

## THE BLINDNESS OF SAINT PAUL\*

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Blindness is a not infrequent occurrence in the Bible and, in fact, the words “eye”, “sight”, and “blindness” are found literally hundreds of times in its contents;<sup>1</sup> in addition, the New Testament lists instances of the miracle of restored sight performed by Jesus.

In some of the Biblical cases, the etiology of the blindness is known, as with Samson whose eyes were put out by the Philistines.<sup>2</sup> Other Biblical characters, however, have lost their sight and the cause for the blindness has been the subject of discussion for centuries. Such is the case of St. Paul. St. Paul, the Apostle, is the most widely known of the first century followers of Jesus. He was born at Tarsus and was named Saul. His parents, though Jewish, were Roman citizens. He received careful instruction in Tarsus and was completing his studies at Jerusalem when the first persecution of the Christians began. Saul officially witnessed the stoning of St. Stephen, the first Deacon of the Church, and was on his way to Damascus with the commission to destroy the small community of Christians which had been

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formed there, when he was overcome by a great light from heaven by which he was struck blind. Saul's companions led him into Damascus. There he was visited by Ananias who, by the laying of hands, restored his sight. Saul arose and was baptized and his Christian name became Paul. Following his blindness and recovery of vision, Paul became one of the greatest advocates of the Christian faith, and is considered to be one of the real founders of the Christian Church. The circumstances surrounding his blindness are thus an extremely important event in the history of religion.

These events are recorded in the New Testament, Book of Acts, which was written by St. Luke, a physician:

"And as he journeyed, he came near Damascus: suddenly there shined round about him a light from heaven: and he fell to the earth . . . and Saul arose from the earth and when his eyes were opened, he saw no man: But they led him by the hand and brought him into Damascus. And he was three days without sight, and neither did he eat nor drink . . . and Ananias went his way and entered into the house; and putting his hands on him said, Brother Saul the Lord even Jesus that appeared unto thee in the way as thou camest, has sent me, that thou mightest receive thy sight and be filled with the Holy Ghost. And immediately there fell from his eyes as it had been scales: and he received sight forthwith, and arose, and was baptized."<sup>3</sup>

The above passages from the Acts describe what is undoubtedly the best known instance of acute loss of vision in history. Biblical scholars have pondered this event and its religious implications, while those with a more medical inclination have attempted to understand this episode by offering various pathophysiological mechanisms to explain St. Paul's blindness. Numerous authors have attributed these events to conditions as diverse as epilepsy,<sup>4</sup> malaria,<sup>5</sup> migraine,<sup>6</sup> arthritis, subarachnoid hemorrhage,<sup>7</sup> catatonic convulsion, hallucination, and ocular conversion reaction. Most recently, Manchester and Manchester,<sup>8</sup> in an excellent review of the subject, excluded the following other diagnoses, based on information given in the Bible: optic neuritis, pituitary apoplexy, homonymous hemianopsia, supraclinoid aneurysm, and occlusion of the remaining carotid artery. In addition, these authors present evidence that St. Paul had persistent decreased vision following his recovery from total blindness.

Manchester and Manchester<sup>8</sup> suggested irradiation injury to the eyes as the most likely diagnostic possibility. Their theory, however, does not fully explain many aspects of the event as given in the Acts.

The facts, as given in the Bible, seem to contain five basic elements: (1) seeing a bright light, (2) falling down, (3) awakening blind, (4) being blind and abstaining from food or drink for three days, and (5) return of vision after three days. A review of the available evidence suggests that there are six additional unreported possible etiologies: (1) vertebral-basilar artery occlusion, (2) occipital contusion, (3) vitreous hemorrhage secondary to a retinal tear, (4) lightning-stroke injury, (5) digitalis poisoning, and (6) thermal corneal burns.

