contrary and apparently poisonous effect. He read an extract from Brande's Dictionary of *Materia Medica*, in which there is reported the case of a young man (quoted by Dr. Christison from Huxham on Fevers) who had acquired the strange habit of chewing this salt. He was seized with hæmorrhage from the nose, gums, and intestines; his teeth dropped out; wasting and hectic fever ensued; and although he abandoned the poisonous habit, he died of extreme exhaustion, after lingering several months. These two cases were conflicting, and it was not easy to reconcile them. It was true, they had no evidence as to the precise condition of the blood in the latter case, but, so far as his experience went, he had always found that the blood did not separate in genuine cases of purpura,—a statement which Dr. Kendrick and others confirmed.

Dr. Jeffreys stated that he continued to have the same good opinion of the properties of the new styptic "Matico" as he had last year, and that he hoped soon to have it in his power to forward to his medical friends genuine specimens of that valuable herb.

Dr. Kendrick said he had last year taken up, perhaps, too much of their time by the introduction of questions arising out of small-pox and vaccination. He had since furnished the members of the Branch Association with a list of queries, and he should now be happy if any gentleman had any remarks to make, or question to ask, relative to those queries. There was one thing he wished particularly to point out—the necessity of ascertaining, with some degree of accuracy, the cause of the discordancy in the reports of fatal cases of small-pox occurring after vaccination. The army reports calculated them at 12 per cent.; Dr. Gregory first at 10, and now at 7; Rouchoux at 1 per cent.; Villeneuve at 1 in 61; the Rev. Edward Sibson, the incumbent of Ashton, who had taken great pains to come to an accurate calculation of what had occurred in his own district, stated that the number of deaths did not average more than one per cent. According to his (Dr. K.'s) own experience, only one in two hundred and fifty terminated fatally. This was a very material difference, and he was anxious to know to what cause it was to be attributed, for if such reports were not founded in truth, they did great injury to the cause of vaccination with the public. The 1st query was, Were not a number of spurious cases registered as genuine? 2nd. Was there anything in the particular locality in which those cases occurred? Next, did they arise from the severity of the prevailing epidemic? Next, did they arise from any peculiarity of constitution in the individuals where the disease proved fatal? Another and more important question was, did the fatal consequences arise from any peculiarity in the mode of treatment? He had heard of a number of cases at a distance, in which the event had proved fatal, and he had observed in all of them that one mode of treatment had been adopted—the free evacuation of blood from the arm at the commencement of the disease, arising probably from the severity of the delirium with which the eruptive fever was attended, by which the strength of the patients was so diminished as not to carry them safely through the disease. It was his opinion that the delirium attendant upon modified small-pox was that of cerebral excitement—not cerebral inflammation—and that, therefore, bleed-

ing was not necessary, but perhaps injurious. The delirium in these cases was distinguishable,—first, by its early appearances; second, its occasional violence; and thirdly, by the peculiar fœtor of the breath, which was so remarkable as not to be mistaken.

Shortly after three o'clock the members present sat down to a dinner embracing every luxury of the season. On the withdrawal of the cloth, the usual loyal toasts were drank with the usual honours. "Success to the Newton branch of the Association, and the health of Dr. Kendrick, its founder;" "Dr. Hastings, the founder of the Parent Association;" "Mr. McCulloch, the late President;" "the Chairman and Vice-Chairman," together with hearty good wishes for the success of the profession in Liverpool and Manchester, together with some other toasts, equally well adapted to the occasion, were afterwards drank. The company separated shortly after six o'clock.

ON THE
PHYSICAL ALTERATIONS OF THE BLOOD
AND
ANIMAL FLUIDS IN DISEASE.

By M. ANDRAL.

No. III.

(Continued from p. 250.)

Cerebral congestion and apoplexy.

THE term cerebral congestion has usually been employed by medical men to designate a peculiar derangement of the brain, with the real nature of which we are little acquainted, but which, in its early symptoms of headache, vertigo, and tendency to epistaxis, bears some analogy to the premonitory symptoms of typhoid fever. It is curious that the same analogy holds good with respect to the blood.

In fifteen cases of cerebral congestion, the quantity of fibrin was frequently unchanged; but in several others it was considerably diminished; the maximum was 3·7; the minimum, 1·6. The latter case occurred in the person of an athletic porter, who was much addicted to spirituous drinks. On the other hand, the fibrin amounted to 3·5 in a female of excessively weak and delicate constitution. As to any relation between the degree of the congestion and the amount of fibrin, it is worthy of remark, that the minimum of fibrin was found in the case where the symptoms of congestion were the most intense.

In six cases the globules did not undergo any change; in six cases they were diminished; in six increased. The porter, whose case has been already alluded to, furnished 132·9 in globules; of two other patients who gave, respectively, 88·3 and 88·6 of globules; one was the weakly female noticed above, the other a man suffering under the influence of lead. The solid parts of the serum never descended below their normal quantity, the maximum being 104·8. The serum varied from 740·2 to 820·3. Some of the fifteen patients were bled a second and a third time, but the quantity of fibrin was not perceptibly altered, while the globules followed the usual law of decrement.

