Ancient Egyptian Ophthalmology: Eye Diseases and Eye Specialists

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Abstract

In ancient Egypt, the title "ir.tj" was associated with oculists, who were specialized doctors focusing on the treatment of eye conditions. The presence of this title alongside the principal title "swnw" indicates the specific expertise of these doctors in ophthalmology. They were highly respected members of society and were often consulted by the pharaoh and other members of the royal court. Ancient Ophthalmologists recognized the importance of eye health and developed specialized treatments for eye ailments. They employed a range of remedies, including herbal preparations, ointments, poultices, and eye drops. These treatments often utilized medicinal plants and substances with known healing properties. Oculists in ancient Egypt continued to play a significant role in society for centuries, making notable contributions to the development of medicine. The monuments and artifacts associated with oculists provide valuable insights into the practice of medicine during ancient times and offer glimpses into the lives of the individuals who dedicated themselves to this field.

Keywords: Medicine; eye diseases; Ophthalmology; Oculists.
**Aim of the research:** The aim of this research is to highlight the significance of ophthalmology in ancient Egyptian civilization by exploring the practice of ophthalmology and the role of ophthalmologists. The research aims to shed light on the available information about eye diseases prevalent during that time and the knowledge and expertise of ancient Egyptian ophthalmologists in diagnosing and treating these conditions.

**Methods:** To gather information on ophthalmologists and eye diseases in ancient Egypt, a comprehensive review of available academic sources, including books and scholarly articles, was conducted. Primary sources such as ancient Egyptian medical texts, such as the Ebers Papyrus and the Edwin Smith Papyrus, were examined to understand the diagnostic techniques and treatments employed by ophthalmologists. Secondary sources provided additional insights and interpretations from modern researchers.

**Introduction**

Ancient Egypt, known for its remarkable civilization, made significant advancements in various fields, including medicine. Among the sciences practiced by the ancient Egyptians, medicine held a prominent position. The physicians of ancient Egypt were highly esteemed, renowned for their exceptional knowledge, skills, and experience. The medical papyri of ancient Egypt provide valuable insights into the ways in which medicine was practiced during that time, including the diagnosis of diseases and the remedies used for treatment.

The specialization of physicians in ancient Egypt was a notable aspect of their medical system. Herodotus, the Greek historian, observed that the medical profession in Egypt was highly specialized, with each physician focusing on a specific disorder. Physicians were categorized based on their expertise, treating diseases of the eyes, head, teeth, stomach, internal organs, and more. This specialization allowed for a deeper understanding of various medical conditions and enabled physicians to provide specialized care tailored to specific ailments. (Watermann, 1958, p. 125; Pollock, 1945, p.252; Krause, 1933, p. 258; Hirschberg, 1899, p.9-10)

The regulations governing the practice of medicine in ancient Egypt reflect the importance placed on patient care and the adherence to established practices. According to the legend, God *dhwty* bestowed the Egyptians with a code of laws, recorded in eight books of wisdom. The vizier, was responsible for ensuring the execution of these laws. Deviation from the prescribed methods of treatment recorded in the canonical books could result in severe consequences, including death. However, there was also flexibility allowed, as Aristotle noted that if no improvement was observed after four days of treatment, physicians were permitted to modify their approach, assuming responsibility for the outcome. These regulations aimed to safeguard the well-being of patients and maintain the integrity of medical practice (Krause, 1933, p. 274)

The specialization, respect, and regulations surrounding ancient Egyptian medicine signify the significance placed on healthcare in their society. The advanced medical knowledge and specialization allowed for more effective diagnosis and treatment, addressing various ailments in a systematic manner. The existence of laws governing medical practice indicates a commitment to ensuring patient safety and maintaining standards of care.

In this research, we will delve deeper into the field of ophthalmology in ancient Egypt, exploring the advancements made, the diseases encountered, and the contributions of ophthalmologists, who were known as *swnw-irty*. By examining the available sources, such as medical papyri and historical accounts, we will gain valuable insights into the practice of ophthalmology in ancient Egypt and its significance within their advanced medical system.
Medical-ophthalmological Papyri

The ophthalmological papyri offer detailed insights into the ancient Egyptian understanding of eye diseases, their classifications, and treatment methods. They demonstrate the advanced medical knowledge and skills possessed by ancient Egyptian ophthalmologists. The texts often prescribe remedies involving herbs, minerals, and other natural substances, as well as surgical interventions for certain conditions. Studying these papyri provides valuable information about the practice of ophthalmology and the ancient Egyptian approach to eye health and disease management.

Ebers Papyrus\(^1\): is one of the most well-known medical texts from ancient Egypt, it contains a significant section dedicated to ophthalmology, covering various eye diseases, their symptoms, and treatments. The papyrus describes the use of herbal remedies, salves, and ointments for treating eye ailments. It is documented that eight or nine pages of Ebers papyrus devoted to the eye conditions with around nineteen disease and their prescriptions (Pollock, 1945, p.255; Krause, 1933, p. 264; Bryan & Smith, 1931, p. 94; Hirschberg, 1899, p. 9).