1. *Vertebral-Basilar Artery Occlusion* — A prodrome of vertebral-basilar artery occlusion frequently is intermittent vertebral-basilar artery insufficiency in which “drop attacks” and visual symptoms are common manifestations. The initial visual symptoms can be “flickering, flashing stars”<sup>9</sup> or the “streaming effect resembling snowflakes rushing through the headlight beams of a moving automobile”.<sup>10</sup> During the so-called “drop attacks” the patient suddenly falls to the ground without warning. The patient has no vertigo, or unsteadiness and is not unconscious and can usually arise immediately. Difficulty in swallowing is a frequent symptom. If occlusion then occurs (as with a “saddle embolus” at the bifurcation of the basilar artery into the left and right posterior cerebral arteries), loss of vision can be complete. Partial recovery can then occur. Gloning et al.<sup>11</sup> reported 16 cases of occipital blindness of vascular origin. The onset was rapid and was associated with unconsciousness in only one case. The cortical blindness lasted a few days (11 days maximum) before a step-wise return of vision began. The embolus may have arisen from an atrial thrombus which broke off during spontaneous “conversion” from atrial fibrillation to normal sinus rhythm. This theory would thus account for the flash of light which St. Paul saw, his falling to the ground, the sudden, complete loss of vision, his getting up and abstaining from food or drink for three days, and the recovery of vision after three days.

2. *Occipital Contusion* — An impact to the back of the head can cause sudden partial or complete blindness.<sup>12</sup> The accident may occur from a fall. The patient may lose consciousness but can recover quickly. The blindness is not permanent or total, yet central vision can be permanently affected.<sup>13</sup> Patients with head injury frequently have nausea and vomiting for several days following an accident. If one assumes that a light from heaven caused St. Paul’s horse to startle and St. Paul fell from his horse and struck the back of his head, as depicted in the paintings of Caravaggio and Parmigianino (Figure 1, 2), then this theory could account for the flash of light, the sudden complete loss of vision, the abstinence from food or drink, and the partial recovery of vision after several days.

3. *Vitreous Hemorrhage Secondary to a Retinal Tear* — Flashes of light are a common symptom of patients with vitreous traction which, if persistent, can cause a retinal tear. A retinal tear is the most common cause of a vitreous hemorrhage. If St. Paul had been blind in one eye from a previous retinal detachment and then developed a vitreous hemorrhage in his remaining eye, loss of vision would occur. Hemorrhages frequently settle to the inferior vitreous cavity with bedrest, and spontaneous healing of retinal tears without further detachment can occur. This would explain the flash of light, becoming blind, perhaps stumbling and falling to the ground, being without sight for several days and then having a partial return of vision.



4. *Lightning-Stroke Injury* — Cataracts, frequently unassociated with other observable external bodily changes, can be the result of electrical injury by lightning-stroke.<sup>14</sup> Two types of lightning cataracts are recognized: The first, in which the cataract is noticed very shortly after the injury, which is regarded as due to a concussion effect, with minute tears of the lens capsule, and corresponding to the ordinary traumatic cataract; the other, in which the cataract does not develop for a period varying from 1 to 24 months, is characteristic of injury by high tension currents as well as lightning. The latter may be associated with iridocyclitis, retinal hemorrhage and detachment, and various ocular paralyses. Electric shock may also cause changes in other structures of the eye without lenticular changes. Cataracts can be produced experimentally within 15 minutes following exposure of a lens to sparks from a Leyden jar.<sup>15</sup> As a general rule, opacification follows injury from a lightning-stroke more rapidly than after contact with a high tension conductor;<sup>16</sup> the cataracts are usually bilateral, and have been noted as early as one day. Other mechanisms of lightning-stroke injury include ocular inflammation, periorbital swelling with inability to open the eyes, retinal edema and hemorrhage, and optic atrophy.<sup>15</sup> In addition, the current from a lightning injury may produce muscular contractions violent enough to throw the victim to the ground.<sup>17</sup> Unconsciousness, coma with restlessness, or disoriented behavior and retrograde amnesia are fairly constant findings in the initial phase of lightning injury. It would not be unreasonable to hypothesize that following a lightning injury, St. Paul would not have been able to eat or drink for several days. This theory would explain St. Paul seeing a light from heaven, falling down, awakening blind, not eating or drinking, and then being without sight. Return of vision can be explained if one hypothesizes that Ananias couched one of the cataracts giving St. Paul much improved but uncorrected aphakic vision. If St. Paul had been highly myopic initially, his vision post-couching might have been improved almost to normal. This theory is further "substantiated" by Jacopo Palma the Younger who depicted the light as lightning touching St. Paul (Figure 3).

