). Presse Medic. Belge, Oct., 1850, p. 393.