Edwin Smith Papyrus\(^2\): Although primarily focused on general surgical procedures, the Edwin Smith Papyrus, also contains references to eye diseases and their treatments. It provides insights into the diagnosis and management of eye injuries, including the examination of eye movements and the use of bandages and compresses.

Hearst Papyrus\(^3\): The Hearst Papyrus, dating to the early Ptolemaic period, includes a section on ophthalmology that covers various eye diseases, their symptoms, and treatments. It describes treatments such as the use of eye drops, medications, and bandages for conditions like conjunctivitis and corneal ulcers (Pollock, 1945, p.256; Krause, 1933, p. 264).

London Medical Papyrus\(^4\): The London Medical Papyrus, dating to the New Kingdom period, contains sections related to general medicine and ophthalmology. It provides information on eye diseases, their symptoms, and treatments. The papyrus mentions the use of various substances, including honey, to treat eye infections (Pollock, 1945, p.256; Krause, 1933, p. 264).

Berlin Papyrus: The Berlin Papyrus is a smaller fragment dating to the New Kingdom period. It contains references to eye diseases and their treatments. The papyrus includes descriptions of procedures for removing foreign bodies from the eye and treating other eye ailments. Finally, Kahun papyrus\(^5\) mentions the treatment of a few diseases of the bull eyes (Pollock, 1945, p.256; Krause, 1933, p. 264).

Eye diseases and their remedies according to Ebers papyrus

Ancient Egyptian ophthalmologists encountered a wide range of eye diseases and conditions. The medical texts of that time provide valuable insights into the various ailments they encountered and their methods of diagnosis and treatment. Ophthalmological cures were also carried out in sanctuaries and temples, through prayers, incantations, astrology for prognosis, amulets and pharmacotherapy with eye drops and ointments (Güemes, Luciana & Cusumano, 2022, p.20).

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\(^1\) This Papyrus has 110 pages and dates to the reign of Amenhotep I., it contains 877 medical treatises covering physical, mental, and spiritual diseases. The Ebers Papyrus has references to eye diseases, gastrointestinal, head, skin, and specific still unidentified diseases, now in the university of Leipzig (Veiga, 2009, p.13; Krause, 1933, p.264).

\(^2\) The papyrus belongs to the New York Academy of Medicine and was exhibited in the Metropolitan Museum of Art, dated to the New Kingdom and found in a Theban tomb (Veiga, 2009, p.13; Krause, 1933, p. 264).

\(^3\) It was discovered at Deir el-Ballas in Upper Egypt, south of Dendera, in 1899, dated from the New Kingdom, now in the university of California (Veiga, 2009, p.14; Krause, 1933, p. 264).

\(^4\) Dated from the 19th Dynasty, housed at the British Museum BM 10059 (Veiga, 2009, p.14).

\(^5\) The so-called gynecological Papyrus (Kahun) is today at the University College de London in a bad state of preservation, dated to the 12th Dynasty, reign of Amenemhat III. (Veiga, 2009, p.12).
The oldest, important and famous medical reference for eye diseases is **Ebers papyrus**, which was written by the priests and discovered by the German Egyptologist Georg Ebers. It provides insights into the understanding of eye ailments and the methods used by ancient Egyptian physicians to diagnose and treat them by using natural substances; some parts from animals and birds, vegetable and minerals. There are also descriptions of the preparation of solid eye drops and various eye pathologies, such as trachoma, blepharitis, iritis, ectropion, cataracts, chalazion, nyctalopia and the pterygium. (Acosta Güemes, Luciana & Cusumano, Ana., 2022, p.21; Wheeler, 1946, p. 265)

In the following table some common eye diseases recognized by ancient ophthalmologists will be listed with their medical treatments as mentioned in Ebers papyrus.

