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Original Communications.

REPORT ON OPHTHALMOLOGY AND OTOLOGY.

BY A. M. ROSEBRUGH, M.D.

(Read before the Ontario Medical Assoc., June, 1882.)

The ophthalmoscope was invented in 1851. Von Græfé commenced his brilliant career the same year, or the year previous. In 1854 Von Græfé and Donders established the "Archives für Ophthalmolgie," and in 1860 Prof. Donders published his great work on "Accommodation and Refraction." About the same time Snellen constructed his "Test Types." In 1865 Von Græfé discovered that iridectomy will relieve intraocular pressure in glaucoma; and in 1867 he gave the world the modern operation for hard cataract.

The invention of the ophthalmoscope, then, may be said to mark the commencement of a new era in ophthalmic medicine and surgery. We may not pause to even enumerate the pathological conditions that may be observed with the eye mirror. Ophthalmoscopic literature has already reached large proportions. We may say in general terms, however, that, with the exception of the ciliary processes, and a narrow zone of the anterior expanse of the retina, all the structures of the inner eye, with the aid of the ophthalmoscope, are brought under the eye of the observer.

Except in a few cases where the disease has no ocular expression, the ophthalmoscope enables us to find a cause for all the forms of blindness formerly called amaurosis and amblyopia. The ophthalmoscope is also a valuable aid in diagnosing diseases of the nervous centres, as, for instance, coarse disease at the base of the brain; and quite recently the ophthalmoscope has been recommended as a means of diagnosing diseases of the inner ear.

The treatise of Prof. Donders, of Utrecht on the optical defects of the eye, which appeared in Holland in 1860, and which was afterwards translated and published by the New Sydenham Society, is still a standard text-book. In the choice of spectacles, Donders' great work is the foundation of our therapeutics.

Donders was enabled to eliminate the variable from the fixed refraction of the eye, and discovered, *first*, that presbyopia is not a refractive error, but is simply a gradual lessening of the focal adjusting power, or accommodation of the eye, and usually commences as early as at the age of 15 years; secondly, that in the original structure of the globe, the antero-posterior diameter of the eye may be elongated or shortened, causing excessive or deficient refraction, and called respectively myopia and hyperopia; thirdly, that the refraction of the different meridians of the eye may be unequal. Thus, in the vertical meridian, for instance, the refraction may be normal, while the horizontal meridian may be either myopic or hyperopic, and that this condition, called astigmatism, may be simple, or it may be complicated with myopia or hyperopia. For paralyzing the accommodation, Donders dropped into the conjunctival sac a few drops of a solution of atropine, 4 grs. to the ounce.

Donders also demonstrated that errors of refraction are important factors in the causation of strabismus,—that fully 75