

of ten minutes sleep was profound. The pupils were strongly contracted; the temperature had fallen four degrees; the action of the heart was less frequent; the respirations were diminished, and the retinae were of a pale pink color, with but two or three very minute veins visible. At the end of two hours the sleep was very deep; the respirations were feeble and slow; the ears were cold, and the retinae were pale and exsanguined. After nine hours and twenty minutes the animal was found awake, and in a perfect normal condition as regards temperature, circulation, respiration, and the condition of the retinae.

This experiment was repeated three times, and always with similar results.

Now, as is well known, the ophthalmoscopic examination of the retinae affords very exact indications as to the condition of the cerebral circulation; but by means of an instrument devised, though in somewhat different forms, by Dr. Weir Mitchell and myself, independently of each other, we are enabled to determine the point directly. This instrument, which I venture to call the cephalo-haemometer, consists of a brass tube which is screwed into the opening made into the skull with a trephine. The lower end of the tube, which rests upon the dura mater, is closed with a very thin piece of India rubber cloth; the upper end of the tube is closed with a brass cap, into which a glass tube is inserted. To this tube a scale is attached and the brass tube is filled with colored water, so that when it is screwed into the skull, and the end touches the dura mater, the level of the liquid stands at zero. When the apparatus is in place and properly adjusted, it is very evident that any increase in the amount of blood circulating through the brain will cause the dura mater to press with increased force against the rubber membrane, and will thus cause the liquid to rise in the glass tube. Any diminution of the circulating fluid will cause the level of the liquid to fall. We have thus a very accurate means of measuring the cerebral haemostatic pressure.

*Experiment.*—I operated on a rabbit with a small trephine, and inserted a cephalo-haemometer. As soon as the instrument was *in situ*, I injected seven grains of hydrate of chloral into the cellular tissue. In one minute and ten seconds the fluid began to rise in the tube, and in three minutes it stood at a point an inch higher than the normal level. After five minutes it was an inch and seven-eighths higher. This was the maximum point. It now began to