<table>
<thead>
<tr>
<th>The diseases</th>
<th>definition</th>
<th>The treatment</th>
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<tbody>
<tr>
<td><img src="image1.png" alt="Image" /> or <img src="image2.png" alt="Image" /></td>
<td>concern both glaucoma and cataract. They were unable to distinguish between these groups of diseases (Andersen, 1997, p. 340). The cataracts, a clouding of the lens of the eye, were prevalent in ancient Egypt.</td>
<td>According to Ebers, the Egyptians tried to treat cases of <img src="image3.png" alt="Image" /> by eye ointments and magic spells. It is hardly believable that such remedies had an effect, ophthalmologists attempted to alleviate this condition through surgical procedures, including couching, where the lens was pushed aside to improve vision. (Acosta, Luciana &amp; Cusumano, Ana., 2022, p. 19; Ascaso &amp; Huerva, 2013, p.75). They use goose grease and honey, lapis lazuli, milk, incense, but how intractable this disease must have proved (Bryan, 1930, p.99). A wall painting in the tomb of the master builder <img src="image4.png" alt="Image" /> at Thebes (Fig 1) shows an oculist treating the eye of a craftsman. Because of the length of the instrument, the scene might be considered as cataract surgery by couching of the lens into the vitreous cavity. (Acosta, Luciana &amp; Cusumano, Ana., 2022, p.20; Ascaso &amp; Huerva, 2013, p.75; Ascaso, Cristo´bal, 2009, p. 607)</td>
</tr>
<tr>
<td><img src="image5.png" alt="Image" /> or <img src="image6.png" alt="Image" /></td>
<td>Severe ophthalmia concerning hemorrhages and an overflow of blood in the blood vessels, as well as excessive lacrimation and inflammations in the eyes. (Andersen, 1997, p.340; Hirschberg, 1899, p.12)</td>
<td>The remedy for eliminating blood from the eyes: Ebers 348: ochre, malachite, galena, petrified wood, carob fruit, water, to be finely ground and placed on the eyes. Ebers 352: Frankincense, celery to be placed in the eye. Ebers 384: Two bowls made from marl clay, the one with flour from <img src="image7.png" alt="Image" /> (WB II, p.42) grain and milk from a woman who has borne a son, are to be left overnight for condensation to form. After this (treatment) wash the eyes with this milk four times a day.</td>
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6 The oldest documented case of cataract throughout history was reported in the priest reader Ka- pupper (Sheikh el-Beled), dated to the 5th dynasty in the Egyptian Museum (Ascaso, Cristo´bal, 2001, p. 1714; Ascaso, and Huerva, 1994, pp.75-76)
<table>
<thead>
<tr>
<th><strong>Bdj</strong></th>
<th>Blindness</th>
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<tbody>
<tr>
<td><img src="image1.png" alt="Image" /> (WB I, p.445)</td>
<td>Blindedness was depicted in Egyptian paintings and on monuments. It is well-known that blind musicians were admitted to the harems of kings and nobles, such as the tomb of Nacht (TT52) in Sheikh Abd el-Qurna (Fig. 2a), and the relief from the funerary chapel of <img src="image2.png" alt="Image" /> piltn m hb, in Saqqara which dated to the 18th dynasty (Fig. 2b). The singing, blind harpist, his eye is admirable, a crack of light between two swollen eyelids, it testifies to his blindness. (Nunn, 1996, p.198, fig.9.3) Only blindness and ‘symbolic blindness’, especially in musicians, are occasionally depicted in tombs. Sometimes, male musicians were shown with a white band tied over their eyes (Fig. 2c) The treatment as in Ebers 368: Black eye galena paint “placed in water 4 days”, fat of goose or duck “ put in water for more 4 days”, then wash the galena with the milk from one who has borne a male child, ‘ntjw resin (WB I, p. 206), then put on both eyes. (Nunn, 1996, p.199)</td>
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<tr>
<th><strong>Hštj</strong></th>
<th>Cloudiness, concealment, blepharitis, blurred vision</th>
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<tr>
<td><img src="image3.png" alt="Image" /> (WB III, 35)</td>
<td>Ebers 339: Black eye galena paint “placed in water 4 days”, fat of goose or duck “ put in water for more 4 days”, then wash the galena with the milk from one who has borne a male child, ‘ntjw resin (WB I, p.206), then put on both eyes. (Nunn, 1996, p.199) Šs3.t plant (WB IV, 545), carob fruit, Lower Egyptian gj.t plants (WBV, 157), malachite, kiy.t (WB V, 102) from a gazelle, the inner part of a kâl.yt beetle (WB V, p.15), white oil. To be placed in water; and left overnight for condensation to form; then squeezed out. The afflicted area is to be bound with this. (Nunn, 1996, p.200) Ebers 340: gsfndrug (WB V, p.206), wsf(WB I, p.357) of the pond drug, tips/shoots of mh3.y.t papyrus. After this prepare for the patient 1 dose of bone marrow and wax to be placed on the eye’s back</td>
</tr>
<tr>
<td><strong>shd.w</strong></td>
<td>Albugines, probably means corneal scars or leukemia (Andersen, 1997, p. 340). Others translated it as white spots but it is not clear whether these are corneal opacities or pterygia (Nunn, 1996, p. 202)</td>
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<tr>
<td>(WB IV, 227)</td>
<td>Ebers 347: Tortoise gall and honey to be placed on the back of the eyes. Ebers 382: Granite to be finely ground, sieved through a cloth, and sprinkled on the eye. Ebers 402: Galena and petrified wood, to be finely ground and put in the eyes. Ebers 403: ḏrw ochre (WB V, p. 386), galena and water, to be finely ground and placed in the eyes. Ebers 404: African Blackwood, galena, water, to be treated in the same manner. Ebers 405: Gall from an ḫbdw fish (WB I, p. 8) and galena, to be treated in the same manner. Ebers 406: ṣmj milk fat, milk, to be treated in the same manner. (Nunn, 1996, p. 202)</td>
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<tr>
<th><strong>wh3.t</strong></th>
<th>Trachoma, an infectious eye disease caused by the bacterium Chlamydia. It is a chronic inflammation of the eye and eyelids. Trachomatis, was known in ancient Egypt Trichiasis and blindness were often the final result (Andersen, 1997, p. 340; Nunn, 1996, p. 201)</th>
