2. That some form of puerperal inflammation is, in the great majority of instances, the cause of death.

3. That puerperal inflammation is very frequently fabricated.

4. That puerperal inflammation is often overlooked, either from ignorance or want of careful examination.

5. That chloroform in many ways predisposes to a fatal issue.

6. That the advent of puerperal inflammation can, in very many instances, be prevented; as also that the disease can be cured more frequently than it is.

7. That, from the insidious character of puerperal inflammation, its rapid and fatal course, an early and active treatment is required for its removal.

8. That, apart from other reasons, it is of the utmost importance to remove *post partum* inflammation quickly and completely; for upon imperfect cures of that malady it is far from unusual for phlegmasia alba dolens and other secondary forms of inflammation to follow during the puerperal period, as also, from such a contingency, chronic diseases of the uterus or pelvic viscera exhibit themselves at a still later period.

ART. II.—*On Poisoning with the Berries of Atropa Belladonna; with Observations on the Mode of Action of Belladonna.** By THOMAS HAYDEN, F.R.C.S.I., L.K. and Q.C.P.I.; Physician to the Mater Misericordiæ Hospital.

ON Saturday, October 11, 1862, at 6 o'clock, p.m., Master Simon K., a fine healthy-looking boy, aged seven years, was brought into my study, by his two brothers, who reported that he had eaten a quantity of berries, about 10 o'clock that day, in a suburban demesne where he had been to take exercise in company with another boy; that he had returned at the usual dinner hour (3 o'clock), but had taken no dinner; that, whilst at tea, at 5.30, p.m., he appeared giddy, talked inarticulately, laughed causelessly, and was a subject of amusement to his brothers.

At 6, p.m., when the boy was brought to me, his face was somewhat flushed; pupils widely dilated; pulse, 138 and full; deglutition was performed with difficulty, and articulation unintelligible;

* Read before the Association of the College of Physicians, 20th May, 1863.

he laughed unmeaningly, was much excited, and ran about the room with a staggering gait, falling against the furniture as if intoxicated.

I declared the boy under the influence of poison, from eating the berries of the deadly nightshade, and ordered a mustard emetic, and $2\frac{1}{2}$ grains of comp. powder of ipecacuanha every second hour after the emetic had acted. A large quantity of the fruit pulp was ejected from the stomach under the operation of the emetic; the face now became deeply flushed, and coma and spasmodic twitching of the arms and legs quickly ensued; the tongue was dry and rough; the palate and pharynx congested; the pupils in a state of extreme dilatation; the pulse 140, full and bounding, and the feet cold. I directed that the head should be elevated, and a cold lotion kept constantly applied to it; the feet to be kept warm; the opiate continued, and strong coffee given as often as the patient could be induced to take it; the face and chest to be occasionally dashed with cold water from a hearth-brush, and an aperient, consisting of five grains of scammony and two grains of calomel, to be given immediately.

Three of the berries, which the child had thrown into the yard, were now brought to me, and fully confirmed the view taken of the case as being one of poisoning from the fruit of the *atropa belladonna*.

10, p.m.—Has had another attack of vomiting, and thrown up a large quantity of the mashed berries. Still deeply comatose. Ammonia to be applied to the nostrils, and coffee and cold aspersion continued.

Sunday, October 12, 8.45, a.m.—Had severe spasm of limbs in the course of the night; is semi-conscious, but still confused; speaks inarticulately; pulse, 120; face less flushed; tongue dry; pupils fully dilated. The powder not having acted on the bowels, a draught of castor oil was ordered, and iced water to allay thirst, which was urgent.

4.30, p.m.—Is now quite conscious, but somewhat confused, imagining his brothers and playmates in bed with him; pupils not quite so widely dilated; to have beef tea and another draught of castor oil.

Monday, October 13.—Was most turbulent last night, up to 4 o'clock—shouting, singing, laughing, and crying alternately, and trying to get out of bed. Face pallid; tongue moist; pulse only 72, and feeble; pupils dilated. The oil acted freely in the course

of the night, and brought away a large quantity of the black husks of the berries.

