

wholly from one side, and the other from the other side of the brain.

From the structure of these fish, we learn distinctly that the perception of objects toward one side is dependent on nerves derived from the opposite side of the brain; and, in the last case of diseased vision above related, we find apparent injury to one side of the brain followed by blindness toward the opposite side of the point to which both eyes are directed.

A series of evidence in such apparent harmony throughout, seems clearly to establish that distribution of nerves I have endeavoured to describe, which may be called the semi-decussation of the optic nerves.

Note.—We think it right to insert, in connexion with the paper of Dr Wollaston, the following extract of a letter from a distinguished philosopher in Germany to the editor of the Edinburgh Philosophical Journal. What renders the circumstance to which he alludes more worthy of notice, is, that the same complaint is constantly made by the English with regard to their continental neighbours.—ED. N. E. J.

"I do not understand how it happens that the labours of the Germans, and even of other nations, in comparative anatomy, are so little known in England. Many observations and opinions, which are considered as new in your country, have been long known to us in Germany. In proof of this I may mention, that, in the thirty-fourth number of the London Journal of Science, there is an extract from a memoir on the "*Semidecussation of the Optic Nerves*," in which the illustrious author, from a pathological appearance he observed, infers a partial crossing of the optic nerves, without appearing to know, not only that many authors, from similar grounds, have come to the same conclusion, but also, that this kind of crossing had been observed in the eye of the human species by Vicq d'Azyr, Caldani, the brothers Wentzel and Chiasmon, and by G. R. Treviranus in the eye of the *Simia Aegula*. (*Vide Verm. Schriftin, von G. R. & L. C. Treviranus, Th. iii. p. 168.*)"

Experiments to ascertain how far the Presence of Albumen and Murialic Acid interfere with Action of Bichloride of Mercury and Protomuriate of Tin upon each other. By JOHN BOSTOCK, M.D. F. R. S.

[From the Edinburgh Medical and Surgical Journal.]

IN Dr Paris's work on Medical Jurisprudence, he is led to refer to the experiments that I made many years ago (and which are inserted in an early Number of your Journal), for the purpose of ascertaining, how far it is possible for a poison to be received into the stomach and prove fatal, and yet be so entirely evacuated from it, as that, upon examination after death, no trace of it may be discoverable. Dr Paris speaks of the experiments with that candour which characterizes every part of his valuable performance; but adds, that it is to be regret-

ted that the stomach itself was not subjected to chemical examination.

A remark of the same tendency is made in your review of the "Medical Jurisprudence," which has induced me again to turn my attention to the subject. The curious fact that has been lately discovered by Dr Prout, of the presence of muriatic acid in the digestive organs, is of importance in this inquiry, as this substance may materially affect all the processes, where we are examining the chemical nature of the contents of the stomach.

Being so situated as not to be able to operate upon the stomachs of living animals, I performed some experiments, which may, at least, be regarded as having a reference to the question, and which appear to be so far conclusive as to show, that the first of the objections urged by Dr Paris and yourself is not without foundation. As a preliminary step in the inquiry, I began by ascertaining correctly, in the *first* place, the degree of delicacy with which the presence of bichloride of mercury may be detected by the protomuriate of tin; and, *secondly*, how far the presence of albumen interferes with the action of the salts of mercury and of tin upon each other.

A standard solution of *albumen ovi* in water was formed, containing 1 part of dry albumen to 100 of distilled water; and a solution of similar strength was formed of the bichloride of mercury. The protomuriate of tin was prepared by digesting the metal in strong colourless muriatic acid, the tin being added in greater quantity than the acid was capable of dissolving.

1. A portion of the solution of bichloride of mercury was diluted, until it contained $\frac{1}{100}$ of its weight of the salt; to 100 minims of this solution 1 drop of the protomuriate of tin was added, when the whole of the fluid was rendered of a deep blackish-grey colour.

2. For the purpose of comparison, a portion of the standard solution of albumen had $\frac{1}{100}$ of its weight of the bichloride of mercury added, and to 100 minims of this, one drop of the protomuriate of tin; the fluid was rendered of a deep grey colour, and a kind of imperfect coagulation took place; in 40 hours the colour was much deepened; and, upon the whole, the effect appeared more considerable than in No. 1.

3. The solution of the bichloride was then diluted until it contained only $\frac{1}{1000}$ of its weight of the salt; 100 minims of this had 1 drop of the protomuriate added; a decided grey tinge was produced; and in 24 hours a visible precipitate was thrown down; and even when an equal volume of water was added, so as to reduce the bichloride to $\frac{1}{10000}$, the grey co-

lour was still perceptible, and the precipitate might be detected.

4. A comparative experiment was performed, in which the standard solution of albumen was employed, containing $\frac{1}{10000}$ of its weight of the bichloride; the effect of the protomuriate of tin was just perceptible, although less so than in No. 3; and when only $\frac{1}{20000}$ of its weight of the bichloride was added to the solution of albumen, the effect of the protomuriate could no longer be perceived.

5. The experiment was varied in the following manner; 100 minims of the standard solution of albumen was added successively to 100 minims of a solution of the bichloride of mercury, containing $\frac{1}{100}$, $\frac{1}{200}$, and $\frac{1}{300}$ of its weight of the salt, one drop of the protomuriate of tin being likewise added in each case; the result was, that the dark colour was distinctly visible in the second case; but in the last it was no longer to be perceived.