</tr>
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<tr>
<td>(WB I, 347)</td>
<td>Ophthalmologists employed various treatments, including the application of medicinal ointments and massages, to manage the symptoms and reduce its spread. As in Ebers 346: dose of black eye paint &quot;galena&quot;, red ochre, ochre, and red natron applied to outside of both eyes. Ebers 347: dose of Tortoise gall, honey to be placed on the &quot;back&quot; of the eyes. (Nunn, 1996, p. 199)</td>
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<tr>
<th><strong>h3rw</strong></th>
<th>weakness of sight or squint (Andersen, 1997, p. 341)</th>
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<tr>
<td>(hlarhnr)</td>
<td>Lotion prepared by warming chips of a new ḥnw pot in fresh milk was recommended. Another lotion could be prepared by combining cream with the milk of a woman who has borne a son. A few salves are also given in this case. In one the Collyrium is combined with Honey; in another with Honey and Sap from fresh onions; in another with the Marrow of an ox; in another with Goose-grease and Water; in another with Incense and Real Lapis lazuli; in another with Antimony, Copper-vitriol, Writing-fluid, and Onions; and in still another with Writing-fluid, Myrrh, Opal-resin, Arabian wood powder and salt from Upper Egypt (Bryan, 1930, p. 95)</td>
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(WB III, p. 115)
<table>
<thead>
<tr>
<th>Condition</th>
<th>Recipe</th>
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</table>
| Eye inflammation   | Ebers 367: black eye paint “galena”, red ochre, snn resin (WB IV, p.166), htm mineral (WB III,196), tr.w mineral, 'ntjw fresh resin, Upper Egyptian sjβ mineral (WB IV, p.31) ground and made into a homogenous mass and then put in the eyes, so that they will immediately be healthy. (Nunn, 1996, p.199)  
Ebers 391: galena, petrified wood, snn resin, htm mineral, tr.w mineral, dried myrrh, fruit/seeds of a tntj plant (WB V, p. 313) |
| Ectropion          | Ebers 421: green eye paint “malachite”, šntr resin (WB IV, p. 180), red ochre ground and applied to both eyes (Nunn, 1996, p.199) |
| Night blindness    | Ebers 351: roasted ox liver which is rich source with vitamin A, pressed and applied thereon (Nunn, 1996, p.199-200) |
| Redness, eye inflammation | Ebers 408: carob fruit, Nile acacia leaves, malachite, milk from a woman who has borne a son, to be made into a homogenous mass, placed on the “back” of the eye.  
Ebers 409: galena, vulture eggshell to be finely ground, placed on the “back” of the eye.  
Ebers 410: galena, honey, ochre, red ochre, snn resin.  
Ebers 411: red ochre, ochre, galena, snn resin, honey  
Ebers 412: black flint, frankincense, faience, honey, to be placed on the corners of the eyes.  
Ebers 413: red ochre, ochre, honey, galena, snn resin |
| Corneal ulcers, open sores on the cornea “front part of the eye”, were recognized and treated in ancient Egypt. | Ophthalmologists employed a combination of medicinal herbs, ointments, and bandages to facilitate healing and prevent complications.  
As in Ebers 416: green eye paint “malachite” , tr.w mineral (WB V, p. 386), black eye paint “galena”, natron, ochre, ground in water and applied to outside both eyes (Nunn, 1996, p.199)  
Ebers 417: red ochre, fat of goose, the “backs” of the eyes are to be anointed with this. |
<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>kkw</strong> (WB V, 142)</td>
<td>Darkness, dim, weakened vision (Andersen, 1997, p. 341)</td>
<td>Ebers 415: dose of Petrified wood, malachite, carob flour, Nile acacia leaves, small $hp^{i}$ balls (WB III, 366) from the African blackwood, juice from a $kb.w$ plant (WB V, 25). To be made into a homogenous mass and made into an $jwšš$, mash (WB I, 58); then dried; and pounded into water. To be placed on the “back” of the eyes.</td>
</tr>
<tr>
<td><strong>t3.w</strong> (WB V, 229)</td>
<td>Heat, inflammation or irritation</td>
<td>Ebers 361: Phoenician juniper berries from Byblos Ebers 362: remedies include black eye paint, Marrow from the lower jaw of a donkey to be pounded in cold water. (Nunn, 1996, p. 202) Ebers 366: Upper Egyptian $sj^{j}$ drug to be placed in water from a $p3.w$ watercourse (WB I, p. 497) and put in the eye.</td>
</tr>
<tr>
<td><strong>thn</strong> (WB V, 327)</td>
<td>Injury in the eye</td>
<td>Ebers 349: dried feces from belly of infant, honey, vegetable mucilage applied to outside of both eyes. (Nunn, 1996, p. 199, 201) Ebers 381: cooked $s3s3$ (WB IV, p. 413), carob fruit, honey, finely ground, sieved through a cloth and bandaged on both eyes (Nunn, 1996, p. 199-201) Ebers 337: another remedies for thn; day one: marsh water Day two: honey, black eye paint “galena” If it bleeds, honey, black eye paint, bandaged with it for two days (Nunn, 1996, p. 201) However, if much liquid is discharged the remedy will be: $j/w$ drug, malachite, frankincense, head of a $hdn$ tubular plant.</td>
</tr>
<tr>
<td><strong>dfid.t</strong> (WB V, 573; Andersen, 1997, p. 340)</td>
<td>Contraction of the pupil or iris; perhaps a symptom of iridocyclitis. Also this word would appear to mean excessive lachrymation which can arise from many causes, including blocked tear ducts.</td>
<td>Ebers 345: One dose of Small $hp^{i}$ balls from the African blackwood, Upper Egyptian $sj^{j}$ drug. To be pounded in water and placed on the eyes very often. Ebers 378: another remedy, for eliminating an “increase” of water in both eyes and drive out the raising up of the water in the eyes the remedy included real powdered lapis lazuli, malachite, $snn$ mineral, milk, galena, faience, $mnww$ part the $šb.t$ melon, to be made into a homogenous mass. (And) put on the “back” of the eyes (Nunn, 1996, p. 201)</td>
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### Table 1: Ancient Egyptian Treatments for Eye Conditions

