

they have been encouraged, there are few commons, no hedges, no shepherds, no dogs to attend the flocks; and the fences of wood and stone are not sufficient to prevent active sheep from breaking pasture, to the great destruction of adjacent crops.

The advantage, however, in this respect, is counterbalanced by a corresponding inconvenience arising from the same source, namely, the great difficulty of driving such cripples to market, at the same time that they are generally not so fat as others, from the greater labour they undergo in gathering their food.

These objections are indeed such, that since the introduction of Merinoes, which are equally gregarious, quiet, and orderly, in addition to the strong recommendation of their fleeces, the ancon breed appears in danger of becoming wholly extinct; so that the author had some difficulty in procuring one in Boston to be dissected, for the purpose of sending a skeleton, which accompanied the letter, and was laid before the Society.

*Experiments to ascertain the coagulating Power of the Secretion of the gastric Glands. By Sir Everard Home, Bart. F.R.S. Communicated by the Society for promoting the Knowledge of Animal Chemistry. Read January 21, 1813. [Phil. Trans. 1813, p. 96.]*

It has long since been observed, that the first step in the process of digestion is the conversion of the food into a jelly; but whether this is effected by means of the gastric liquor alone, or by a joint operation of other secretions, has not been ascertained. From Mr. Hunter's experiments, it appeared that the same species of coagulation takes place in the same food admitted into the stomach of a great variety of animals; and that in the calf's stomach this power resided in the fourth cavity alone; since the mucus taken from the surfaces of the first, second, or third cavities, had no such effect as rennet, which is prepared by infusion of the inner membrane of the fourth cavity.

The same inquiry is here pursued by the author, with a view to ascertain more accurately what part it is that possesses this property in the highest degree, by comparison of the effects of rennet prepared from different portions.

By this mode of trial no part of the hog's stomach was found to coagulate milk, but that near the pylorus, where the gastric glands are situated.

Experiments were next made with rennets prepared from the crop and gizzard of a cock, from the stomach of a shark, the stomach of a salmon, and that of a thornback, all of which had the power of coagulating milk.

Other experiments were afterwards made, with the assistance of Mr. Hatchett and Mr. Brande, on the comparative powers of different parts of the same stomach, and the difference in various species of animals, the chicken, hawk, turkey, and calf.

In a chicken the horny lining of the gizzard gave a firmer curd

from milk than the cardiac portion of the stomach. The cardiac portion of the stomach of the hawk was found more powerful than the same part of a common fowl.

The gastric glands were carefully dissected out from behind the membrane that lines the cardiac extremity of the stomach of a turkey; and of these, forty grains, by weight, were taken, and their effect compared with an equal weight of membranous lining of the same cavity, an equal weight of membrane from the fourth cavity of a calf's stomach in a recent state, and forty grains of dry rennet. Since the last must have been prepared from about four times its weight of recent membrane, its effect was produced in much the shortest time. The coagulation effected by the gastric glands took place nearly at the same time as by the recent calf's stomach; while that from the lining of the turkey's stomach was nearly three times as long in producing the corresponding effects.

From these experiments, the author infers that the secretion from the gastric glands possesses the power of coagulating milk, and communicates that property to adjacent parts, by which it is imbibed.

*On some Properties of Light.* By David Brewster, LL.D. F.R.S. Edin.  
In a Letter to Sir Humphry Davy, LL.D. F.R.S. Read January 28, 1813. [*Phil. Trans.* 1813, p. 101.]

The author, having been for some time past engaged in a course of experiments on the refractive and dispersive powers of different substances, the details of which are intended for future publication in a separate work, confines himself, at present, to a relation of such of his results as have most of novelty or importance. After repeating the experiments that have been made by others on the properties that light acquires by transmission through Iceland-spar, and upon the corresponding properties of reflected light originally discovered by Malus, and by him termed polarization, Dr. Brewster observed a singular appearance of colour on each side of a luminous object, viewed through a thin slice of laminated agate. Upon examination of these coloured images through a prism of Iceland-spar, this light was found to be similarly polarized, so as to appear or disappear accordingly as the laminæ of the agate were parallel or transverse to the principal section of the spar. He found also that the colourless light transmitted directly through the agate, and from which the coloured rays had been separated, was polarized as well as the coloured rays, appearing and disappearing alternately with them during the revolution of the spar. And accordingly when light previously polarized by reflection was received upon the agate, its transmission or reflection depended on the relative position of the laminæ of the agate to the plane of reflection; for when these were at right angles to each other, no light whatever was transmitted.

In the same manner light polarized by transmission through the laminated agate, manifested the usual properties of light so affected by other means.