From these experiments it would appear, that $\frac{1}{20000}$ of a grain of the bichloride of mercury, dissolved in 100 grs. of water, may be detected by one drop of the protomuriate of tin; but that, if $\frac{1}{100}$ of a grain of albumen be previously added to the water, we can detect only about $\frac{1}{10000}$ of its weight of the bichloride.

The next point was, to ascertain how far the *bichloride* of mercury can be detected by the usual tests, when *it has been previously combined with albumen* in its coagulated state, as it may be supposed to exist in the substance of the stomach.

6. Thirty grains of firmly coagulated albumen had 1 drop of a saturated solution of the bichloride of mercury added to it; after 48 hours it was digested for some time in 4 drachms of hot water, and well triturated with it; the fluid was then passed through a filtre. To a portion of this fluid the protomuriate of tin was added, without producing any effect; while when the protomuriate was dropped upon the albumen itself, it immediately blackened it. From this experiment we learn, that when the *albumen, in a coagulated state, has been combined with the bichloride of mercury*, the bichloride may be detected by the protomuriate of tin, when applied to the albumen itself, but that *the bichloride cannot be separated from it by digestion in water*. Hence, we see the propriety of Dr Paris's remark, that the bichloride of mercury might possibly have been detected by examining the substance of the stomach itself, when it could not be discovered in its contents.

In the *third* place, I wished to examine how far the presence

of muriatic acid in the stomach might be expected to affect the above results.

For this purpose, an experiment similar to No. 2 was performed, except that 2 drops of muriatic acid were added; a copious black precipitate was produced, which quickly subsided, leaving the fluid transparent; the difference between the results of Nos. 2 and 7 was, that, in the latter case, the precipitate appeared to be more dense, and to subside more rapidly. After standing 48 hours, the black colour of the precipitate was much diminished; the protomuriate of tin being then added to the fluid, blackened it; and the colour did not appear to be diminished after standing 24 hours.

8. An experiment similar to No. 6 was then performed, except that, together with the bichloride, three drops of muriatic acid were added to the coagulated albumen. In this case a very slight effect was perceptible in the filtered fluid, upon the addition of the protomuriate; while the albumen itself was blackened, as in the former case.

9. Two equal quantities were taken of the filtered fluid from No. 8, after the protomuriate of tin had been added to it; to one of them a minute portion of albumen was added, and afterwards to each of them one drop of a very dilute solution of the bichloride: they were both rendered black; but the one containing the albumen decidedly the most so. Hence it appears, that the presence of free muriatic acid does not prevent the detection of the bichloride of mercury when albumen is present, but appears even to render it more apparent, by promoting the coagulation of the albumen.

I think it unnecessary to give you an account of the other experiments which I performed, as the above appear sufficient to prove the point under consideration, so far as the action of the metallic salts on each other and on the albumen is concerned. We may, with some probability, infer from them what would be the case with respect to the stomach itself; and I should feel much gratified if any of your correspondents may be induced by these remarks to make the trial.

Before I conclude, I shall beg to give you an account of an occurrence which fell under my observation, and which, I conceive, very aptly illustrates the question now before us. A quantity of the white oxide of arsenic had been mixed with oatmeal, for the purpose of destroying rats, and a part of the meal was afterwards, by mistake, made into gruel. Some spoonfuls of the gruel were swallowed, when, in consequence of the peculiar flavour, the mistake was discovered. Medical assistance was had recourse to immediately; evacnants and di-

luents were copiously administered; notwithstanding which, the usual symptoms that follow the administration of arsenic took place, and even with some considerable violence. In about 36 hours they were nearly removed, and the patient complained of little else but great weakness and exhaustion, from which he appeared in two days more to have so far recovered, that medical attendance was thought to be no longer necessary. After an interval of five days, however, he was rather suddenly seized with pains in the region of the stomach, his strength rapidly declined, his pulse sunk, and he expired in a few hours. The stomach was examined, and was found contracted and somewhat hard; its colour was a bright red, with three or four patches, of about the size of a half crown, which were purple or crimson. The surface was carefully examined, to ascertain whether any arsenic could be found adhering to it, but without success; nor could any be detected in the fluid which was scraped from the surface.

This case may, I think, be fairly adduced as an instance of what I attempted to prove by my former experiments, as, from the nature of the poison, as well as from the length of time which elapsed between the reception of it into the stomach and the death of the patient, and from the state of the individual during this period, we may pretty confidently conclude, that none of the arsenic remained in the stomach. Although, therefore, I fully admit the imperfection of my experiments, I apprehend that the above case will confirm the inference that I drew, as it appears, too hastily from them. And, indeed, the opinion itself is one which, upon reflection, appears so reasonable, and to accord so well with our general notions of the laws of the animal economy, that I should be disposed to say that it scarcely requires to be substantiated by the aid of direct experiment.

London, 6th July 1824.

INTELLIGENCE.

MASSACHUSETTS MEDICAL SOCIETY.

IN accordance with a Law of the Commonwealth enacted February 10th, 1789, and in obedience to a By Law of the Society, the Counsellors of the said Society give notice, that candidates for examination before the Censors, must hereafter