<table>
<thead>
<tr>
<th>Condition</th>
<th>Treatment</th>
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<tbody>
<tr>
<td>Blindness</td>
<td>Ebers 356 a: The water of the pig’s eye, true galena, red ochre, to be finely ground and made into a homogenous mass, poured into the ear, which is linked to the eye. Ebers 356 b: then you say as a spell: “I have brought this (and) placed (it) on the area of this (or: I have brought this which has been put in place of that). The severe afflictions are supplanted!” Ebers 357: dried myrrh, to be ground and placed on the back of the eyes. Ebers 358: carob fruit, to be pounded into honey and placed on the back of the eyes. Ebers 420: carob fruit, to be finely ground; then sieved through a cloth, combined with honey. And put in the eyes. (Nunn, 1996, p. 200)</td>
</tr>
</tbody>
</table>

**The comment:**

- Ancient Ophthalmologists recognized the importance of eye health and developed specialized treatments for eye ailments. They employed a range of remedies, including herbal preparations, ointments, poultices, and eye drops. These treatments often utilized medicinal plants and substances with known healing properties.
- It can be noticed from the previous table that most of the treatments used to cure eyes’ diseases were derived from nature and were not chemical substances. They used foodstuffs such as; milk, honey, goose grease, carob fruit, water, roasted ox liver and vulture eggshell. They also used stones and minerals such as; malachite, lapis lazuli and ochre.
- In addition to medicinal treatments, ancient Egyptian oculists were skilled in surgical interventions related to eye conditions. They performed procedures such as incisions, removal of foreign objects,
and cauterization (fig.1). Surgical tools used by ancient Egyptian doctors have been discovered in archaeological excavations, indicating their proficiency in carrying out these procedures.

**The famous oculists or Ophthalmologists in ancient Egypt**

From the previous table, it is obvious that the ancients knew a lot about the eye, its diseases and its treatment, but who take this responsibility? Who is the one who is in charge of healing the eyes? In ancient Egypt, there were individuals who specialized in treating eye ailments and were considered early practitioners of ophthalmology. These ancient Egyptian oculists played a significant role in diagnosing and treating various eye conditions. Although specific names of individual oculists are not well-documented, there is evidence of their existence and their practices.

Ophthalmological medical assistance was in charge of *ir.tj* (eye doctors), *swnw* (doctors), priests and magicians, who worked together, since they believed that the origin of diseases was the result of external agents, as well as supernatural causes. (Güemes, Luciana & Cusumano, 2022, p. 18). Ancient Egyptian doctors were indeed recognized for their proficiency in treating various medical conditions, including eye ailments. Herodotus wrote that Cyrus sent to Ahmose II, 26th dynasty to ask for the services of the best ophthalmologist in Egypt. (Nunn, 1996, p. 198).

In ancient Egypt, the title "*ir.tj*" was associated with oculists, who were specialized doctors focusing on the treatment of eye conditions. The presence of this title alongside the principal title "*swnw*" indicates the specific expertise of these doctors in ophthalmology. Here's an explanation of the titles:

1. "*swnw*": The title "*swnw*" was a general term used to designate a physician or doctor in ancient Egypt. It indicated a person's profession and expertise in the field of medicine. Those with the title "*swnw*" were knowledgeable in various medical practices and treated a wide range of ailments.

2. "*Ir.tj*": The title "*ir.tj*" specifically identified oculists, indicating their specialization in diagnosing and treating eye-related conditions. The term "*ir.tj*" is believed to mean "one who does the eyes" or "one who tends to the eyes." This title distinguished oculists from general physicians and highlighted their expertise in ophthalmology.

