slipped on the ice and fell, striking his forehead above the left orbit, was at that time treated for fracture of the skull. Three weeks later the vision began to fail, and has steadily got worse ever since, until now absolute blindness exists.

Examination revealed a deep depression over the left orbit at junction of inner and middle thirds, extending from the edge of the orbit one and a half inch upwards; deep palpation can also distinguish a depression in the roof of the orbit extending backwards in the direction of the optic foramen. Ophthalmoscope showed haziness of edges of disc, with beginning atrophic pallor.

These cases of fracture of the orbital bones extending into the optic foramen set up a retro-bulbar neuritis followed by atrophy, or cause atrophy by pressure of exudation, etc.

Coming now to the chiasma as the seat of lesions, I will mention a case of the rare condition of paralysis of the inner halves of both retinæ, which occurred during my appointment at the Royal Infirmary, Edinburgh. It was under the charge of Dr. G. A. Berry:

W., aged 23. Patient was nearly moribund at the time of examination, from some obscure nervous lesion. The poor vision of the patient and his depressed state prevented any very full examination, but the entire absence of the temporal halves of both fields of vision was very marked, *i.e.*, paralysis of the inner portions of both retinæ. The patient died shortly after, when the *post-mortem* revealed a tumor the size of a small hen's egg occupying the position of the pituitary body and involving nearly the whole chiasma.

Another case I have now under treatment, of evident lesion at the chiasma:

W. J., age 42. Came to me in February complaining of poor vision in the right eye, and total blindness in the left eye. Sight began to fail in the left eye two years ago, for the past six months this eye has been totally blind, the right eye began to fail eighteen months ago, but for the past eight months there has been no change. No history of syphilis, but an alcoholic one. State:—

O. S. No p. l.

O. D. Temporal side of field wanting, nasal side, counts fingers at twelve feet. Here the anterior portion of the chiasma is mainly affected together with the adjacent portion of the left tract or left nerve, very possibly by a gliomatous growth.

Cases of blindness of corresponding portions of both fields of vision are almost invariably associated with lesions in the optic tract, or cerebral centres in the occipital lobes. The distinguishing point of the one from the other being the condition of the pupillary reaction to light. For lesions in front of the anterior corpora quadrigemina are associated with dilatation and loss of the reaction of the pupil to light, as it is at the anterior corpora quadrigemina that the spinal root is given off to the reflex centre for contraction of the pupil, which is considered to be in the medulla. Lesions posterior to the anterior corpora quadrigemina, are associated with retention of the pupillary reflex and no mydriasis, although the patient may not have perception of light. The experiments of Curschmann, Haab and others, have conclusively proved the existence of a unilateral innervation centre for corresponding portions of both retinæ. The lesions in pathological sections have been found to occupy the first, second and third occipital lobes, and the cuneus. The second and third being considered by Nothnagel to be mainly the seat of optic memory.

Munk excised the occipital lobes of one hemisphere of a dog, causing paralysis of the same side of the retina. On excising the occipital lobes of both hemispheres, although the animal was totally blind, yet the pupil reacted readily to light.

Schæfer has found that on excising all of the occipital lobes except the very lowermost layer, (in a monkey) that complete paralysis of the retina existed, except its lower portion, *i.e.*, only the upper part of the field of vision remained. Important aids in localising these lesions may be obtained by the collateral symptoms, *e.g.*, seat of pain, depression in skull, abnormal phenomena in areas supplied by other nerves, etc.

Willbrand has very ably drawn a number of inferences from the aggregate of symptoms observed in a large number of occipital lesions.

1. That in corresponding areas of the fields