



## Science

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# Science and the Creator

## "My tears into Thy bottle"

David Burges

**T**HE EYE HAS long been considered one of the most remarkable organs in the body. Its complex design is a major challenge to the theory that such structures have evolved by the progressive accumulation of tiny changes over long periods of time, since each of its many intricate parts must function correctly for the whole visual system to work. Not the least remarkable of those parts is what scientists refer to as the *lacrimal apparatus*, which is responsible for the production of tears.

We may well only associate tears with their production in times of sorrow or pain. It is noteworthy that, so far as is known, humans are the only animals that shed tears, and it has been estimated that in a lifetime we produce more than sixty litres of them! No wonder that David, in his distress, requested of God: "put Thou my tears into Thy bottle: are they not in Thy book?" (Ps. 56:8). Tears appear frequently in Scripture as a potent symbol of suffering and distress, so that of the Lord Jesus himself it is recorded that he "offered up prayers and supplications with strong crying and tears unto Him That was able to save him from death" (Heb. 5:7).

### A vital function

However, tears have an even more fundamental importance than their involvement in the expression of emotions such as joy, sorrow and pain, because they have the vital function of lubricating the eyeball and protecting it from irritants. Recently, scientists from Oxford University claim to have discovered the unique combination of ingredients that make up tears, and have patented their particular mixture of proteins and fats.<sup>1</sup> The objective is to develop improved types of artificial tears for the treatment of people suffering the extreme discomfort of dry eyes, which can result both from ageing and as a side effect of certain diseases and drug treatments.

Tears are thus far more complex than they may seem. Their principal function<sup>2</sup> is to keep constantly moist the cornea and the conjunctiva (the flexible, transparent membrane which seals the eyeball from the outside). Moisture is essential to maintain the transparency of the cornea and to prevent ulceration. Tears contain an anti-bacterial agent, lysozyme, to prevent harmful bacteria from infecting the eye. They also wash away small foreign bodies, and provide oxygen and nutrients to the cornea, which has no blood supply of its own. The tear film over the cornea actually consists of three layers: an inner mucous layer, an intermediate layer of salty water, and an outer, oily layer to reduce evaporation and prevent adhesion of the lid margins during sleep.

### A complex apparatus

One of the problems facing the researchers is how to develop artificial tears that will have a practical shelf life, since proteins can easily break down in storage. In contrast, the body automatically produces tears with the correct composition in situ. Again, the organs which achieve this are surprisingly complex.<sup>3</sup> The many tiny tear-secreting and mucous-producing glands, known as the accessory lacrimal glands, are located within the conjunctiva, beneath the upper and lower eyelids.

The oily outer layer is secreted by around thirty glands located on each eyelid, just behind the roots of the lashes. The reflex action of blinking helps spread the tear film across the cornea to ensure clear vision. The main lacrimal glands

1. "Tears discovery may improve eye care", BBC On-Line News, Health Section, 5 Mar. 2001.
2. British Medical Association Family Health Encyclopedia, p. 971.
3. *Op. cit.*, pp. 423,622.

are located at the upper and outer margin of the eye, and secrete when excess fluid is required, as for instance when a foreign body enters the eye or in response to the emotional state of weeping.

Tears drain from the eye surface through tiny openings towards the inner end of each eyelid. These are connected by narrow tubes to the lacrimal sacs, located in shallow depressions in the lacrimal bones, on either side of the nose. The action of blinking sucks excess fluid away from the eye and activates muscles which compress the lacrimal sacs. This forces the fluid in the sacs to drain through tiny ducts in the bone into the nose.

The whole lacrimal apparatus thus comprises many interconnected parts marvellously contrived to provide an automatic cleansing and preserving irrigation system for the vitally important functioning of the eye. It is merely an accessory to the eye, and yet without it the eye would be completely unable to operate. If the theory of evolution were true it would have been essential for both to have evolved simultaneously, which stretches credulity even further than believing that the eye itself was the chance product of mutation and natural selection. Further, it is difficult to imagine any selective pressure that would have led to the evolution in humans of additional glands for the purpose of allowing us to express our emotions by shedding tears. Lastly, it is amazing and humbling to remember that

this whole complex system grows and is assembled automatically in the womb, and is fully functional at birth.

#### **God shall wipe away all tears**

It should be abundantly obvious to the unprejudiced mind that the eye and its associated parts bear all the hallmarks of exquisite design by the all-wise Creator. In particular, He has provided the lacrimal system as a wonderfully practical solution to the protection of the eye and the preservation of our sight. But at the same time He has employed it as a graphic way of demonstrating grief and sorrow in a fallen world in which suffering and pain are prevalent. Never were tears more poignant than those of the penitent "woman in the city" who washed the feet of Jesus with her tears and wiped them with her hair (Lk. 7:37, 38).

However, the gospel of salvation in Jesus has been provided by the God of love, bearing the promise that, for those who overcome, the present time of weeping will give way to the glory of the Kingdom age to come, for "They that sow in tears shall reap in joy. He that goeth forth and weepeth, bearing precious seed, shall doubtless come again with rejoicing, bringing his sheaves with him" (Ps. 126:5,6). In that eagerly awaited day, "the Lamb which is in the midst of the throne shall feed them, and shall lead them unto living fountains of waters: and God shall wipe away all tears from their eyes" (Rev. 7:17).



## *Prophecy, History and Archaeology*

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# Ezekiel's visions of the Millennium

## 4. The temple

Geoff Cave

**R**ETURNING TO Ezekiel's 'guided tour' of the sanctuary, the prophet is next shown the temple and its three main sections, the porch, the holy place and the most holy place. This article cannot examine every detail given in chapter 41, but it is important to consider the main dimensions of the holy place and most holy place as given in verses 1-4.

Regarding the holy place, verse 2 records: "and he measured the length thereof, forty cubits: and the breadth, twenty cubits". Regarding the most holy place, verse 4 reads: "So he measured the length thereof, twenty cubits; and the breadth, twenty cubits, before the temple: and he said unto me, This is the most holy place". These dimensions are identical to those of Solomon's