3. By having both the title "*swnw*" and "*ir.tj*" these ancient Egyptian oculists showcased their comprehensive medical knowledge as physicians while also highlighting their specialized focus on eye care. This dual title system allowed for a clear identification of doctors who possessed advanced skills and experience in treating eye conditions, emphasizing their specialization within the broader field of medicine (Dawood, 1998, p. 172). Some of them were *swnw ir.tj* and *swnw ir.tj* along with the documents that bear their medical titles.

It is important to note that the documentation of these titles and their associations with specific medical roles primarily dates back to the Old Kingdom of ancient Egypt. While the documentation of specific oculists is limited, there are a few notable individuals mentioned in ancient texts who held the title "*ir.tj*" alongside the title "*swnw*". Here are some examples:

I. *wefiy* or *wefey* (Ranke, 1935, p. 76; PM III-1, p. 210)

*wefy* is an eye physician from the Old Kingdom (4th and 5th dynasty). His rock cut tomb was found in Giza necropolis (LG 67). The burial chamber is small and is filled by 2 wells, which are
however full. The walls has no inscriptions but the drum of entrance doorway is inscribed with the name and titles of the deceased and his wife (PM III-1, p. 210; Lepsius, 1897, p. 89)

The inscription:

II. $\text{Ipi}$

The tomb of $\text{Ipi}$ (Grab no. 80) is found in Giza necropolis, it has small hall and entrance in the east end; in the middle of west end there is a burial chamber or offering room, in its north wall a doorway leading to another room or to another tomb. (Reisner, 1942, p. 235[3]). Only the drum of entrance doorway of the tomb (fig. 4) is inscribed and $\text{Ipi}$’s name immediately follows the medical title as an oculist $\text{Ipi r} \text{nsw.t ir.tj sw} \text{wnw pr} \text{c} \text{t}$; which mean “$\text{Ipi}$ is known to the king, oculist and physician of the Great House” (Lepsius, 1849 Bl. 82f; PM III-1, p. 213; Mariette, 1885, p. 536). Most of the walls are black because of the smoke. (Ghalionungui, 1983, p. 17; Jonckheere, 1951, p. 243)

III. $\text{w} \text{fjI}$

$\text{w} \text{fjI}$ dated also to the same period of $\text{w} \text{fjI}$. His name can be read on the fragment of the stela of $\text{Ipi}$ (Fig. 4). Unlike Quibell, which considers the doctor to be $\text{Ipi}$, it is believed that this profession should be also reserved for $\text{w} \text{fj}$ whose name written on the same line and immediately follows the title $\text{ir.tj}$ . (Jonckheere, 1951, p. 243). From the inscription which was written direct above the head of $\text{Ipi}$, $\text{w} \text{fj}$- beside an Oculist – was $\text{swnw h.t ir.tj}$; belly (stomach) specialist (Bardin, 1990, 234 [2]; Jonckheere, 1958, p. 30)

IV. $\text{Nj} \text{nh dw3w}$

$\text{Nj} \text{nh dw3w}$ was a priest of $\text{dw3w}$ and an Oculist in the 5th dynasty (Bardin, 1990, 234 [4]; Jonckheere, 1958, p. 50, 51). His name wasat first read $\text{Nj} \text{nh nhmnsw}$, then it was later rectified to $\text{Nj} \text{nh dw3w}$ which means $\text{dw3w}$ processes life, or he who belongs to the life of $\text{dw3w}$ (Ghalionungui, 1983, p. 20). His title as $\text{ir.tj}$ was inscribed on a part of an unfinished false door (fig. 5a, b), $\text{Nj} \text{nh dw3w}$ is represented with long hair, clothed in an apron, collar and adorned with arm rings. His right hand reaches for food; his left hand is on his chest. He is sitting on a platform in a deep-seated low-backed chair. The feet of the chair are modeled after those of an animal. Various vases and jars of wine are scattered about the platform. An ox’s joint, calf’s head, cakes, bread, capped by a goose on a trencher are piled high in front of him. (Krause, 1933, p. 262)

In front of a ritual table. In front of his head the inscriptions stating:

$$\text{Nj nh dw3w hmntr dw3w sw} \text{wnw ir.tj}$$

$h3 t \ h3 hnk.t \ h3 k3w \ h3 m3- hdh3 Sr \ h3 mnw.t \ h3 ss \ h3 mnlt$t

The priest of $\text{dw3w}$, the oculist, $\text{Nj nh dw3w}$

Thousands of bread bear oxen antelope goose doves alabaster clothes

(Grdseloff, 1942, p. 214; Borchardt, 1937, no. 1452, p. 13)

V. $\text{Nfrt}$

$\text{Nfrt}$ was known as an oculist from the bas relief in the chapel of $\text{qjnqjby}$, $\text{sqn qf wp m nfrt}$; the director of the distribution of food in the house of life (Ghalionungui, 1963, p. 15, 1983, p. 21; Jonckheere, 1958, p. 54; Hassan, 1936, p. 179).
The scenery presents wp m nfrt wears a long-plaited wig, false beard, necklace, wide triangular cloth and a pair of sandals. He is in a walking attitude with a long staff in his right hand, while he is pointing with his left hand to the inscriptions in front of him.