Tuesday, October 14.—Has slept well, and taken a good breakfast; is now out of bed; pulse, 82; pupils still slightly dilated, but in all other respects is in perfect health.

It will be observed that the early and the latter stages of this case were characterized by symptoms of nervous and vascular excitement closely simulating those of alcoholic intoxication. The consecutive depression, however, of alcoholic poisoning was absent, and represented here by a second stage of excitement. The intermediate stage was one of profound coma, in no respect distinguishable from that due to the excessive use of alcohol, save in the extreme dilatation of the pupil, and the congested and parched state of the mouth and pharynx.

It has been shown by the experiments, and examination of the bodies of persons who had died from the effects of belladonna, instituted by Orfila, that the cerebro-spinal centre and its investing membranes are in a state of extreme vascular congestion under the operation of this poison. This fact alone would be sufficient to account for the dilatation of the pupil, without assuming any specific action of belladonna as a mydriatic. We know, however, that belladonna may act as an excito-motor stimulant when applied to the eye, without at all giving rise to congestion of the ocular vessels. It would appear that, whether applied to the periorbital and palpebral integument or to the conjunctiva, it acts invariably upon the sympathetic supplied to the radiating muscular fibres of the iris, through the branches of the fifth pair of nerves distributed to these surfaces as its incident medium. Mr. Wharton Jones has arrived at the conviction, from experiments on the web of the frog's foot, that belladonna acts as a direct stimulant of the vaso-motor filaments of the sympathetic, thereby inducing contraction of blood-vessels, and by implication in a similar manner on the *dilator pupillæ* through the fibres of the sympathetic supplied to it.

I have carefully repeated these experiments of Mr. Jones', with the precaution, however, which he neglected, of first completely dividing the integument of the limb, higher up, by a circular incision, so as to cut off the sentient nerve-supply of the foot. The result has been totally different; for whilst, in Mr. Jones' experiments, and in those which I have performed under similar conditions, the application of a drop of the solution of extract of belladonna (20 grains to the scruple) caused immediate contraction of the

blood-vessels of the frog's web, in those which I have instituted, after taking the precaution already mentioned of dividing the integument of the leg, the result was simply negative—i.e., there was no contraction of the blood-vessels. Thus, in the web experimented upon after the method of Mr. Jones, there was a contraction of the vessel measured, on the application of belladonna, from a diameter of $\frac{1}{1200}$ to $\frac{1}{1600}$ part of an inch, as determined with my micrometer;* whilst the web of the opposite foot, treated in a similar manner after complete division of the integument of the leg, exhibited no contraction whatever.

It is clear, therefore, that belladonna acts, not as a direct, but as a reflex stimulant of non-striated muscle; and that, in the case of the iris, the media of conduction centripetally are the sentient filaments of the fifth pair distributed to the conjunctiva and surrounding integument.

Dr. Charles Lee proposes the administration of opium in poisoning by belladonna, and holds that these agents may be regarded as reciprocal antidotes—an opinion probably deduced from the opposite states of the pupil under their operation. We are here presented with a forcible illustration of the error of treating symptoms without reference to causes. Had Dr. Lee adverted to the fact that belladonna dilates the pupil by inducing a state of active contraction of its dilator muscle through the sympathetic, and that opium causes its contraction by stimulating its constrictor muscle through the third or *motor oculi* nerve, he would not have concluded that a myostic must of necessity be a corrective of a mydriastic, and proposed opium as an antidote for belladonna.

ART. III.—*Further Observations on Death by Hanging; with an Account of the Execution of a Murderer, and the subsequent Examination of the Body.* By CHARLES CROKER KING, M.D., M.R.I.A., F.R.C.S.I.; Professor of Anatomy and Physiology, and Dean of the Medical Faculty, Queen's College, Galway.

ON Tuesday, the 11th of May, 1858, Patrick Lydon underwent the extreme penalty of the law, in front of the County Galway

* See Dublin Quarterly Journal of Medicine, Feb., 1855.