Seven patients, labouring under apoplexy, were submitted to observation; they were bled eight times. The results obtained in some of these cases (says M. Andral) were quite unexpected, yet consistent with what had been observed in cerebral congestion. The commonest change in the blood was a diminution of the fibrin with an augmentation of the globules.

The first patient examined, for the purpose of ascertaining the state of the blood, was a woman, fifty-nine years of age, who had been seized with a very violent attack of apoplexy two days before. The quantity of fibrin had fallen to 1.9; but the globules had risen to 175.5; the solid parts of the serum were unchanged (80.3); the fluid was much diminished, being 742.3. We were a good deal surprised at so remarkable an increase of the globules. After the third day, the patient began to come a little to herself; she was now bled a second time, and a considerable change was discovered in the constituents of the blood. The fibrin had increased to 3.5; and the globules, though still in excess, (137.7,) had diminished. In this case the very great difference of proportion between the fibrin and globules, could not have been produced by the mere fact of some blood having been lost in the brain; for the loss of blood could not be abundant enough to cause so great a change, and the facts already cited show that hæmorrhage always causes a diminished quantity of globules, but does not act with the same certainty in diminishing the fibrin. Hence we are forced to ask, whether the want of due proportion between the fibrin and globules, instead of being an effect of the apoplectic attack, may not have given rise to it, the more especially as we know that the blood has a great tendency to escape from its vessels, when deprived of its normal quantity of fibrin.

In the second case, where the attack was not so severe as the preceding one, the patient was bled on the day of attack; the fibrin was 2.2; the globules 135.9.

In the third case, the patient was bled three days after the attack; here, also, was the fibrin diminished (2.6); the globules, on the contrary, were increased to 140.6.

In the fourth and fifth cases, the patients were bled at a much later period of the disease (eight days in one, fifteen in another); the quantity of fibrin was still small, (2.0, 2.1,) but, for the first time, that of the globules also was below the average.

In the sixth case, the fibrin had ascended to 3.2, while the globules, on the contrary, were only 123.4. But this patient had been already bled and leeches; five days had elapsed since the attack, and as the sum of the globules amounted, under these circumstances, and at so late a period, to 123, we may safely conclude that they were much higher at the moment of attack.

From the foregoing facts it is evident that the chief characteristic of apoplexy is a tendency to increase of globules, with diminution of fibrin.

In the seventh case, however, the composition of the blood underwent little or no change; the fibrin, instead of being diminished, was slightly augmented, 3.9; the globules marked 126.5; yet this was a very severe case, and the patient was bled on the second day. This certainly is an exceptional, or rather negative case, but it cannot

destroy the value of the facts which have been mentioned; perhaps the slight augmentation of fibrin may have coincided with a commencement of inflammatory action round the effused clot. In the next section will be noticed those diseases in which the blood globules are spontaneously diminished.

ON HIPPURIC ACID AND ITS TESTS.

By ALEXANDER URE, M.D., A.M.

READ THE 9TH OF JUNE, 1841.

In a paper communicated by me to the Medico-Chirurgical Society in the month of January last, it was pointed out, for the first time, that when a certain portion of benzoic acid, or of a soluble benzoic salt, is introduced into the human stomach, a remarkable change takes place in its passage through the kidney. The urine voided in the course of a couple of hours after its ingestion, amounting usually to five or six ounces, will be found, upon adding a twelfth part of muriatic acid, to yield by-and-bye a copious precipitate of beautiful rose-pink acicular crystals. These, when examined by the microscope, exhibit the form of a four-sided prism, terminated by a dihedral summit. Now this is precisely the crystalline character of an acid peculiar to the urine of the horse, cow, and other graminivorous animals, and to which, for that reason, Liebig has assigned the name of *hippuric*.

By this singular interchange of elements, capable of being effected only by the aid of vital chemistry, we have an organic product, uric acid, containing eight atoms of azote and ten of carbon, replaced by one, hippuric acid, containing no less than eighteen of carbon, and only two of azote! In pursuing the above investigation a step further, it was ascertained that no trace whatever of uric acid or any of its salts could be discovered in the urine in question. In point of fact, it had been wholly superseded by the other acid.

The important circumstance connected with this research, as bearing upon medical practice, is, that the salts which this new acid forms with the ordinary bases occurring in the animal fluids, as soda, ammonia, and potash, are all of easy solubility. Thus hippurate of soda requires about two parts of water, at 60 deg. Fahr. to dissolve it, whereas the corresponding uric salt, which constitutes, as is well known, the gouty concretions or chalk stones, is acknowledged to be nearly as insoluble as uric acid; it requires at least 4000 parts of water to dissolve one. Hippurate of ammonia again is but little less soluble than hippurate of soda, while the urate of ammonia will only dissolve to the amount of 1-480th part. Hippurate of lime, the least soluble of these salts examined by me, requires eighteen parts of water to dissolve one.

The application of the above principle has proved of material benefit in the treatment of certain unhealthy conditions of the urine, occurring in subjects of a calculous or gouty diathesis; since it enables the practitioner to obviate entirely the various depositions resulting from excess of uric acid, the fruitful source of that most distressing