Before him, in a striking arrangement, fifteen figures are portrayed in four vertical rows. These individuals share a common posture, seated on the floor with one leg resting on the ground and the other leg slightly raised. Their right hand is closed upon their chest; conversely, their left hand is placed upon their thigh, with the palm open and facing upward.

All the figures facing towards wp m nfrt each of these accompanying figures is bestowed with individual identities and roles, as denoted by their inscribed names and titles placed in front of them. Within the first square of the second row, the name of the Oculist swnw ir.tjfrst is prominently mentioned. The title swnw "signifies his profession as an Oculist, indicating their specialized knowledge and expertise in the field of ophthalmology. (Bardinet, 1990, 234 [5]; Watermann,1958, p. 124,128; Hassan,1936, p. 190,191)

VI. Mdwnfr

Mdwnfr "beautiful utterance or beautiful wand", is the door-keeper of the god qhw3w, master of the secrets of the Great House in the middle of 5th dynasty or later (Hassan, 1941, 115;PM III-1, p. 258).

He has also medical titles such as hrpswnwir.tj n pr c3 “chief oculist of the Great House”, and swnw pr c3 physician of the Great House (Watermann,1958, 124; Hassan, 1941, 115; Grdseloff, 1942,p.214;Jonckheere, 1958, p.47)

His rock-cut tomb of is situated in Giza (fig. 7 a). The main entrance to his funerary chapel is reached by a long narrow passage; the jambs and the lintel of the doorway are made of enormous blocks of Tura limestone. No traces of inscriptions are visible on the jambs, while the lintel was found completely intact although fallen from its original place. It is finely inscribed with two horizontal rows of incised hieroglyphs (fig. 7 b,c). At the middle of the first row his medical titles hrpswnwir.tj n pr c3 nb im3jrnrtr f swnw pr c3 "chief of physicians and oculist of the Great House, the lord before his god, the physician of the Great House" (Ghalionungui, 1983, p.19; Hassan, 1941, 117)

VII: Irj

Next to the pyramids of Giza is the tomb of njnhPyPyIrj, the first documented royal oculist who lived during the 6th Dynasty. He was also a specialist in astrology and iridology. Inscriptions from his tomb describe him as “Chief of Royal Physicians, Royal Ophthalmologist, Chief of Intestinal Diseases, Magician, and Academician”.(Guemes, Luciana & Cusumano, 2022, p. 19; Krause, 1933, p.259,260)

The 6th dynasty court physician and high priest Irj has many medical titles, such as swnw pr c3 physician of the palace Shdswnw pr c3 inspector of thephysician of the palace, swnwir.tyrpr c3 “the eye physician of the great house”, swnw.t pr c3 physician of the belly palace, wrswnw pr c3 chief of the physician of the palace and nrw phw.t shepherd of the Anus (Ghalionungui, 1983, p.17;Jonckheere, 1958,p.25)

Irj’s stele was found 1926 in a grave field westwards to Khufu pyramid in an excavation of a cemetery of a 4th dynasty (fig. 8 a,b), the evidence indicates that it was removed from the original
tomb and placed over the tomb on which it was discovered. The stela is a limestone slab in a good state of preservation; it mentions various medical activities and diseases, which were common at that time. (Watermann, 1991, pp. 17-20; Junker, 1928, 53).

He issitting on lowbacked chair, which ends in the form of a lotus flower at the back. The feet of the chair are modeled after those of an animal. He is wearing a shoulder length wig, a broad collar, and a knee-length kilt. He extends his right hand towards a table covered with conventionalized row of tall half-loaves of bread, surmounted by a foreleg of beef and a trussed duck, while his left hand is clenched on his chest holding a folded cloth. At his feet, under the long-forked stand of the offering table, are a basin and ewer resting on a small rectangular stand. Above the offering table is a brief ideographic list of offerings, in which the hieroglyph signs are directed towards the deceased. His left hand holds a vase to his nose, the dish from which he eats is higher than the chair and is placed directly before him. (Fischer, 1963, p. 38-41; Krause, 1933, p. 260)

Various vases and jars of wine are scattered about the platform. An ox’s joint, calf’s head, cakes, bread, capped by a goose on a trencher are piled high in front of him. (Krause, 1933, p. 262)

In front of a ritual table, In front of his head the inscriptions stating: “Iry, doctor at the royal court”. This title is also shown on the ledger above the false door. On the jamb right to the door, he is mentioned as:

“Pr-3 swnwir.ty” eye doctor at the great house, below it the name Iry.

