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[Reprinted from THE MEDICAL NEWS, June 25, 1892.]

THE FUNCTION OF THE LACHRYMAL PUNCTA.

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IN no book on physiology or on the eye have I seen any attempt at an explanation of the function of the puncta; nor have I ever been able to learn from the many ophthalmologists I have questioned that the thought of attributing to them any function whatever had occurred to them. The very name, punctum, shows ignorance of its function, since, far more than a black dot or point, it is a sphincter-guarded mouth, a lachrymos, if a word might be coined. The routine practice of ophthalmic surgeons, of "slitting up the canaliculus," in cases of epiphora and dacryocystitis, confirms the general thoughtlessness as to the utility of the punctum.

Nothing, however, is more certain than that no physical organ comes into existence except in obedience to a stringent necessity; nor does it continue in active function except it subserve a useful end. It should not therefore be destroyed except from imperative necessity. I have elsewhere[1] noted the reckless and stupid haste with which the function of the punctum is forever destroyed by the

[1] "A Simple Method of Treating Many Cases of Lachrymal Obstruction," N. Y. Med. Journ., June 4, 1892.

customary treatment of epiphora, lachrymal conjunctivitis, dacryocystitis, etc.

It has been long known that the punctum is surrounded by a series of muscular fibers that have precisely the action of a sphincter. This may be demonstrated by inserting a bristle or fine probe into the orifice, when the force with which the foreign body is grasped may be distinctly felt. Dust-particles pass *below* the punctum, their gravity aiding to keep them away from the opening of the punctum. The lower punctum being at the very upper border, drains off only the upper and purer part of the little lake of tears, the action of the lids and of the excess of tears washing the foreign bodies easily past the punctum to the inner canthus.

In eyes that are inflamed, the concrete exudate, both in waking and after sleep, is gathered at the inner canthus, having passed by the punctum. The same fact is observed when black dust in the eyes has been excreted by the action of tears and the lids: it is found gathered in a little ball at the extreme inner angle of the lids. By its exquisite mechanism the eye has most dextrously rid itself of the rubbish; and in doing so this has not been dumped into the capillary tubes of the canaliculus or duct. Had this, through a large patulous opening, taken place, the foreign bodies, however tiny, either mechanically by gathering and thus clogging the tiny canal, or by the reaction of the resultant irritation or inflammation, would often have closed the excretory passage-way, producing the well-known symptoms of lachrymal retention, etc.

It would therefore appear that the sensitive

sphincter and punctum constitute a willing gateway for the excretion of pure tears, but a careful guard or sifter-out of dust, irritating particles, and such viscid products of inflammation as would in any way produce stenosis of the connecting drainage-system lying beyond and below. The fact would argue for the theory I have advocated[1] as regards the non-action of antiseptics upon the gonococcus in the canaliculus, sac, etc. Not only is pus a foreign body, but probably the irritation of the brush employed in making applications, etc., acts as an excitant to punctum-contraction. It would also and especially emphasize the value of other methods than those of entire destruction of the sphinctered punctum, in the treatment of functional or temporary lachrymal obstruction. In these days, morever, of manufacturing and urban life, with an atmosphere increasingly thick with dust, it behooves us to pay particular attention to the preservation of a structure and function so beautifully purposive and so effectively useful to the eye.