5. *Digitalis Poisoning* — Digitalis is a cardiac glycoside derived from dried toad skins and a large number of plants which has potent effects on active cellular transport mechanisms in a variety of tissues. Digitalis and related compounds have been used since antiquity (it is mentioned in the Ebers Papyrus — ca 1500 BC) as both a medication and a poison. It is most frequently used today as a cardiac stimulant in the treatment of congestive heart failure.<sup>18</sup> Excessive use of digitalis can cause scintillating scotomas,<sup>19</sup> seeing snowflakes, bright spots,<sup>20</sup> or flickering lights,<sup>21</sup> loss of consciousness, nausea and vomiting, and decreased vision.<sup>22</sup> The symptoms usually disappear within five days after the drug is stopped. If St. Paul had somehow ingested a plant extract containing digitalis, this would explain the flash of light, falling down, awakening blind, abstaining from food or drink, and the recovery of vision.

6. *Thermal Corneal Burn* — Thermal injury to the cornea produces a coagulative necrosis of the corneal epithelium. The epithelium becomes opacified with decreased light transmission and transient blindness, if bilateral. Assuming that Paul was involved in a fire, this would account for the flash of light, possibly falling down, awakening blind, and being three days without sight. A return of vision could occur either with spontaneous sloughing of the corneal epithelium or by debridement of the corneal epithelium by Ananias. Figure 4 (a, b) depicts the right and left eyes of a patient involved in a fire. The epithelium is opaque in the area of exposed cornea and the visual acuity was hand motions bilaterally. A cotton-tipped applicator was then used to debride the epithelium from each eye (Figure 4 c, d). The vision immediately improved to 20/30 bilaterally.

Six theories are presented to explain the Biblical account of the blindness of St. Paul. Each theory has been analyzed in terms of the Biblical information, artistic representations of the event, and modern ophthalmological concepts. The theories include: (1) Vertebral-Basilar Artery Occlusion, (2) Occipital Contusion, (3) Vitreous Hemorrhage Secondary to a Retinal Tear, (4) Lightning-Stroke Injury, (5) Digitalis Poisoning, and (6) Thermal Corneal Burn.

Apparently the 17th century Dutch artist, Rembrandt, did not agree with any of the above theories and felt that St. Paul's blindness was due to temporal arteritis, as he seems to have painted St. Paul with swollen, cord-like, prominent temporal arteries (Figure 5).

### Summary

The Book of Acts in the Bible relates the story of St. Paul's sudden blindness and subsequent recovery of vision. St. Paul was journeying along when he saw a bright light; he fell down and awoke blind. He remained blind for three days, at which time his vision returned from a laying on of "hands". Numerous theories have been proposed to account for this event. A review of the available evidence suggests that there are six additional previously unreported possible etiologies, which are enumerated in detail.

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**BULLOCK, J.D. — La cécité de Saint Paul****Resumé**

La bible rapporte l'histoire de la cécité soudaine de St. Paul et sa récupération visuelle ultérieure. St. Paul voyageait lorsqu'il vit une lumière intense. Il tomba et se réveilla aveugle. Il resta aveugle pendant 3 jours. A ce moment la vision revint après une imposition de mains. De nombreuses théories ont été émises pour expliquer cet événement. Une revue des faits suggère qu'il y a six étiologies additionnelles, qui sont décrites en détail.

**BULLOCK, J.D. — Die Blindheit des Heiligen Paulus****Zusammenfassung**

Die Bibel berichtet die Geschichte von der plötzlichen Erblindung des Heiligen Paulus und der späteren Wiedererlangung seines Augenlichts. Der Heilige Paulus sah auf einer Reise ein sehr starkes Licht. Er fiel hin und erwachte blind. Er blieb drei Tage lang blind. Dann kam das Sehvermögen wieder im Moment des Händeauflegens. Die verschiedensten Theorien sind aufgestellt worden, um dieses Ereignis zu erklären. Eine Darstellung der Tatsachen legt nahe, daß es sechs zusätzliche Lehren von Ursachen gibt, die im einzelnen beschrieben werden.

**BULLOCK, J.D. — La ceguera de San Pablo****Resumen**

La biblia narra la historia de la repentina ceguera de San Pablo y como recuperó luego la visión. San Pablo viajaba cuando vió una luz intensa. Cae y se despierta ciego. Permanece ciego durante 3 días. Es entonces que la visión recomienza luego de una puesta de manos. Numerosas son las teorías dadas para explicar este fenómeno. Una revista de hechos sugiere que hay seis etiologías adicionales que están descritas en detalle.

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