

that pus does not contain so much potash or muriate of soda as is contained in the above expectorated secretions.

Dr. Pearson also thinks it much more probable that the circulating and secreted fluids are impregnated with potash, as he has observed, than with soda, as observed by others.

Finally, we are informed, that expectorated matter contains globules, which have not before been observed, and seem to the author to denote organization.

On the Attractions of homogeneous Ellipsoids. By James Ivory, A.M.
Communicated by Henry Brougham, Esq. F.R.S. Read June 15, 1809. [*Phil. Trans.* 1809, p. 345.]

The theory of the figures of the planets involves two questions perfectly distinct from each other; first, the *figure* which a mass of matter would assume by the mutual attraction of its particles, combined with a centrifugal force, arising from rotatory motion; and secondly, the *force* with which a body so formed will attract a particle occupying any proposed situation. The latter is the subject of the present inquiry; and it is also limited to the consideration of homogeneous bodies bounded by finite surfaces of the second order.

This subject was first partially treated of by Sir Isaac Newton, who, in determining the attraction of spherical bodies, has also treated of other solids, formed by the rotation of curves round an axis, and of the attractions they exert upon bodies placed in the line of their axes. MacLaurin was the first who determined the attractions that such spheroids of revolutions exert on particles placed anywhere, either *in* or *within* their surfaces.

Le Gendre extended the same inquiry to particles *without* the surface of such solids of revolution.

La Place took a more enlarged view, and extended his researches to all elliptic spheroids, not formed by revolution, but such whose three principal sections are all elliptical; and he arrived at conclusions, with regard to them, similar to those of MacLaurin and Le Gendre.

But notwithstanding the ingenuity and skill displayed by La Place in this investigation, Mr. Ivory conceived that the inquiry might be simplified, and the results obtained more directly, by a method which forms the subject of the present communication; which, however, is of a nature not adapted for public reading.

Observations on Albumen, and some other Animal Fluids; with Remarks on their Analysis by electro-chemical Decomposition. By Mr. William Brande, F.R.S. Communicated by the Society for the Improvement of Animal Chemistry. Read June 15, 1809. [*Phil. Trans.* 1809, p. 373.]

Mr. Brande's paper consists of two parts; first, Observations on mucus and on the composition of liquid albumen; and secondly, On the composition of some animal fluids containing albumen.

The mucus contained in saliva in expectorated fluids, and in that from the oyster, were first examined; but since nitrate of silver and acetate of lead, which have been supposed to detect mucus, were found to act principally on the salts contained in them, it became necessary to employ other means for the removal of the salts; and the voltaic apparatus was applied for the purpose of extracting the alkalis at one pole, and the acids at the opposite. But there occurred a phenomenon that was wholly unexpected; as a considerable coagulation of albumen took place at the negative pole, which Mr. Brande (at the suggestion of Mr. Davy) is inclined to ascribe to the separation of alkali with which it was combined, and to which its solubility was owing.

It is observed, in confirmation, that when an egg is boiled for some time in water, the liquid becomes alkaline to tests, and still deposits, by electrization, a small quantity of albumen, which the alkali retains in solution.

The coagulation of albumen by acids is also ascribed to their superior affinity for the alkali.

For discovering the nature of the saline ingredients, the water in which some white of egg had been boiled and macerated, was electrified by a powerful battery, through the medium of a cup of water on each side. After the process had continued for one hour, the fluids were examined; that on the negative side contained a quantity of soda nearly pure, and that on the positive side a small quantity of albumen, with a little muriatic acid, but not enough to saturate the alkali.

The same means of analytic investigation being applied to other fluids, detected larger quantities of albumen than were discoverable by heat alone; as in saliva, in the mucus from the oyster, the mucus from the trachea, in bile, in milk, and in the liquor of Amnios: and hence the author is led to doubt whether mucus may not be a compound of albumen, either with muriate of soda or with excess of soda.

Hints on the Subject of animal Secretions. By Everard Home, Esq. F.R.S. Communicated by the Society for the Improvement of Animal Chemistry. Read June 22, 1809. [*Phil. Trans.* 1809, p. 385.]

The separation, by electric powers, of substances chemically united, suggests the possibility, that since the same power is known to exist in the torpedo and electrical eel, it might be the means by which secretion in all animals is effected.

Since in these fish the abundance of nerves connected with the electrical organs proves that this power resides in them, and since the arrangement of many nerves in animal bodies has evidently no connexion with sensation, it seems not improbable that these may answer the purpose of supplying and regulating the organs of secretion.

With a view to determine what changes could be produced in the blood similar to secretion, Mr. Brande applied the power of twenty-