Other titles of him were mentioned here such as: “doctor at the court”, “leader of Serket “inspector of doctors at Pharaoh’s court”, “Pharaoh’s doctor of the belly” I, eye doctor, then “shepherd of the king’s anus”, again “Pharaoh’s doctor” and finally the name “Iry”. (Velhagen, 1983, pp. 38-39;)

In Line (4) his title as oculist is written: hryhbswnwirynfrh3t m sskrbh.w.fIti Senior Lector Priest, Keeper of the Headdress in Ornamenting his Lord. (Dawood, 1998, p. 236)

VIII: W3h dw3.w (dw3w lasts)

W3h dw3.w was the priest of dw3.w; his burial chamber was found in Giza. On a tombstone from his destroyed tomb (fig.9), a scene is representing W3h dw3.w with the title wsrswnnwir.ty pr-3 : great oculist of the palace (Ghalionungui, 1983, p. 18; Jonckheere, 1958, p. 29)

W3h dw3.w is sitting on a low-backed chair which feet of an animal. He is wearing a shoulder length wig, and a knee length kilt. He extends his right hand towards a table covered with conventionalized row of tall half-loaves of bread, while his left hand is clenched on his chest. (Krause, 1933, p. 260).

Various vases and jars of wine are scattered about the platform. An ox’s joint, calf’s head, cakes, bread, capped by a goose on a trencher are piled high in front of him. (Krause, 1933, p. 262)

Conclusion:

-Ancient Egyptian doctors categorized various eye diseases based on their symptoms and characteristics. They recognized and differentiated between conditions such as conjunctivitis, cataracts, trachoma, corneal ulcers, and infections. This classification system helped in diagnosing and treating specific eye ailments effectively.

- Ancient Egyptian physicians possessed a considerable understanding of eye anatomy. They recognized the different structures of the eye, including the cornea, iris, lens, and retina. This knowledge allowed them to diagnose specific eye disorders and understand the functions of different eye components.
- Ancient Egyptian doctors were skilled in utilizing medicinal plants and substances to treat eye conditions. They had knowledge of the healing properties of various plant extracts, herbs, animal products, and mineral which they used to create ointments, eye drops, and poultices. These herbal remedies were often applied directly to the eyes or used in conjunction with other treatments.

- Religion played a central role in ancient Egyptian life, and medicine was no exception. The ancient Egyptians believed that diseases had both natural and supernatural causes. They attributed illnesses to various factors, including evil spirits, divine punishment, or the disruption of harmony in the body. Consequently, medical practices often involved rituals, prayers, and amulets to seek divine intervention for healing.

- Although surgical interventions were not as developed as they are in modern ophthalmology, the ancient Egyptians did perform some procedures. The Edwin Smith Papyrus, describes surgical techniques for treating eye injuries and conditions like entropion (an eyelid turned inward) and trichiasis (ingrown eyelashes). These surgeries were typically performed using primitive tools such as knives and needles.

- The available information about specific oculists during the Old Kingdom period is limited. The documentation of ancient Egyptian doctors and their titles became more extensive in later periods, such as the New Kingdom and the Greco-Roman era.

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Fig.1

A wall painting in the tomb of the master builder Ipwy at Thebes showing an oculist treating the eye of a workman
(Ascaso, Cristo-bal, 2009, p. 607, fig.1)

Fig.2 a

A blind musician playing a harp, detail of a wall painting from the Tomb of Nakht (TT52).
(Andersen, 1997, p.342, Fig.7).

Fig.2 b

A singing blind harpist from the funerary chapel of p3 itn m hb
Male musicians with a band tied over their eyes (arrows) (‘symbolic blindness’). Two blocks of sandstone from Amenophis IV/Akhenaten’s sun temples in Karnak, (Andersen,1997, p.342, Fig.8).

Fig. 3

(Ascaso, and Huerva, 1994, fig. 1 b)
Ka-aper’s statue (Egyptian Museum, Cairo, Egypt). Detail of the white pupillary reflex in the left eye indicating a mature cataract

Fig. 4

Fragment with the title of an eye physician (Quibell,1908, p. 73, Pl.8 [4])
Fragment with the title of Ipj as eye physician and doctor (Quibell,1908, p. 73, Pl.8 [4])

Fig. 5
A  b

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(Borchardt, 1937, no.1452, p. 138, Bl.34)

*Nj 3nḥ gw3w* in Cairo Museum
(Grdseloff, 1942, p. 215, fig.30; Ghalionungui, 1983, p.20, fig.10)

Fig.6 a

*nfrṣṭ* beautiful is the utterance (Ghalionungui, 1983, p.21)
(Hassan, 1936, fig. 219)
Scene on the eastern wall (Hassan, 1936, pl. LXXV)

Fig. 7 a-c

Plan and façade of the mastaba of *mdwnfr*
Hassan, 1941, 116, fig. 103

(Hassan, 1941, fig. 104, p. 117)

The lintel of the doorway of the mastaba of *mdwnfr*, has offering text dedicated by nephew *snmrrj*  
(Watermann, R., 1958, Abb. 4; Hassan, 1941, Pl. 37; PM III-1, p. 258)

Fig. 8
False door inscribed for Irenakhet, good name Niankhpepy (called Iri)

A tombstone from the destroyed burial chamber of $W3h\ dq3\ win$ Giza